Title

Can Contextual Factors Help Explain Access to, Engagement in, and Effectiveness of Psychological Interventions for Marginalized Adolescents with Trauma Exposure?

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A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Psychology

by

Gia Nora Chodzen

2024

ABSTRACT OF THE DISSERTATION

Can Contextual Factors Help Explain Access to,
Engagement in, and Effectiveness of Psychological Interventions for
Marginalized Adolescents with Trauma Exposure?

by

Gia Nora Chodzen
Doctor of Philosophy in Psychology
University of California, Los Angeles 2024
Professor Lauren Christina Ng, Chair

Marginalized adolescents are disproportionately vulnerable to experiencing psychological distress due to trauma exposure but are less likely to access, engage in, and benefit from existing trauma focused evidence based interventions (EBIs). It is hypothesized that one reason for the disparities in EBI access, engagement, and effectiveness is that current trauma focused EBIs do not effectively account for the contextual conditions that contributed to the onset and maintenance of psychological problems following trauma exposure. Therefore, the goal of this dissertation was to utilize an approach informed by socio-ecological model of health to complete three studies to examine the effect of contextual factors on psychological treatment (1) access, (2) engagement, and (3) effectiveness among marginalized adolescents with trauma exposure. Study one utilized data from a large epidemiological dataset to examine the explanatory power of

neighborhood level moderators of the relationship between psychological need and likelihood of adolescents accessing psychological services. I found that neighborhood level inequality negatively impacted adolescents' ability to access care, even when accounting for psychological need and marginalized identity. Study two utilized a mixed methods approach to determine whether contextual barriers to psychological treatment impacted engagement in a small, randomized control trial for a trauma focused EBI. I found modest preliminary evidence that adolescents anticipated that contextual barriers would impact their ability to engage in care. Study three was a qualitative examination of whether content related to contextual stressors in individual therapy sessions impacted adolescent and provider perceptions of EBI effectiveness. I found that contextual stressors were related to psychological distress, difficulty with engaging in treatment, and decreased intervention acceptability. Results from the dissertation have the capacity to inform novel public health and clinical interventions to eliminate disparities and to improve existing EBIs.

The dissertation of Gia Nora Chodzen is approved.

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2024

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Ramos, G., Ponting, C., Delgadillo, D., **Chodzen, G.**, Bocanegra, E.S., Rapp, A., Escovar, E., & Chavira, D.A. (2021). Discrimination and internalizing symptoms in rural Latinx youth: The protective role of family resilience. *Journal of Clinical Child and Adolescent Psychology,* advanced online publication. doi: 10.1080/15374416.2021.1923018.

Chodzen, G., Mays, V., & Cochran, S. (2020). Depression and mood disorders among sexual and gender minorities. In E. Rothblum (Ed.), *Oxford Handbook of Sexual and Gender Minority Mental Health*. Oxford University Press.

Ponting, C., Dixon De Silva, L.E., **Chodzen, G**., Bocanegra, E. S., & Chavira, D.A. (2020). Responding to calls for racial justice in intervention science: The dialectic. *The Behavior Therapist, 43*(6), 200-205.

Hidalgo, M.A., Petras, H., Chen, D., & **Chodzen, G.** (2020). Assessing minority stress risk factors and resilience among transgender/gender-diverse adolescents. *Journal of Adolescent Health, 66*(2), S79. doi: 10.1016/j.jadohealth.2019.11.158

Hidalgo, M.A., Petras, H., Chen, D., & **Chodzen, G.** (2019). The gender minority stress and resilience measure: Psychometric validity of an adolescent extension. *Clinical Practice in Pediatric Psychology, 7*(3), 278-290. doi: 10.1037/cpp0000297

Chodzen, G., Hidalgo, M.A., Chen, D., & Garofalo, R. (2019). Minority stress factors associated with depression and anxiety among transgender and gender-nonconforming youth. *Journal of Adolescent Health, 64*(4), 467-471. doi: 10.1016/j.jadohealth.2018.07.006.

Brown, M., Klebek, L., **Chodzen, G.,** Scartozzi, S., Cummings, C., & Raskind, A. (2018). Housing status among single adults following Homelessness Prevention and Rapid Re-housing

Program participation in Indianapolis. *Evaluation and Program Planning, 69,* 92-98. doi: 10.1016/j.evalprogplan.2018.04.015.

Kolbuck, V., Chen, D., Hidalgo, M.A., **Chodzen, G.,** & Garofalo, R. (2017). Parental responses to children's gender-nonconforming behavior: A qualitative analysis. *Perspectives on Early Childhood Education and Psychology, 2*(2), 1-31.

Brown, M., **Chodzen, G**., Mihelicova, M., & Collins, K. (2017). Applying a time-patterned typology of homelessness among individuals with mental illness. *American Journal of Community Psychology, 59*, 306-315. doi: 10.1002/ajcp.12140.

Selected Presentations:

Arreola, D., **Chodzen, G**., & Ng. L.C. (2022, May). *Are there racial disparities in mental health service use following community violence exposure?* Oral presentation at the Psychology Undergraduate Research Conference at the University of California, Los Angeles.

Chodzen, G. & Ng., L.C. (2021, November). Is lack of attention to socio-environmental factors a barrier to engagement in evidence-based PTSD treatment for sexual, gender, racial and ethnic minority clients? In K. Arteaga (Chair), *Sociocultural factors in PTSD: Improving treatment outcomes and dissemination*. Symposium conducted at the Annual Convention of the Association for Behavioral and Cognitive Therapies, virtual.

Chodzen, G. (2017, April). Supporting provider self-care: Perspectives of staff in homeless services. In M. Mihelicova (Chair), *Organizational responses to trauma: Supporting service providers and recipients*. Symposium conducted at the annual meeting of the Midwestern Psychological Association, Chicago, IL.

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Can Contextual Factors Help Explain Access to, Engagement in, and Effectiveness of Psychological Interventions for Marginalized Adolescents with Trauma Exposure?

Objective: The goal of this dissertation is to use three studies to examine the effect of contextual factors on psychological treatment (1) access, (2) engagement, and (3) effectiveness among marginalized adolescents with trauma exposure.

Background

Improving the effectiveness and accessibility of psychological interventions for trauma exposed populations is a critical goal within clinical psychology. Recent estimates suggest that up to 90% of individuals within the Unites States will experience at least one traumatic event, such as: an accident, assault, natural disaster, or witnessed death, in their lifetime, oftentimes before or during adolescence (Kilpatrick et al., 2013; Smith et al., 2019). Many adolescents will go on to develop psychological problems following trauma exposure, such as post-traumatic stress disorder (PTSD), depressive disorders, anxiety disorders, substance use, or behavioral problems (Khoury et al., 2010; Kilpatrick et al., 2013; Lindert et al., 2014; Roberts et al., 2010; Roberts et al., 2011; Roberts et al., 2012; Spilsbury et al., 2007; Vibhakar et al., 2019). Therefore, a great many adolescents are in need of psychological services to ameliorate the deleterious psychological effects of trauma exposure, particularly because untreated mental health problems in adolescents confers increased risk for functional impairment throughout the lifespan (Makley & Falcone, 2010).

There are several evidence-based interventions (EBIs) that are generally efficacious in improving the mental health outcomes of adolescents exposed to trauma (Gutermann et al., 2017;

Peters et al., 2022; Stallard, 2006). However, trauma focused EBIs do not benefit every adolescent with psychological distress following trauma exposure. Marginalized adolescents (in terms of racial/ethnic identity, sexual orientation, SES status, nativity status, and/or gender identity) are disproportionately affected. They are particularly vulnerable to experiencing traumatic events and needing subsequent services (Goldberg & Meyer, 2013; Maguire-Jack et al., 2020; Mustanski et al., 2016; Roberts et al., 2010; Roberts et al., 2011; Roberts et al., 2012). And yet, marginalized adolescents are also the least likely to access, engage in, and benefit from existing trauma focused EBIs (Bridges et al., 2010; Choi et al., 2018; Interian et al., 2013; Kataoka et al., 2002).

Marginalized adolescents are less likely to access treatment for psychological problems, even if they experience significant functional impairment (Alegria et al., 2010; Costello et al., 2014; Derr, 2016; Finkelhor et al., 2021; Merikangas et al., 2011; Williams & Chapman, 2011). Several studies have identified individual (e.g. symptom severity), interpersonal (e.g. parental beliefs), and practical (e.g. insurance access) barriers to treatment initiation (Lu et al., 2021). Marginalized adolescents who do access psychological services often have problems with treatment engagement, leading to diminished effectiveness of EBIs in reducing psychological symptoms and, perhaps, premature treatment dropout (Interian et al., 2013; Najavits, 2015; Steinberg et al., 2019; Yasinski et al., 2018). As with treatment initiation, researchers have identified various barriers to treatment engagement and there are several interventions aimed at improving adolescent engagement in therapy once engagement problems emerge (Becker et al., 2021; De Haan et al., 2018; Sprang et al., 2013; Wamser-Nanney, 2020; Wamser-Nanney & Steinzor, 2016). However, trends in barriers to psychological treatment engagement often vary significantly across research studies (De Haan et al., 2018; Sprang et al., 2013; Wamser-Nanney,

2020; Wamser-Nanney & Steinzor, 2016), suggesting that our understanding regarding potential targets for intervention to improve engagement among marginalized adolescents is incomplete.

Both problems with treatment access and engagement are reasons for discrepancies in treatment effectiveness, but some adolescents who do successfully complete treatment do not see significant symptom improvement (Gutermann, Schwartzkopff, & Steil, 2017; Peters et al., 2022; Stallard, 2006). Several researchers have suggested that, perhaps, marginalized individuals sometimes do not benefit from existing EBIs due to lower treatment appropriateness regarding their specific concerns or symptom presentation (Bryant-Davis, 2019; Dixon et al., 2016; Maercker & Hecker, 2016). For example, marginalized treatment seekers may experience unique stressors associated with their identity status (e.g. discrimination), that are not appropriately targeted by existing interventions (Bryant-Davis, 2019; Carlson et al., 2018; Maercker & Hecker, 2016). Figure 1.1 depicts points wherein marginalized adolescents may experience barriers to receiving efficacious psychological treatment.

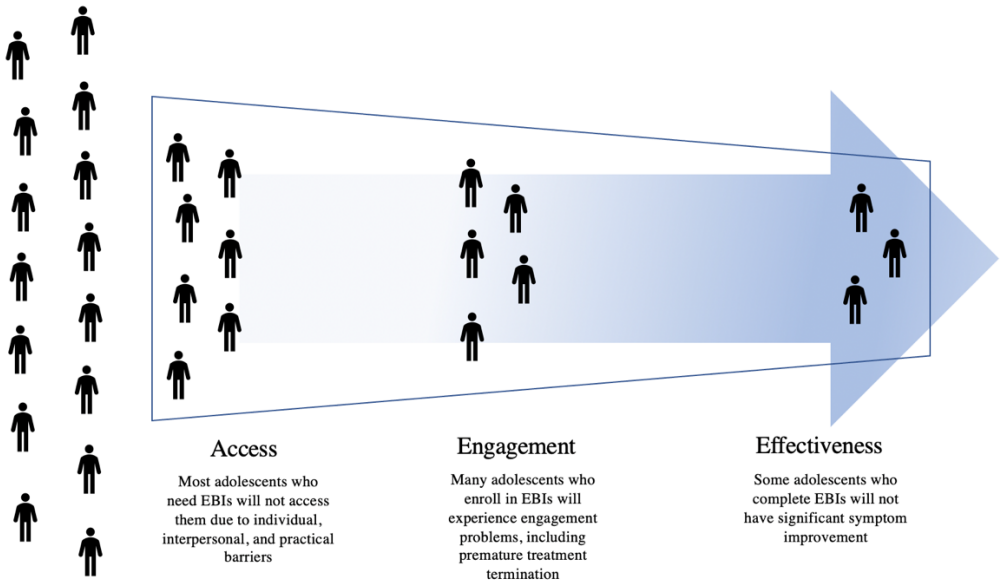


Figure 1. Barriers to efficacious psychological treatment for marginalized adolescents

Perhaps one reason for the disparities in trauma focused EBI access, engagement, and effectiveness between marginalized adolescents and more privileged adolescents is that, while current EBIs are effective in remitting symptoms of psychological disorders, they do not account for the cultural and environmental conditions that have contributed to the onset and maintenance of said symptoms (Hruska et al., 2022). Environmental influences are particularly relevant to the mental health needs of trauma exposed marginalized adolescents, as trauma exposure is contextually dependent and marginalized individuals are disproportionately exposed to environmental stressors (Bryant-Davis, 2019). For example, marginalized youths are often exposed to structural discrimination (e.g. structural racism), which can lead to more environmental stressors in their communities (e.g. less access to resources, unequal policing), therefore increasing the likelihood of trauma exposure and exacerbating psychological symptoms. Clinical scientists have worked, and continue to work, on improving EBIs to serve the mental and behavioral health needs of as many individuals as possible. In continued pursuit of this goal, clinical science must expand to consider cultural and contextual influences on mental health when developing, implementing, and evaluating EBIs.

A helpful framework for considering cultural and contextual influences on mental health is the socio-ecological model of health, first proposed by Urie Bronfenbrenner in the 1970s. Bronfenbrenner posits that the health of an adolescent is influenced by several overlapping, and mutually influential, spheres: the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (See figure 2) (Bronfenbrenner, 1992). The adolescent and their unique characteristics (e.g. race/ethnicity, age, gender, etc.) are at the center of the overlapping spheres. The microsystem is the sphere that is the closest to the adolescent. It includes the adolescent's

direct interactions with their immediate surroundings, for example: their family, peers, or school. The mesosystem is the next sphere and represents the connections between the microsystems the adolescent interacts with, for example: interactions between family members and school. Next, the exosystem includes influences on health that the adolescent does not directly interact with, such as neighborhood violence or availability of public services. These factors, however, influence the health of the adolescent through the meso and micro-systems. For example, if a high level of neighborhood violence results in an adolescent's peer becoming injured, the mental health of the adolescent is likely to be impacted. The macrosystem encompasses the larger cultural context in which the adolescent is nested, including, for example: national laws and cultural ideologies. Once again, the macrosystem influences the health of the adolescent through the exosystem, mesosystem, and microsystem. As in the example above, a cultural ideology of racism may influence the access to public services in a given community, which could then impact the quality of the adolescent's school or family relationships, which, in turn, influences the adolescent's mental health. Finally, the outermost sphere is the chronosystem, which are the changes in sociohistorical conditions within the adolescent's lifetime (Bronfenbrenner, 1977, 1986, 1992).

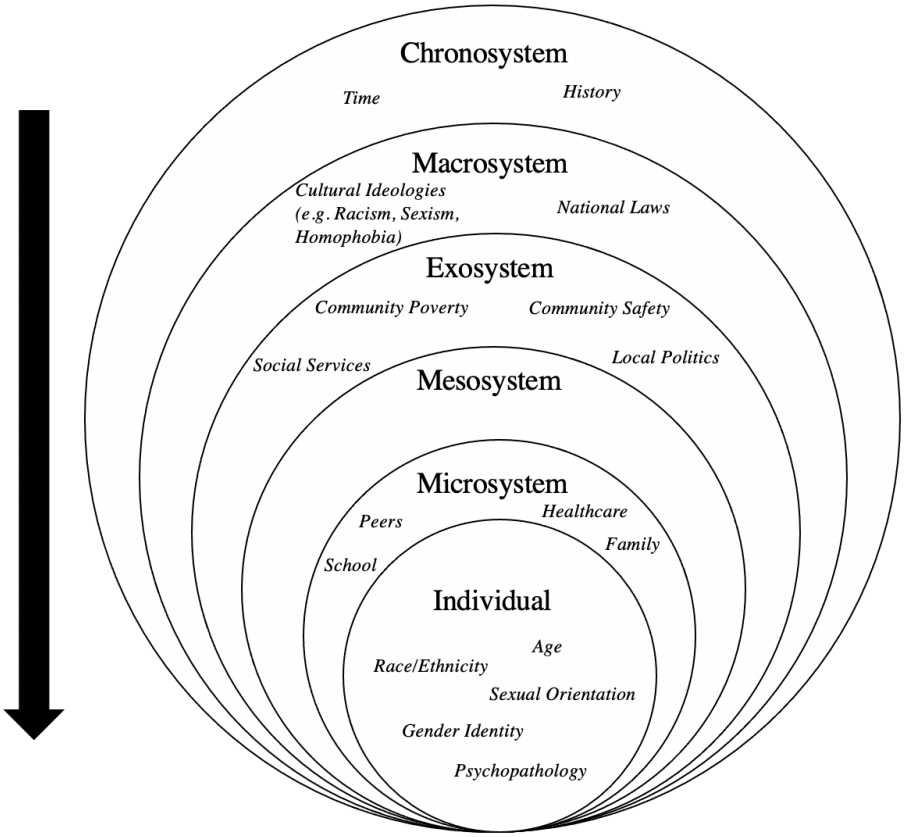


Figure 2. The Socio-Ecological Model (Adopted from Bronfenbrenner, 1992)

Traditionally, research in clinical science has focused on the microsystem and, sometimes, the mesosystem. Indeed, the majority of scholarship regarding improving access to, engagement in, and effectiveness of EBIs for trauma exposed populations has exclusively investigated the role of micro and meso-systemic mechanisms of change (Bryant-Davis, 2019; Hruska et al., 2022). Oftentimes, when clinical science researchers acknowledge the influence of the structural "outer layers" of the socio-ecological model (e.g. the exosystem or macrosystem) on trauma exposed populations, it is through describing mental health disparities based on an individual's identity status (e.g. their race/ethnicity) or individual experiences of discrimination. I posit that this approach is incomplete as it does not truly examine environmental influences on health. Rather, it indirectly illustrates how factors within the exosystem and macrosystem exert

influence on the "inner layers" of the socio-ecological model, and ultimately the individual. This is problematic as it stifles the conversation regarding potential novel targets of intervention to eliminate disparities and to improve existing EBIs.

Recently, a small but growing number of researchers have begun to expand the scope of clinical science research to examine the influence of structural factors on EBIs broadly (Hatzenbuehler & Pachankis, 2021; Price, McKetta, et al., 2021; Price, Weisz, et al., 2021). The goal of the dissertation is to apply this approach to the study of psychological interventions for marginalized adolescents with trauma exposure.

Specific Aims: To assess whether examining the influence of the outer layers, in addition to the inner layers, of the socio-environmental model will improve our understanding of potential intervention points to improve access to, engagement in, and effectiveness of psychological treatment among marginalized adolescents with trauma exposure.

Aim 1: To apply multilevel logistic regression to a large epidemiological dataset to examine the explanatory power of exosystemic moderators of the relationship between psychological need (including trauma exposure) and likelihood of adolescents accessing psychological services.

Aim 2: To utilize a mixed methods approach to assess how microsystemic, mesosystemic and exosystemic barriers to psychological treatment impact engagement in an EBI targeting trauma-related symptoms in a small, randomized control trial.

Aim 3: To utilize qualitative methods to examine whether content related to exosystemic and macrosystemic stressors within individual therapy sessions impact perceptions of intervention effectiveness among adolescents and clinicians enrolled in a feasibility trial of a brief trauma focused intervention.

Study 1: Exosystemic moderators of psychological treatment utilization

The majority of adolescents with psychological need will not access psychological services (Costello et al., 2014; Merikangas et al., 2011). Marginalized youths are particularly likely to not receive necessary services for psychological needs, even if the symptoms they experience cause significant functional impairment (Costello et al., 2014; Merikangas et al., 2011). Indeed, disparities in psychological service utilization based on identity status are well documented. For example, White adolescents are more likely to access necessary psychological services than racial and ethnic minority adolescents (Chavira et al., 2004; Nemoyer et al., 2020). An understanding of the factors associated with adolescents underutilizing mental healthcare services is crucial to developing targeted interventions to close the gap between the high rate of mental health concerns among marginalized youths and the low rates of service utilization.

A recent meta-analysis found that almost all research studies examining barriers and facilitators to psychological help seeking among adolescents have focused on individual-level variables (e.g. lack of health insurance) while just under 60% of studies acknowledged exosystemic or macrosystemic (e.g. lack of available providers) barriers and facilitators to help seeking (Radez et al., 2021). Of these studies, many reported exosystemic and macrosystemic influences on access to care indirectly through their impact on individual-level barriers, for example the burden of the cost or time necessary to receive services (Radez et al., 2021). Seldom investigated, however, are the impacts of exosystemic barriers and facilitators to psychological care utilization. Of studies examining exosystemic variables directly, many have focused solely on the availability of mental health providers in an adolescent's community as a facilitator of help seeking (Nemoyer et al., 2020; Radez et al., 2021).

The focus on individual predictors of psychological treatment utilization overlooks the influence of exosystemic factors that may indirectly influence individual help seeking behaviors through shaping the environment that the individual is nested within. This focus is reasonable, considering the methodological focus of clinical scientists to conduct research at the individual level. However, the lack of attention to exosystemic predictors of psychological help seeking drastically limits both our understanding of why disparities in help seeking exist and potential novel avenues of intervention. There has been a recent call to expand scientific inquiry to a wider range of exosystemic variables, particularly those at the community level (Cook et al., 2017; Mohnen et al., 2019). For the purposes of the proposed study, I will expand on existing research to examine two such novel characteristics: community economic deprivation and community safety.

Neighborhood-level socio-economic deprivation has been tied to increased rates of trauma exposure and subsequent mental health problems (Baglivio et al., 2017; Collins et al., 2010; Coulton et al., 2007; Forthman et al., 2021; Hruska et al., 2022; Leventhal & Brooks-Gunn, 2000). The association between community-level economic deprivation and psychological service utilization among trauma exposed adolescents remains unknown, but community deprivation has been associated with lower rates of healthcare utilization broadly (Zhang et al., 2020). The study of the impact of community economic deprivation on psychological help seeking is nascent, particularly in the United States. One Canadian study found that greater community deprivation was associated with lower levels of psychological service use (Ngamini Ngui et al., 2012), while one Swedish, one Dutch, and one Canadian study found that individuals living in communities with greater deprivation were more likely to utilize psychological medication and services (Durbin et al., 2015; Jablonska et al., 2020; Van Der Linden et al.,

2003). Although these findings suggest that community-level economic deprivation is associated with help seeking, the same relationship cannot be extrapolated to the United States due to the vast differences in economic and social policy between the United States and the above countries.

Exposure to ongoing community violence, which disproportionately impacts minority populations, likely leads to decreased sense of safety and, in turn, more severe psychological symptoms (Chen et al., 2017; Fowler et al., 2009; McDonald & Richmond, 2008; Overstreet & Braun, 2000; Tolan, 2016). However, research has found that adolescents who live in communities with high overall community violence are less likely to seek psychological services (Guterman et al., 2010; Mmari et al., 2016). It has been hypothesized that violence within a community likely results in an increased sense of fear which then leads to lower levels of service utilization, despite an individual having clinically significant psychological symptoms (Mmari et al., 2016). However, the influence of community violence exposure on psychological help seeking behaviors has largely been investigated on the individual level, as in the likelihood of an adolescent seeking psychological services following direct exposure to community violence. What is less clear, however, is how the overall level of violence, or safety, in a community may be associated with help seeking behaviors among adolescents with trauma exposure.

Variables at the individual and exosystemic levels influence access to psychological services through multiple, and likely interacting, pathways. The purpose of the proposed study is to tease apart the influence of each socio-ecological level, in service of identifying novel targets for intervention to increase psychological service utilization. I will utilize multilevel modeling with data from the first two waves of The National Survey of Adolescent to Adult Health to examine how much variance in psychological service utilization is explained by variables at the

individual (depression, victimization, race/ethnicity, gender, immigrant status, health insurance status) and exosystemic levels (availability of mental health providers in community, community deprivation, community violence). I will also expand on previous research by looking at exosystemic variables as moderators of the relationship between psychological need, as defined by depressive symptoms and victimization, and psychological service utilization – as opposed to solely looking at the main effect of exosystemic variables on help seeking. It is hypothesized that individual and exosystemic variables will be significant predictors of psychological service utilization. I also hypothesize that exosystemic variables will significantly moderate the relationship between psychological need and service utilization, such that adolescents with high need and high levels of exosystemic barriers will be less likely to utilize psychological services as compared to those with high need but low levels of exosystemic barriers.

Method

Study Design and Population

The National Longitudinal Study of Adolescent to Adult Health (Add Health) is a longitudinal survey of a nationally representative sample of adolescents (N = 20,745) who were in the 7th-12th grade in the 1994-1995 school year. The original cohort has been followed throughout their development over the course of five study waves. The most recent wave of the survey occurred in 2018-2019 and assessed the health of the sample as they entered middle age. Questions within the Add Health study have a wide range of topics, including physical health, mental health, contextual information, and information regarding interpersonal relationships. A full description of the Add Health study design can be found at the study website (http://www.cpc.unc.edu/projects/addhealth).

Data from the Add Health study are publicly available. However, access to some variables (e.g. geo-coded variables) is restricted to maintain the confidentiality of participants. Access to the restricted variables is still open to the public but interested researchers are asked to complete a standardized application process, including obtaining IRB approval and presenting a comprehensive data security plan. Several variables included in the present study were restricted and, therefore, were made available after completing the Add Health formal request process. This study was approved by the UCLA North Campus IRB (IRB #22-000044). Ultimately, the study included data from the at home surveys administered to adolescent participants at waves one (1994-1995, adolescents in grades 7 - 12) and two (1996, adolescents in grades 8 - 12) (N = 13,570) as well as supplemental geo-coded data files containing contextual data at wave one.

The dependent variable was measured at wave two while the predictor variables, moderators, and covariates were measured at wave one. The reason for utilizing an outcome at wave two and predictors, moderators, and covariates at wave one was to establish temporal precedence in the proposed analyses. The dependent variable (detailed description below) assesses a participant's mental health service use in the past year. Since the dependent variable was measured in 1996, it assessed the participant's utilization of mental health services from 1995-1996. Therefore, the independent variables included in the analyses represent the conditions in the participant's life before the time period measured by the dependent variable (e.g. in 1994-1995).

Measures

Dependent Variable

Psychological Service Use. Psychological service use in the last year was measured at the individual level with a single item at wave two: "In the past year have you received

psychological or emotional counseling?" Responses were: yes, no, refused, and don't know. Participants were included in the analysis if they responded yes (n = 1353) or no (n = 13378) and excluded is they refused to respond (n = 1) or responded that they didn't know (n = 6). Therefore, the outcome was a binary variable with receiving mental health services in the last year coded as 1 and not receiving services coded as 0.

Predictor Variables

Depression. Depression was measured at the individual level at wave one with the Center for Epidemiological Studies Depression Scale (CES-D). The CES-D is a widely used measure of depression, particularly within epidemiological survey research. The CES-D contains 20 items assessing the respondent's depressive symptoms within the last week. Responses are coded on a four-point scale indicating the frequency at which the respondent experienced each symptom (0 = never or rarely, 1 = sometimes, 2 = a lot of the time, 3 =most or all of the time). The CES-D was modified in the Add Health study such that rather than containing 20 items, the scale contained 19 items. Two items were dropped from the CES-D for the survey: "I had crying spells" and "my sleep was restless." An item was also added to the CES-D: "You felt life was not worth living". The Add Health survey team did not provide an explanation as to why the CES-D was altered for the survey. Participant's depression score was calculated by taking the sum of their responses to each item, resulting in a continuous score range of 0 – 57 with higher numbers indicating greater depressive symptoms.

Victimization. Victimization was measured at the individual level at wave one by eight items assessing the frequency at which the respondent was exposed to several types of physical violence within the last 12 months (e.g. witnessing someone shoot or stab another person). Responses were coded on a three-point scale indicating the frequency of their exposure (0 =

never, 1 = once, 2 = more than once). Originally, it was proposed that participants would receive a continuous composite victimization score based on the sum of their responses, resulting in a score range of 0 – 16 with a higher score indicating greater victimization. However, when the variable was computed it was observed that the mean number of experiences of victimization was 1, suggesting that more than half of the sample had not experienced physical violence in the last year. Given the limited spread of the data, it was ultimately determined that it would be more appropriate to treat victimization as a binary variable in service of describing whether or not the adolescent was exposed to violence in the last year. Therefore, adolescents scores were coded as "0" if they were not exposed to physical violence in the last year and as "1" if they experienced at least one instance of physical violence in the last year.

Moderators

County Deprivation. Consistent with previously established methods, I performed a principal component analysis (PCA) on five items in the wave one contextual data file from the Add Health study to create a single continuous variable representing county-level deprivation. The measure of county deprivation was constructed from items summarizing the socioeconomic condition of the county that a given participant resided in at wave one. Utilizing a PCA approach rather than single indicators of a county's level of economic deprivation will likely more accurately capture the complexity of a given area's socioeconomic status (Hruska et al., 2022; Messer et al., 2006; Stoddard et al., 2013). PCAs are often utilized in analyses of data coming from large data sets wherein data reduction is recommended due to multiple variables being correlated. Conducting a PCA is also advantageous in that it ultimately reduces the number of variables that are necessary to include in the final analysis without sacrificing the portion of variance explained by the variables by creating a principal component. Following

recommendations from previous studies, the variables submitted to the PCA covered the domains of county-level education (the proportion of individuals 25 years old or older with no high school diploma or equivalent in the county), poverty (proportion of families in the county with an income below the federal poverty level at 1994-1995 and proportion of households in the county receiving public assistance), and employment (county unemployment rate and the reverse coded proportion of individuals in the county employed in managerial and professional occupations) (Messer et al., 2006; Stoddard et al., 2013). A single component solution emerged, defined by retaining components for further analysis which had an eigenvalue greater than one. Appendix A includes a scree plot as well as a table showing the eigenvalues of each component created by the PCA. As suggested in the procedure outlined by Hruska and colleagues, a parallel analysis was performed following the PCA to confirm that only a single component should be retained from the PCA for further analyses (Hruska et al., 2022). A parallel analysis is an operation wherein a random dataset is created with the same number of observations and variables as the original data. Then, the program computes the eigenvalues of a correlation matrix constructed from the generated data. Since the eigenvalues from the randomly generated data were smaller than the eigenvalues from the components in the PCA, the single component was retained for future analysis (Franklin et al., 1995; Hruska et al., 2022).

County Violence. The continuous county safety variable was computed following the same PCA and parallel analysis procedure as outlined for the county deprivation variable. The variables included in the PCA were measures of county-level crime statistics reported in the wave one contextual data file. The specific variables were: total crime rate per 100,000 persons in county, violent crime rate per 100,000 persons in county, number of juvenile arrests per 100,000 persons in county, and number of adult arrests per 100,000 persons in county. A single

component solution emerged. Appendix B includes a scree plot illustrating and a table showing the eigenvalues of each component created by the PCA.

Mental Healthcare Provider Density: Mental healthcare provider density was a continuous variable at the county level that was calculated by taking the mean score of several statistics regarding healthcare provider density in each county at wave one. The variable reflects the density of professionals providing mental health services and was comprised of the mean score of: office-based child psychology specialist physicians providing patient care per 100,000 persons, office-based psychiatry specialist physicians providing patient care per 100,000 persons, and psychiatry specialist physicians providing patient care per 100,000 persons.

Covariates

Health Insurance Status. Participant's health insurance status was measured at the individual level at wave one by an item on the parental potion of the wave one survey asking what type of health insurance the participant currently has. Parents indicated whether the participant had Medicare, Medicaid, private coverage, prepaid health plan, other, or none. Health insurance status was dummy coded into a binary variable, such that participants whose parents reported that they do have some type of health insurance were coded as "0" while those whose parents reported that they did not have health insurance were coded as "1".

Gender. Gender identity was assessed at the individual level at wave one by a single item asking participants to identify as male or female. Therefore, gender was a binary variable with "0" indicating male and "1" indicating female.

Race/Ethnicity: Race/ethnicity was assessed at the individual level at wave one by asking participants whether they identify as a given race or ethnicity (e.g. "What is your race? White?"). Answers were dummy coded such that White was coded as "0" to indicate the

comparison group and racial minority status was coded as "1". An additional item asked participants about their ethnicity with regard to Latinx identity: "Are you of Hispanic or Latino origin?" Ethnicity was a binary variable with "1" representing Latinx identity and "0" representing non-Latinx identity. So, each participant had one data point regarding their marked racial identity and another data point regarding their marked ethnicity.

Immigrant Status. Immigrant status was assessed at the individual level at wave one by a single item: "Were you born in the United States?" The variable was dummy coded such that if a participant responded that they were not born in the United States they were coded as a "1", indicating that they are an immigrant, while if they responded that they were born in the United States they were coded as "0", indicating that they are not an immigrant.

Statistical Analysis Plan

Originally Proposed Analyses:

As originally proposed, several multi-level logistic regressions with cross-level interactions were conducted to examine the conditional effect of the individual level predictors on the outcome at different levels of the exosystemic predictors. A multi-level approach was utilized, as the primary research question was whether exosystemic factors were associated with the strength of the relationship between an adolescent's need for mental health services, as defined by depressive symptoms and victimization, and subsequent service utilization. The analyses were logistic regressions because the outcome of interest was a binary variable and, therefore, the statistical models revealed the odds of utilizing mental health services as a function of the effect of each variable of interest.

Participants who had missing values on variables of interest were deleted listwise, as recommended by the data analysis guide for the Add Health Survey. The sample included in the

proposed study was limited to those who completed the survey at wave one and wave two, and those who did not have missing data on the variables of interest (N = 9827). Of note, parental income was originally proposed as a covariate in the present study. However, upon obtaining the data for the present study it was discovered that the parental income variable had significant missing data that would drastically limit the sample size available in the study. Given Add Health's recommendations to handle missing data through listwise deletion, it was determined that it would be most appropriate to omit this variable from the analyses.

As proposed, I utilized an iterative model building approach wherein each level (individual and exosystemic) of hypothesized predictors and covariates was added one by one to discern the unique relationship between each variable, on each level, and the outcome. It was proposed that the variables significant at .05 in each step would be retained in subsequent models. The final conceptual multi-level model, including all the hypothesized predictors, moderators, and covariates, is illustrated below in figure 3.

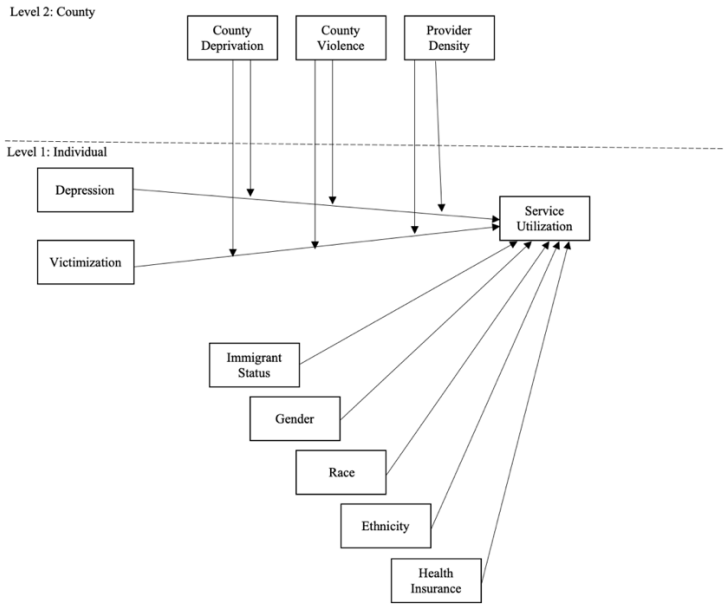


Figure 3. Conceptual multi-level model for proposed analyses.

The equation for the final model, including all the hypothesized predictors, moderators, and covariates is illustrated below. The continuous individual level independent variable of depression was centered at its group mean and all continuous county level variables were centered at the grand mean. The group mean of depression was included as a level two independent variable. The final model includes random slopes of the independent variables not included in the interaction terms in service of examining the variance in the effect of each independent variable on service utilization between counties.

Level 1:

$$p_{ij} = p(Y_{ij} = 1|u_{ij})$$

$$Services_{ij}|u_{ij} \sim Bernoulli(p_{ij})$$

$$logit(p_{ij}) = b_{0i} + b_{1i}\left(Depression_{ij} - \overline{Depression}_j\right) + b_2\left(Victimization_{ij}\right) + b_3\left(Insurance_{ij}\right) + b_4\left(Gender_{ij}\right) + b_5\left(Race_{ij}\right) + b_6\left(Ethnicity_{ij}\right) + b_7\left(Immigrant_{ij}\right)$$

Level 2:

$$b_{0i} = \beta_{00} + \beta_{01}(Deprivation_i - u) + \beta_{02}(MHDensity_i - u) + \beta_{03}(Violence_i - u) + \beta_{04}(\overline{Depression}_i) + \zeta_{0i}$$
$$b_{1i} = \beta_{10} + \beta_{11}(Deprivation_i - u) + \beta_{12}(MHDensity_i - u) + \beta_{13}(Violence_i - u) + \zeta_{1i}$$
$$b_{2i} = \beta_{20} + \beta_{21}(Deprivation_i - u) + \beta_{22}(MHDensity_i - u) + \beta_{23}(Violence_i - u) + \zeta_{2i}$$
$$b_{3i} = \beta_{30} + \zeta_{3i}$$
$$b_{4i} = \beta_{40} + \zeta_{4i}$$
$$b_{5i} = \beta_{50} + \zeta_{5i}$$
$$b_{6i} = \beta_{60} + \zeta_{6i}$$
$$b_{7i} = \beta_{70} + \zeta_{7i}$$

The first analysis was a multi-level logistic regressions with five predictors to test the effect of each hypothesized individual level covariate on the odds of utilizing psychological services: immigrant status, gender, health insurance, race, and ethnicity. Each covariate that reached a significance value less than or equal to .05 was retained for subsequent analyses. The focal predictors representing psychological need (depression and victimization) were added into the regression at the next step. Then, a multi-level logistic regression was conducted to test the

effect of the individual and exosystemic (county deprivation, safety, and provider density) predictors as well as the retained covariates on the odds of receiving psychological services.

The next model included testing the interaction effect of the exosystemic variables (safety, deprivation, and provider density) and the psychological need variables (depression and victimization) in predicting the odds of receiving psychological services, with covariates included. Therefore, one multi-level model with six cross-level interaction effects was conducted to examine the effect of each interaction. Significant interactions were probed with tests of simple effects.

Supplemental Analyses:

In addition to the above analyses, which were originally proposed in my prospectus, several supplemental analyses were conducted to further examine the influence of exosystemic variables on psychological service utilization.

Supplemental analysis 1:

The first set of analyses examined exosystemic effects at the census tract level rather than the county level. This was done as census tracts are widely agreed upon as the best approximations for neighborhoods within epidemiological studies. Therefore, it is likely that examining exosystemic variables at the census tract level is a better estimate of true neighborhood effects than examining these variables at the county level. However, only the exosystemic variable of neighborhood deprivation was available at the census tract level and violence and provider density were exclusively measured at the county level. The same PCA procedure as outlined above was followed to construct census tract level deprivation and a one component solution emerged. A multilevel logistic regression model was subsequently constructed to probe the cross-level interaction effects of census tract deprivation and individual

level depression, census tract level deprivation and individual level victimization, and main effects of individual level nativity status, gender, health insurance status, race, and ethnicity on the odds of utilizing psychological services.

Level 1:

$$p_{ij} = p(Y_{ij} = 1|u_{ij})$$

$$Services_{ij}|u_{ij} \sim Bernoulli(p_{ij})$$

$$logit(p_{ij}) = b_{0i} + b_{1i}\left(Depression_{ij} - \overline{Depression}_j\right) + b_2\left(Victimization_{ij}\right) + b_3\left(Insurance_{ij}\right) + b_4\left(Gender_{ij}\right) + b_5\left(Race_{ij}\right) + b_6\left(Ethnicity_{ij}\right) + b_7\left(Immigrant_{ij}\right)$$

Level 2:

$$b_{0i} = \beta_{00} + \beta_{01}(Deprivation_i - u) + \beta_{02}(\overline{Depression}_i) + \zeta_{0i}$$
$$b_{1i} = \beta_{10} + \beta_{11}(Deprivation_i - u) + \zeta_{1i}$$
$$b_{2i} = \beta_{20} + \beta_{21}(Deprivation_i - u) + \zeta_{2i}$$
$$b_{3i} = \beta_{30} + \zeta_{3i}$$
$$b_{4i} = \beta_{40} + \zeta_{4i}$$
$$b_{5i} = \beta_{50} + \zeta_{5i}$$
$$b_{6i} = \beta_{60} + \zeta_{6i}$$
$$b_{7i} = \beta_{70} + \zeta_{7i}$$

Supplemental analysis 2:

The second set of analyses examined the differential effect of each county level exosystemic variable by identity status through a series of cross-level interactions. Originally, one model was constructed with 15 interaction terms, one for each exosystemic variable and identity variable (deprivation*nativity status, deprivation*gender, deprivation*health insurance status, deprivation*race, deprivation*ethnicity, violence*nativity status, violence*gender, violence*health insurance status, violence*race, violence*ethnicity, provider density*nativity status, provider density*gender, provider density *health insurance status, provider density *race, provider density*ethnicity), as well as the main effects of depression and victimization on the odds of accessing psychological services. However, this model did not converge. Therefore, a series of 15 models were constructed, one probing each interaction term. Each of these models

also included the main effects of each individual and exosystemic level variable not included in the interaction term as well as depression and victimization. It was planned that each interaction term that was significant at the .05 level would be retained for the final model. However, only one interaction term was ultimately significant: deprivation*gender. Therefore, the final model examined the cross-level interaction of county level deprivation and individual level gender, the main effects of individual level nativity status, health insurance status, race, ethnicity, depression, and the main effects of county level violence and provider density on the likelihood that an adolescent accessed psychological services. The interaction was probed with a test of simple effects. This model also included random slopes for each of the individual level variables not included in the interaction term.

Level 1:

$$p_{ij} = p(Y_{ij} = 1|u_{ij})$$

$$Services_{ij}|u_{ij} \sim Bernoulli(p_{ij})$$

$$logit(p_{ij}) = b_{0i} + b_{1i}\left(Depression_{ij} - \overline{Depression}_j\right) + b_2\left(Victimization_{ij}\right) + b_3\left(Insurance_{ij}\right) + b_4\left(Gender_{ij}\right) + b_5\left(Race_{ij}\right) + b_6\left(Ethnicity_{ij}\right) + b_7\left(Immigrant_{ij}\right)$$

Level 2:

$$b_{0i} = \beta_{00} + \beta_{01}(Deprivation_i - u) + \beta_{02}(MHDensity_i - u) + \beta_{03}(Violence_i - u) + \beta_{04}(\overline{Depression}_i) + \zeta_{0i}$$
$$b_{1i} = \beta_{10} + \zeta_{1i}$$
$$b_{2i} = \beta_{20} + \zeta_{2i}$$
$$b_{3i} = \beta_{30} + \zeta_{3i}$$
$$b_{4i} = \beta_{40} + \beta_{41}(Deprivation_i - u) + \zeta_{4i}$$
$$b_{5i} = \beta_{50} + \zeta_{5i}$$
$$b_{6i} = \beta_{60} + \zeta_{6i}$$
$$b_{7i} = \beta_{70} + \zeta_{7i}$$

Results

Table 1

Summary statistics for the sample included in the analyses.

	Mean	Standard Deviation	Minimum	Maximum
Depression	11.50	7.61	0	54

Variable	N	Percent
Victimization		
Yes	4246	43.2%
No	5581	56.8%
Gender		
Male	4813	49.0%
Female	5014	51.0%
Health Insurance		
Insured	8513	86.6%
Uninsured	1314	13.4%
Race		
White	6237	63.5%
Non-White	3590	36.5%
Ethnicity		
Hispanic	1764	18.0%
Non-Hispanic	8063	82.0%
Nativity Status		
U.S. Born	8971	91.3%
Non U.S. Born	856	8.7%
Received Psychological Counseling		
No	8896	90.5%
Yes	931	9.5%

The summary statistics for the characteristics of the sample are presented in table 1. Most adolescents in the sample had not received psychological counseling within the last year. Demographically, most participants were female, white, non-Hispanic, and U.S. Born. The majority of participants had health insurance.

Table 2
Model 0: "Empty" model of the impact of county on odds of utilizing psychological services, random effects within county

	Standard Deviation	Variance	ICC
Intercept	0.42	0.17	0.05

Table 2 includes the estimation of an "empty" generalized mixed model of the amount of variance within utilization of mental health services in the last year explained by county of residence, without any independent variables. The intraclass correlation coefficient (ICC) illustrates the proportion of total variance in utilization of mental health services that is accounted for by clustering at the county level. Within this model, the ICC value is 0.05, indicating that 5% of the variance in utilization of mental health services is explained by clustering at the county level.

Utilizing the model building procedure outlined above, all the proposed models converged, including the most complex proposed model. Therefore, only the most complex model will be interpreted. However, tables illustrating the results of the intermediate models are included in Appendix C.

Table 3 illustrates the results of the predictive value of county (deprivation, violence, provider density, county mean depression), individual (nativity status, gender, health insurance status, race, ethnicity, depression, victimization), and interaction of county and individual factors on the odds of utilizing mental health services one year later, including allowing for random slopes for the variables at the individual level that are not included in the interaction terms (nativity status, gender, health insurance status, race, and ethnicity). The final model had an AIC of 5780.20, indicating that the fit of this model to the data was significantly improved over the empty model (AIC: 7247.12).

Table 3

Association of individual-level covariates, focal predictors, county level predictors, and interaction of county and focal predictors, on odds of utilizing psychological services, with random slopes

	exp(B) (Odds Ratio)	95% CI	*p*
Intercept	0.02	0.02, 0.04	<.01
US Born	1.79	1.24, 2.58	<.01
Female Gender	1.28	1.09, 1.50	<.01
Uninsured Status	0.72	0.55, 0.95	.02
White Race	1.92	1.60, 2.32	<.01
Hispanic Ethnicity	1.21	0.96, 1.52	.10
Depression	1.07	1.06, 1.08	<.01
Victimization	1.57	1.32, 1.88	<.01
County Deprivation	0.82	0.68, 0.99	.04
County Violence	1.04	0.87, 1.26	0.62
Provider Density	1.01	1.00, 1.01	0.16
Depression (group mean)	1.09	1.02, 1.16	<.01
Depression*Provider Density	1.01	1.01, 1.01	0.03
Victimization*Provider Density	1.00	0.99, 1.00	0.34
Depression*Deprivation	1.00	0.99, 1.01	0.59
Victimization*Deprivation	1.09	0.89, 1.34	0.39
Depression*County Violence	0.99	0.99, 1.01	0.88
Victimization*County Violence	0.96	0.79, 1.16	0.64

Simple effect of Depression Moderated by County Provider Density

Provider Density	exp(B) (Odds Ratio)	95% CI	*p*
Mean – 1 SD	1.06	1.05, 1.07	<.01
Mean	1.07	1.06, 1.08	<.01
Mean + 1 SD	1.08	1.07, 1.09	<.01

Random Effects within County

	Standard Deviation	Variance	ICC
Intercept	0.52	0.27	0.08
US Born	0.19	0.03	
Gender	0.18	0.03	
Uninsured Status	0.32	0.10	
White Race	0.08	0.01	
Hispanic Ethnicity	0.17	0.03	
Depression	0.01	< 0.00	
Victimization	0.31	0.09	

There is a significant cross-level interaction between individual level depression and county level mental healthcare provider density (exp(b): 1.01, 95% CI: 1.01, 1.01, $p = .03$). Therefore, the effect of depression must be interpreted as a conditional effect as a function of mental healthcare provider density. A test of simple slopes revealed that at one standard deviation below the mean level of mental healthcare provider density, there was a significant effect of depression, such that for each one unit increase in depression score adolescents had 1.06 (95% CI: 1.05, 1.07, $p < .01$) times greater odds of utilizing mental health services. There was also a significant effect of depression at the mean level of mental healthcare provider density, such that for each one unit increase in depression adolescents had 1.07 (95% CI: 1.06, 1.08, $p < .01$) times greater odds of utilizing mental health services. Finally, there was a significant effect of depression at one standard deviation above the mean score of mental healthcare provider density. For each one unit increase in depression adolescents had 1.08 (95% CI: 1.07, 1.09, $p < .01$) times greater odds of utilizing mental health services. Taken together, adolescents who have higher depression scores are more likely to utilizing mental health services if they are more mental healthcare providers in their county.

On the individual level, immigrant status, gender, health insurance status, race, and victimization were significantly related to odds of mental health service utilization. Immigrant status was associated with service utilization, such that adolescents who were born in the United States had 1.79 (95% CI: 1.24, 2.58, $p < .01$) times greater odds of having accessed mental health services than adolescent born outside of the United States, controlling for the interaction effects, individual level, and county level co-variates. Gender was also significantly associated with service utilization, such that female adolescents had 1.28 (95% CI: 1.09, 1.50, $p < .01$) times greater odds of having accessed mental health services than male adolescents, controlling for the

interaction effects, individual level, and county level co-variates. Health insurance status was significantly related to mental health service utilization, as adolescents who were uninsured had 0.72 (95% CI: 0.55, 0.95, $p = .02$) times lower odds of having accessed mental health services than adolescents with health insurance. White race was significantly related to increased odds of utilizing mental health services, such that White adolescents had 1.92 (95% CI: 1.60, 2.32, $p < .01$) times greater odds of accessing mental health services than racial minority adolescents. Finally, victimization was significantly associated with mental health service use, such that adolescents who has been exposed to physical violence within the last year had 1.57 (95% CI: 1.32, 1.88, $p < .01$) times greater odds of having accessed mental health services than adolescents who had not been exposed to physical violence. There was no significant effect of ethnicity on odds of mental health service use.

On the county level, deprivation and depression were significantly related to the likelihood that an adolescent accessed mental health services. For each one unit increase in county deprivation there was 0.82 (95% CI: 0.68, 0.99, $p = .04$) times lower odds that an adolescent accessed mental health services, controlling for the interaction, county level, and individual level effects. Additionally, for each one unit increase in average depression at the county level, there was 1.09 (95% CI: 1.02, 1.16, $p = .04$) times greater odds that an adolescent in that county accessed mental health services, controlling for the interaction, county level, and individual level effects. There was no significant effect of county violence on odds of adolescents accessing mental health services.

Supplemental Analyses: Nesting Individuals Within Census Tract

The first set of supplemental analyses included nesting individuals within census tract in service of investigating whether examining neighborhood level data at the census tract level,

rather than the county level, would result in the neighborhood level data account for more variance within adolescents' utilization of mental health services. As a first test of this hypothesis, table four illustrates the estimation of an "empty" generalized mixed model of the amount of variance within utilization of mental health services in the last year explained by an adolescents' census tract of residence, without any independent variables. The ICC value of the empty model is 0.06, indicating that 6% of the variance in utilization of mental health services is explained by clustering at the census tract level. In comparison, when nesting within the county level, the ICC of the empty model was 0.05, indicating that 5% of the variance in utilization of mental health services was explained by clustering at the county level.

Table 4
"Empty" model of the impact of census tract on odds of utilizing psychological services

Random effects within census tract

	Standard Deviation	Variance	ICC
Intercept	0.45	0.20	0.06

Table 5 illustrates the results of the impact of census tract (deprivation, census tract mean depression), individual (nativity status, gender, health insurance status, race, ethnicity, depression, victimization), and cross level interactions of depression and census tract deprivation as well was victimization and census tract deprivation on the odds of an adolescent utilizing mental health services, including allowing for random slopes for the variables at the individual level that are not included in the interaction terms (nativity status, gender, health insurance status, race, and ethnicity). The final model had an AIC of 5678.56, indicating that the fit of this model to the data was significantly improved over the empty model (AIC: 6394.62). The AIC of this model was also lower than that of the final county level model (AIC: 5780.20), suggesting an overall stronger model fit.

Table 5

Impact of individual-level covariates, focal predictors, tract level deprivation, and interaction of tract and focal predictors, on odds of utilizing psychological services, with random slopes

	exp(B) (Odds Ratio)	95% CI	*p*
Intercept	0.01	0.01, 0.04	<.01
US Born	4.49	1.07, 18.84	.04
Female Gender	1.30	1.09, 1.55	<.01
Uninsured Status	0.63	0.36, 1.12	.12
White Race	1.90	1.54, 2.34	<.01
Hispanic Ethnicity	1.13	0.85, 1.50	.41
Depression	1.08	1.07, 1.09	<.01
Victimization	1.65	1.41, 1.93	<.01
Tract Deprivation	0.86	0.72, 0.99	.04
Depression (group mean)	1.06	1.03, 1.08	<.01
Depression*Deprivation	1.00	0.99, 1.01	0.67
Victimization*Deprivation	1.14	0.97, 1.35	0.11

Random effects within Census Tract

	Standard Deviation	Variance	ICC
Intercept	1.59	2.52	0.43
US Born	1.76	3.11	
Female Gender	0.56	0.32	
Uninsured Status	0.67	0.45	
White Race	0.64	0.41	
Hispanic Ethnicity	0.72	0.51	

Neither the cross-level interactions included in the model were significant. This suggests that the association between individual level depression and individual level victimization on an adolescent utilizing mental health services in the following year are not moderated by the level of deprivation within the adolescents' census tract. Therefore, all variables were interpreted as main effects.

On the individual level, immigrant status, gender, race, ethnicity, depression, and victimization were significantly related to mental health service utilization. Immigrant status was associated with service utilization, such that adolescents who were born in the United States had 4.49 (95% CI: 1.07, 18.84, $p = .04$) times greater odds of having accessed mental health services

in the last year than adolescent born outside of the United States, controlling for individual and census tract predictors and interactions. Gender was also significant related to odds of an adolescent utilizing mental health services within the last year, such that female adolescents had 1.30 (95% CI: 1.09, 1.55, $p < .01$) times greater odds of utilizing mental health services than male adolescents. Race significantly predicted mental health service utilization, as White adolescents had 1.90 (95% CI: 1.54, 2.34, $p < .01$) times greater odds of having utilized mental health services as compared to racial minority adolescents, holding all other variables constant. Additionally, individual level depression was significantly related to mental health service use. For every one unit increase in depression severity, an adolescent had 1.08 (95% CI: 1.07, 1.09, $p < .01$) greater odds of having accessed mental health services. Finally, an adolescents' victimization was significantly associated with utilizing mental health services. Adolescents who had been exposed to physical violence within the last year had 1.65 (95% CI: 1.41, 1.93, $p < .01$) times greater odds of having utilized mental health services as compared to adolescents who had not been exposed to physical violence in the last year, holding all other variables constant.

On the census tract level, both deprivation and depression were significantly related to adolescents utilizing mental health services. For each one unit increase in deprivation within a census tract, adolescents had 0.86 (95% CI: 0.72, 0.99, $p = .04$) times lower odds of having utilized mental health services, controlling for all other variables in the model. In addition, for each one unit increase in group mean depression severity at the census tract level, adolescents had 1.06 (95% CI: 1.03, 1.08, $p < .01$) times greater odds of having accessed mental health services.

Supplemental Analyses: The interaction of identity and county level variables

Finally, supplemental analyses were conducted to probe whether identity-level variables moderated the effect of county-level variables on the likelihood of utilizing mental health services. Originally, a model was tested that included the fixed effect of each individual level variable, focal predictor, county level variable, and cross-level interactions of each individual-level and county-level variable on the likelihood of accessing mental health services, with a random intercept and random slopes of the individual-level variables included in the model. However, this model did not converge. Then, three simplified models were tested that included the fixed effect of each individual level variable, focal predictor, county level variable, and cross-level interactions of each individual-level and one county-level variable on the likelihood of accessing mental health services, with a random intercept and random slopes of the individual-level independent variables not included in the interaction term. One model probed interaction effects with county level deprivation, one with violence, and one with provider density. These models also did not converge. Therefore, a series of simplified models were run to individually probe the interaction effects of each individual-level variable and county-level variable. There were fifteen models in total and each model included random effects of a random intercept and random slopes for each individual-level variable not included in the interaction term and the focal predictors. Only one out of these 15 models included a significant interaction effect: deprivation*gender.

Table 6 illustrates the results of the association of county (deprivation, violence, provider density, county mean depression), individual (immigrant status, gender, health insurance status, race, ethnicity), focal predictors (depression, victimization), and interaction of county deprivation and gender on the odds of utilizing mental health services, including allowing for

random slopes for the variables at the individual level that are not included in the interaction term (immigrant status, health insurance status, race, ethnicity, depression, and victimization). The final model had an AIC of 5757.43, indicating that the fit of this model to the data was significantly improved over the empty model (AIC: 7247.12).

Table 6
Association of individual-level covariates, focal predictors, county level variables, and interaction of county level deprivation and gender, on odds of utilizing psychological services, with random slopes

	Exp(B) Odds Ratio	95% CI	*p*
US Born	1.74	1.24, 2.44	<.01
Female Gender	1.26	1.09, 1.46	<.01
Uninsured Status	0.72	0.55, 0.95	<.01
White Race	1.91	1.59, 2.29	<.01
Hispanic Ethnicity	1.20	0.97, 1.50	.09
Depression	1.07	1.06, 1.08	<.01
Victimization	1.53	1.31, 1.78	<.01
County Deprivation	0.97	0.84, 1.12	.66
County Violence	1.02	0.89, 1.16	0.80
Provider Density	1.00	1.00, 1.01	0.07
Depression (group mean)	1.09	1.03, 1.16	<.01
Gender*County Deprivation	0.83	0.71, 0.96	0.01

Simple effect of County Level Deprivation Moderated by Gender

Gender	Odds Ratio	95% CI	*p*
Male	0.97	0.84, 1.12	0.66
Female	0.80	0.69, 0.93	<.01

Random effects within County

	Standard Deviation	Variance	ICC
Intercept	0.53	0.28	0.08
Nativity Status	0.06	0.01	
Health Insurance Status	0.30	0.09	
White Race	0.06	0.01	
Hispanic Ethnicity	0.04	0.01	
Depression	0.01	1.74e-5	
Victimization	0.34	0.12	

There is a significant cross-level interaction between gender and county level deprivation. Therefore, the effect of deprivation must be interpreted as a conditional effect moderated by

gender. A test of simple effects revealed that there is a significant effect of county deprivation on odds of utilizing mental health services for females, but not for males. Among females, each one unit increase in county deprivation resulted in a 0.80 times lower odds of accessing mental health services (95% CI: 0.69, 0.93, p <.01).

On the individual level, immigrant status, health insurance status, race, and victimization were significantly related to odds of mental health service utilization. Immigrant status was associated with service utilization, such that adolescents who were born in the United States had 1.74 (95% CI: 1.24, 2.44, p <.01) greater odds of having accessed mental health services than adolescent born outside of the United States, controlling for individual level health insurance status, race, depression, victimization, county mean depression, and county level deprivation, violence, provider density, and the cross level interactions of gender and county deprivation. Health insurance status was significantly related to mental health service utilization, as adolescents who did not have health insurance had 0.72 (95% CI: 0.55, 0.95, p < .01) lower odds of having accessed mental health services than adolescents with health insurance. White race was significantly related to increased odds of utilizing mental health services, such that white adolescents had 1.91 times greater odds of having accessed mental health services than racial minority adolescents (95% CI: 1.59, 2.29, p <.01). Depression was significantly associated with mental health service use, as for each one unit increase in depressive symptoms adolescents had 1.07 times greater odds of having accessed mental health services (95% CI: 1.06, 1.08, p <.01). Victimization was also significantly associated with mental health service use, such that adolescents who has been exposed to physical violence within the last year had 1.53 (95% CI: 1.31, 1.78, p <.01) times greater odds of having accessed mental health services than adolescents

who had not been exposed to physical violence. There was not a significant effect of ethnicity on odds of mental health service use.

On the county level, county mean depression was significantly related to the likelihood that an adolescent accessed mental health services. For one unit increase in average depression at the county level, an adolescent in that county had 1.09 (95% CI: 1.03, 1.16, p <.01) times greater odds of accessing mental health services, controlling for the interaction, county level, and individual level effects. There was no significant effect of county level provider density or violence on odds of adolescents accessing mental health services.

Discussion

In this study, I examined the influence of variables at the individual and exosystemic levels on adolescents' utilization of mental health services using multilevel logistic regression in service of identifying intervention targets to promote psychological service utilization. While there are numerous studies probing the influence of individual level characteristics on adolescent help seeking, this study was novel in the addition of examining exosystemic characteristics. Results indicate that both individual and exosystemic level variables are associated with psychological service utilization. Additionally, although psychological need is a strong predictor of adolescent mental health service utilization, the influence of one exosystemic characteristic moderated this effect.

Supplemental analyses were conducted to further probe the role of exosystemic characteristics in adolescent psychological service use. These results suggest that the immediate neighborhood an adolescent lives in is more predictive of their use of mental health services as compared to the county they live in. Analyses also revealed that there is limited evidence for exosystemic variables differentially impacting adolescent in various identity groups. Taken

together, the results of the study point to promising avenues of future research and intervention to increase access to psychological care among diverse youths.

The primary goal of this paper was to examine whether exosystemic factors moderate the relationship between psychological need and accessing psychological services. Out of the three exosystemic variables examined in this study, only mental healthcare provider density emerged as a significant moderator. Greater depressive symptoms were related to increased likelihood that adolescents access psychological services, and this effect was larger for youths who resided in counties with greater mental healthcare provider density. Therefore, youths with high psychological need who lived in counties with more mental healthcare providers are more likely to access services than youths with similar need who live in counties with less providers. This finding supported the hypothesis that exosystemic variables would be stronger predictors of accessing mental health services for youths with greater psychological need. This finding is consistent with the results of a recent systematic review which indicated that limited availability of psychological services was perceived by adolescents as a key structural barrier to their psychological help seeking (Radez et al., 2021). Notably, the data in the present study come from the 1990s, ahead of the popularization of telehealth. It is possible that with the spread of telehealth as a method of psychological service delivery, the density of mental healthcare providers within a given neighborhood may become less influential on the relationship between psychological need and help seeking. This finding also stands in contrast with previous research indicating that a higher density of mental health specialty care in a county is actually related to lower rates of mental health service use among adults (Cook et al., 2017).

Although it did not emerge as a significant moderator, county deprivation had a significant main effect on psychological service use among adolescents in this sample.

Adolescents who lived in neighborhoods with greater socio-economic deprivation were less likely to access psychological services. Notably, this effect was significant over and above demographic characteristics and psychological need. This is particularly striking given existing evidence that exposure to neighborhood deprivation is also related to increased trauma exposure and mental health concerns (Baglivio et al., 2017; Collins et al., 2010; Coulton et al., 2007; Forthman et al., 2021; Hruska et al., 2022; Leventhal & Brooks-Gunn, 2000). Therefore, adolescents living in areas with high deprivation may be at "double" risk of poor psychological outcomes, such that they are simultaneously at higher risk of experiencing psychological concerns and at not accessing care. The mechanisms through which neighborhood deprivation negatively impacts help seeking is not well understood. It has been proposed that living in communities with greater levels of deprivation may increase individual attitudes of hopelessness and powerlessness, and therefore make individuals less likely to engage in help seeking (Braithwaite & Lythcott, 1989; Cook et al., 2017). It is also possible that living in an area with significant deprivation renders adolescents more likely to encounter structural barriers to care (e.g. lack of financial resources, unpredictable work schedules), which are documented to be related to decreased psychological help seeking (Radez et al., 2021). In the medical help seeking literature, decreased health literacy has been proposed as a mechanism linking community deprivation to lower rates of accessing health services (Bammert et al., 2024). Additional research clarifying the mechanism linking deprivation to psychological service use may yield promising avenues of intervention to promote access to care.

County violence did not emerge as a significant predictor of psychological service utilization, or moderator of the relationship between psychological need and care utilization. This stands in contrast with prior research indicating that community violence exposure is associated

with decreased rates of healthcare utilization among adolescents (Mmari et al., 2016). This discrepancy may be because prior studies have focused on measuring community violence exposure at the individual level, such that adolescents were directly asked if they had witnessed violence in their neighborhoods. In the present study, violence was measured through the crime statistics at the county level, which is a less proximal method of measuring the general level of violence within a community. It is possible that direct exposure to community violence may be related to seeking psychological care, while the general level of violence within the community may not be related. Additionally, measuring community violence through county crime statistics is imperfect, particularly given unequal policing between communities. Another limitation of measuring violence in the present study is that it was measured at the county level. There is likely significant variability in the level of violence in different areas of a county, and it is possible that there may be a stronger relationship between violence and help seeking in some areas of a county as compared to others. Therefore, an aim of future research may be to examine the relationship between community violence and psychological help seeking within a smaller geographic unit.

Ultimately, the hypothesis that variables on both the individual and exosystemic levels would be significantly related to service utilization was supported. On the individual level, race, nativity status, and health insurance access were significantly related to service use. Across all the analyses conducted, less privileged adolescents were less likely to access services as compared to the more privileged adolescents in the sample. This finding is consistent with a wealth of existing literature documenting that minority status youth have profound difficulty with accessing care (Chavira et al., 2004; Costello et al., 2014; Merikangas et al., 2011; Nemoyer et al., 2020). Psychological need was also associated with increased likelihood of use, as both

depression and victimization emerged as significant predictors. However, the novel contribution of the present study is that exosystemic variables representing the conditions of the neighborhoods the adolescents were nested in were also significantly related to service utilization, over and above the influence of individual characteristics.

Supplemental analyses extended my research questions to examine whether exosystemic variables had differential effects on help seeking for different identity groups. Except for gender, exosystemic variables did not have differential effects on accessing psychological services by identity group. This is consistent with previous work which found that neighborhood disadvantage did not have a different relationship with psychological help seeking by race/ethnicity among adults (Cook et al., 2017). However, there was a significant interaction of gender and county deprivation, such that greater levels of county deprivation are associated with lower odds of utilizing psychological services among adolescent girls but unrelated to service use among adolescent boys. This finding should be interpreted with caution, as it is a preliminary result that has not been properly corrected for type one error due to multiple comparisons. It appears that, while exosystemic factors do impact psychological service use, they do not differentially impact minority status youth. It should also be noted that minority status adolescents are more likely to reside in areas with significant structural disadvantage as compared to their peers (Firebaugh & Acciai, 2016). Therefore, they are likely more exposed to exosystemic barriers to psychological help seeking.

In addition, supplemental analyses were conducted to probe exosystemic influence on psychological care utilization at the census tract level. This analysis was conducted as census tracts are a better estimate of neighborhoods, as compared to their county of residence, and likely exert more proximal influence on help seeking behaviors. As with the county level, greater

census tract deprivation was related to lower likelihood of psychological service utilization. Notably, lack of health insurance ceased to be a significant predictor of accessing psychological services at the census tract level, when accounting for need, individual characteristics, and census tract deprivation. Additionally, the census tract model appeared to have a better overall model fit, as evidenced by the lower AIC as compared to the county model. This suggests that looking at neighborhoods at the census tract level may be a more fruitful method of examining exosystemic influences on accessing psychological care. There was also greater variability in the random intercept and random slopes within the tract model as compared to the county model, suggesting that census tracts differ more from one another than counties in predictors of psychological help seeking. However, some of this effect may be attributed to there being less adolescents in each census track as compared to each county, resulting in some demographic characteristics of adolescents not being represented in each census track. Therefore, estimated at the census tract level may be less stable. In grouping adolescents at the county level, we may lose some nuance in understanding individual and exosystemic influences on accessing care. However, comparing the county and census tract models in the present set of analyses is imperfect, as some exosystemic predictors available at the county level (violence, provider density) were unavailable at the census tract level within this dataset. An area of future research should be probing the effects of all hypothesized exosystemic predictors at the census tract level.

The above results should be interpreted while considering the limitations of the study. First, the data utilized in the analyses within this study come from the 1990s and may not be completely generalizable to the social conditions of the present day. However, geographic inequality within the United States has only risen since the 1990s, making it reasonable to consider that the social conditions impacting access to care within the present study are likely

still very much relevant in the present (U.S. Department of Commerce, 2023). An additional limitation is that, given the age of the dataset, there were limited race and ethnicity categories available for inclusion within the analysis. Specifically, some ethnic groups, such as adolescents of middle eastern descent, were categorized as "white" in the 1990s but would no longer be categorized as "white" in present day. Therefore, it is possible that there may be patterns in the relationship between race, ethnicity, and mental healthcare utilization that were not captured in the present study. A future research aim should be to replicate these results within a more recent dataset. Another key limitation is that the measurement of county provider density is an incomplete measure of the scope of providers offering mental health services in a given community. The data available were limited to figures summarizing the density of specialty practitioners with doctoral degrees, which do not include the numerous master's level practitioners rendering services. Also left out were the scope of mental health services offered in schools, which are often a frontline setting for adolescents receiving psychological care. Additional research should be conducted in service of examining the role of these additional provider supply variables in influencing access to care. A final limitation in the present study was the focus on utilizing internalizing, as opposed to externalizing symptoms, to define psychological need. It is possible that including externalizing symptoms as an indicator of psychological need would yield differential patterns in predictors of treatment utilization. This question should be investigated in future research.

Despite the above limitations, the results of the present study also have promising implications for interventions to promote access to care. For example, since greater density of mental healthcare providers may be a facilitator of care for adolescents with high psychological need, a potential point of policy intervention may be to allocate a greater portion of community

funds to increasing the scope of available mental health services. Policy interventions to alleviate neighborhood poverty also hold promise as an intervention point to promote broader access to psychological care, given that greater neighborhood deprivation was related to decreased help seeking within the present study. Potential policies to decrease neighborhood deprivation include implementing a universal basic income program, rent control, or increasing access to vocational training. These results can also inform the actions of individual psychologists. For example, understanding that greater neighborhood deprivation is a barrier to accessing care while greater mental healthcare provider density is a facilitator of accessing care can be immediately used by psychologists to make decisions as to where to concentrate new services. In particular, it may be warranted to utilize funds to incentivize providers to concentrate services in areas with greater deprivation. Understanding how exosystemic barriers impact help seeking also holds promise in improving novel forms of service delivery, such as stepped care approaches.

In sum, results from the present study highlight that even when accounting for psychological need and individual level characteristics, the communities that adolescents live in have a profound impact on their psychological help seeking behaviors. Results from this study also underscore the need for the methodology in clinical psychology research to expand to include public health research methods. Utilizing research methods common in the public health field, such as examining epidemiological data and neighborhood influences on health, increases the scope of understanding of the myriad influences on psychological help seeking and opens the door to more effective interventions to promote access.

Study 2: A Mixed-Methods Examination of Individual, Microsystemic, and Exosystemic Barriers to Engagement in a Trial of an Evidence Based Psychological Intervention

Low treatment engagement is a significant, and common, barrier to symptom improvement within evidence-based psychotherapy with trauma exposed adolescents (Steinberg et al., 2019). There has been significant research into variables that may predict problems with treatment engagement, both within trauma-focused interventions and EBIs more broadly, in service of identifying targets of intervention. However, findings related to which variables associated with trauma-focused treatment engagement are inconsistent.

Most of the research regarding barriers and facilitators to treatment engagement among trauma exposed adolescents has focused on the individual and microsystemic level of the socio-ecological model. With regard to individual factors, some studies have found that lower treatment engagement has been associated with: the patient's minority racial identity (Fraynt et al., 2014; Murphy et al., 2014; Sprang et al., 2013; Wamser-Nanney & Steinzor, 2016; Wamser-Nanney, 2020), immigration status (Sprang et al., 2013), client age (Eslinger et al., 2014; Wamser-Nanney & Steinzor, 2016), and low socio-economic status (Wamser-Nanney & Steinzor, 2016; Wamser-Nanney, 2020). Overall, some studies suggest that marginalized youths may be at particular risk for engagement problems in trauma focused treatment, but, these results are inconsistent (De Haan et al., 2018). Several studies have reported that traumatic symptom severity is associated with engagement problems, but these results have also been inconsistent across studies (Eslinger et al., 2014; Murphy et al., 2014; Sprang et al., 2013; Zandberg et al., 2016).

Microsystemic barriers to treatment engagement among youths are also fairly well documented, likely because the youth's engagement behaviors are largely a function of their

family's desires regarding help seeking. With regard to microsystemic factors, caregiver age (Eslinger et al., 2014), child and family protective services involvement (Sprang et al., 2013; Wamser-Nanney & Steinzor, 2016), severity of caregiver psychological symptoms (Wamser-Nanney, 2020; Wamser-Nanney & Steinzor, 2016), and caregiver marital status (Wamser-Nanney & Steinzor, 2016) all been significantly related to engagement outcomes.

Barriers and facilitators on the "outer" layers of the socio-ecological model are less well documented in the trauma-focused treatment engagement literature (Wamser-Nanney & Walker, 2023). Studies that report on exosystemic or macrosystemic variables related to engagement often focus on "structural" barriers to treatment engagement, such as lack of insurance coverage, competing work or school obligations, or transportation difficulties (Theimer et al., 2020; Trusz et al., 2011). Other studies have found no association between structural barriers and treatment engagement. Additionally, one study identified exposure to community violence as a predictor of lower treatment engagement (Steinberg et al., 2019).

It is possible that a reason for the inconsistent results regarding barriers to treatment engagement within trauma focused interventions is that there has historically been little agreement as to how to define therapeutic engagement for research purposes (Becker et al., 2018; Becker & Chorpita, 2023; Chacko et al., 2016; Tetley et al., 2011). Oftentimes, treatment engagement is conflated with treatment attrition (Becker et al., 2018; Chacko et al., 2016; Lakind et al., 2021; Tetley et al., 2011). Which, indeed, is a significant problem within psychological EBIs. It is estimated that between 30-60% of children and adolescents prematurely drop out of psychotherapy overall and drop out from trauma focused treatment may be especially high (Najavits, 2015; Yasinski et al., 2018). Some studies operationalize engagement as the total number of therapy sessions attended, or perhaps, a patient's adherence to a psychiatric

medication regimen (Becker et al., 2018; Chacko et al., 2016; Lakind et al., 2021; Tetley et al., 2011). More recently, consensus has emerged to operationalize therapeutic engagement as a multidimensional construct, including: social, cognitive, affective, and behavioral domains, to reflect the dynamic and complex processes that encompass an individual's participation in therapy (Becker et al., 2018; Becker & Chorpita, 2023; Lakind et al., 2021). However, research into therapeutic engagement with a multidimensional perspective is nascent.

Many unanswered questions regarding the influence of barriers at multiple socio-ecological levels on treatment engagement remain, and interventions targeting barriers to treatment to promote engagement are rarely used (Becker et al., 2021). The above findings related to barriers to engagement in trauma focused treatment have generally been based on post-treatment data analysis or chart review with the goal of identifying an overall trend in the types of barriers that are most indicative of engagement problems. This approach has largely yielded inconsistent results. Therefore, as the first aim of the study, I took an individualized approach wherein adolescents were asked to prospectively identify anticipated individual, microsystemic, and exosystemic barriers that may impact their engagement in psychotherapy. Statistical analyses were conducted to examine whether the total number of barriers endorsed by participants before treatment initiation predicted their level of engagement in therapy. Additional analyses were conducted to examine the influence of the different categories of barriers (individual, microsystemic, exosystemic) on treatment engagement. In line with recent recommendations, engagement was conceptualized as multidimensional rather than a single construct. It was hypothesized that the greater number of barriers a participant reports at baseline, the lower their engagement will be in the intervention. Taking a multidimensional approach allows for more

specific conclusions regarding which dimension(s) of therapeutic engagement are most strongly impacted by the different socio-ecological categories of barriers assessed.

The second aim of the proposed study was to add richness to the current understanding of barriers to treatment engagement across socio-ecological levels. Exploratory qualitative analysis of structured interviews with participants were utilized to identify individual, microsystemic, and exosystemic barriers to engagement in psychotherapy. It was hypothesized that there are additional variables on the exosystemic level of the socio-ecological model, beyond those previously identified in the literature and assessed in Aim 1, that contribute to treatment engagement.

Method

Study Design

This study is embedded within a small, randomized feasibility trial of the Primary Care Intervention for PTSD (PCIP) in adolescent primary care. The goal of the trial is to assess the feasibility of delivering the PCIP, as compared to treatment as usual (TAU), as well as to refine the PCIP and study design. The present study utilized a mixed methods approach to examine whether anticipated individual, microsystemic, and exosystemic barriers to psychotherapy treatment predict treatment engagement among diverse, low-income adolescents with PTSD symptoms within the PCIP intervention.

Setting

The study was conducted in partnership with the Strong Healthy and Resilient Kids (SHARK) program within the Los Angeles County Department of Health Services (LAC DHS). LAC DHS is the second largest municipal health system in the United States, operating numerous community-based health centers and providing care to an estimated 750,000 patients

each year. The health system serves low-income Los Angeles County residents who are uninsured, insured through Medi-Cal, and inmates in county jails. Patients within LAC DHS are diverse in terms of race/ethnicity, immigration status, and age. The SHARK program is a recently developed assessment and consultation service aimed at promoting resilience and increasing linkage to services for youth ages 0-20 with health needs related to trauma exposure or developmental disabilities receiving care at a pediatrics clinic within LAC DHS. Patients are referred to the SHARK program by pediatricians in the 21 LAC DHS pediatrics clinics if the youth has experienced a traumatic event, has developmental needs, or is exhibiting significant psychological symptoms. Upon referral, clinicians within the SHARK program conduct a physical and mental health assessment and provide recommendations for subsequent referral and symptom management. Study activities, including the intervention, were conducted remotely via HIPAA secure Zoom.

Providers were UCLA Clinical Psychology PhD students who were trained and supervised by the study developer and PI, Dr. Lauren Ng. Clinicians received a one-day training on how to deliver the PCIP, including a lecture regarding components of the intervention and role plays. Clinicians received weekly one on one and group supervision while delivering the PCIP. Therapy sessions were also taped and the tapes were reviewed as part of the supervision process. There were three clinicians who administering the PCIP in the dissertation study, all of whom were cisgender women in their second or third year of doctoral training.

Participants and Recruitment

Youths were eligible for the study if a LAC DHS clinician believed they could benefit from a PTSD intervention, were between 12 and 20 years old, and were able to complete all study activities in English. Some participants were identified following screening for PTSD by a

pediatrician within the SHARK program using the UCLA Child/Adolescent PTSD Reaction Index, while others who were known or suspected by LAC DHS providers to have experienced traumatic stress were referred directly to the study without prior screening. Interested and potentially eligible adolescents and their caregivers filled out a LAC DHS release of information form to have their contact information shared with the UCLA Psychology research team. Upon receipt of the contact information, UCLA research team members reached out to the families and gave informed consent over the phone. Study staff attempted to contact potential participants three times for study enrollment. During the pre-assessment participants were screened for suicidal ideation using the Columbia Suicide Severity Rating Scale and individuals were excluded from the study if they reported active suicidal ideation within the two weeks prior to screening, reported a suicide attempt in the 30 days prior to screening, or were unable to provide informed consent.

Primary Care Intervention for PTSD (PCIP). The PCIP is the first short term treatment for adolescents with PTSD symptoms to be delivered in a primary care setting. PCIP was adapted by Dr. Lauren Ng from "B.R.E.A.T.H.E. - Brief Relaxation, Education and Trauma Healing: A Brief Intervention for Persons with PTSD and Co- Occurring Serious Mental Health Conditions. Treatment Program Manual and Patient Handouts (Version 3)" by Kim T. Mueser, Rachael Fite, Stanley D. Rosenberg, and Jennifer D. Gottlieb. The PCIP was designed to be delivered in three sessions and includes: psychoeducation about PTSD, breathing retraining, and coping skills (Ng et al., 2023; Srivastava et al., 2021).

Treatment as Usual (TAU). The treatment as usual condition was the procedure for accessing mental health services currently used in LAC DHS pediatrics clinics and consists of participants receiving a phone call from a study clinician to provide information regarding

community mental health resources. Participants were subsequently sent a document listing free or low-cost mental health referrals in the Los Angeles metropolitan area along with the phone number for the DMH Access line.

Sample Size

The goal sample size for the larger RCT was 45 participants. However, due in large part to a lack of screening for PTSD symptoms, an English only inclusion criterion, and a restricted age range of youth 12-20 years old, there were significant difficulties with recruitment throughout the dissertation study period, resulting in a sample size of 9. It was originally proposed that only participants randomized into the treatment condition would be included in the dissertation study, which would result in a sample size of 4. Therefore, the original dissertation study design was augmented to include participants in the treatment as usual (TAU) condition when possible.

Study Procedure

Participants were enrolled and then scheduled for a qualitative and quantitative baseline assessment. Following the baseline assessment, participants were randomized to the PCIP or TAU at the family level, such that if multiple children from the same family were enrolled in the study they were in the same treatment condition. Participants and their caregivers participated in subsequent assessments occurring at 2 months, 4 months, 6 months, 8 months, and 10 months after enrollment. However, only quantitative data collected at baseline and two month follow up and qualitative data collected at baseline were utilized in the present study. Participants were compensated for study participation in the form $20 gift cards at each assessment period.

Quantitative Assessment

Treatment Engagement

Treatment engagement was the outcome of interest in the present study. Engagement in the present study was operationalized as multidimensional, based on the framework proposed by Becker and Chorpita in their 2018 paper (Becker et al., 2018) and a 2016 conference presentation. Becker and Chorpita proposed five elements of treatment engagement under the acronym "REACH": relationship, expectancy, attendance, clarity, and homework (Becker et al., 2018). Four of the five elements of engagement in the proposed framework were included in the dissertation study, corresponding to the relationship, expectancy, attendance, and homework domains. The domain of clarity was not assessed in the dissertation study due to limitations with data collection, such that no appropriate scale measuring this construct was administered in the RCT.

Relationship. Relationship reflected the alliance between the participant and therapist, and was measured by The Working Alliance Inventory, Short Form (WAI) (Horvath & Greenberg, 1989). The WAI is widely used to measure therapeutic alliance and was be administered to participants at the two month follow up. The range of the WAI is 12 to 60, with greater scores indicating greater alliance.

Expectancy. Expectancy refers to the belief that the intervention is helpful or that the individual can successfully participate in treatment. Expectancy was measured by the Acceptability of Intervention Measure (AIM) (Weiner et al., 2017), which was administered at the two month assessment time point. The range of the AIM is 4 to 20, with greater scores indicating greater alliance.

Attendance. Attendance refers to the number of sessions that a participant attended. In the present study, attendance was the percentage of scheduled sessions that the participant attended, as opposed to rescheduled or missed.

Homework. Homework refers to the participant's adherence to, or participation in, treatment. In the present study, homework was defined as the percentage of homework tasks completed within the therapy sessions wherein homework was assigned. Information for this item came from observational coding of the recordings of the therapy sessions. If the participant was assigned and did not complete a homework assignment, they received a score of 0 for the session. If the participant was assigned and completed a homework assignment, they received a score of 1 for the session.

Barriers to Treatment Engagement

Barriers were measured by the Barriers to Psychotherapy Treatment Scale (BPTS). The BPTS was adapted from three existing measures of barriers to psychotherapy treatment (Reasons for Ending Treatment Questionnaire, Barriers to Treatment Participation Scale, and Barriers to Treatment Questionnaire) to assess common barriers to attendance and engagement in trauma focused psychotherapy services for adolescents and their caregivers (Garcia & Weisz, 2002; Kazdin et al., 1997; Marques et al., 2010). Items from several established measures were combined in service of assessing all the potential barriers identified as possibly contributing to therapy engagement in previous research studies. Items on the BPTS correspond with three socio-environmental levels of influence: individual factors (self-stigma, denial, competing health issues), microsystemic factors (social stigma, family stress), and exosystemic factors (work/school conflict, scheduling difficulties, transportation issues, and computer access). The BPTS was administered at baseline to assess participant's anticipated barriers that may impact their participation in the intervention. The BPTS consists of 17 items, each of which is a statement regarding a potential barrier to care. Respondents were asked to assess how much they agreed that each item might impact their ability to participate in psychotherapy using a five-point

Likert scale, ranging from "totally disagree" to "totally agree." The scale yielded a sum score of the number of barriers a participant endorsed (range 17 to 85), with a larger sum indicating greater anticipated barriers. Sub scores were also computed for the average item score for barriers endorsed at the individual, microsystemic, and exosystemic barriers. For full BPTS, please see Appendix D.

Demographics

Demographics were measured at the baseline assessment by adolescent self-report. Demographic information included: age, gender, sexual orientation, race/ethnicity, level of education, prior psychiatric medication, and prior mental health service utilization.

Quantitative Data Analytic Plan

Participant demographic characteristics were reported descriptively. In the original dissertation proposal, I proposed using four two-level mixed-effects regression models to examine the impact of barriers to psychotherapy treatment on participant's treatment engagement. Each regression model was proposed to have a different outcome variable corresponding to the four proposed dimensions of therapeutic engagement: relationship, expectancy, attendance, and homework. It was further proposed that participants be nested within their therapists to account for the likely variance in engagement based on therapist that a given participant is matched with.

However, due to difficulties with recruitment and the small sample size, the statistical analysis had to be simplified. Therefore, anticipated barriers and available dimensions of engagement were presented descriptively for each participant in the PCIP condition.

Qualitative Assessment

Baseline semi-structured qualitative interviews focused on feasibility of the intervention, satisfaction with the intervention, and suggestions for improving the intervention. Qualitative data came from the portion of taped structured pre-treatment interviews with participants in response to the question "what type of challenges are there to taking part in treatment?" Responses were extracted from the baseline qualitative interviews administered pre-treatment to gain information regarding anticipated barriers to engagement throughout the study. There were a total of 9 interviews included in data analysis. Interviews were audio recorded, transcribed, and uploaded into Nvivo.

Qualitative Data Analysis

Qualitative analysis was utilized to execute Aim 2 of the proposed study. Data was coded using inductive content analysis. First, a coding team of the PI and two trained research assistants developed a preliminary codebook of themes related to the research question. Open coding was utilized as the qualitative research aim of identify novel barriers to care was exploratory. Therefore, there were no hypotheses regarding the types of barriers that may emerge within the data, but it was hypothesized that novel barriers would emerge. Then, the codebook was applied to the transcripts by the PI and research assistants. The coding team utilized inductive content analysis to make note of new themes as they emerged within the data and to make changes to existing codes. The coding team met weekly to collaboratively to identify, name, and define themes within the data. Disagreements in code application were settled by consensus across raters.

Results

Quantitative Analyses

Table 1 includes demographic information for each participant in the sample, including age, gender, sexual orientation, race/ethnicity, highest level of education completed, prior psychiatric medication, and prior mental health service utilization. The average age of the participants was 16.67 years old. All the participants in the study were cisgender, and the majority of them were cisgender females. Of the participants who reported their race/ethnicity, all of them identified as Hispanic and one also identified as White. The majority of participants reported that the highest level of education they had received was some high school. Only two participants in the study had prior exposure to psychiatric medication, and four participants had received therapy in the past.

Table 1.

Demographic characteristics for participants in the sample

Participant	Condition	Age	Gender	Sexual Orientation	Race/ Ethnicity	Education	Prior Medication	Prior Therapy
1	TAU	16	Cisgender Female	Bisexual	Hispanic	Some high school	Yes	Yes
2	TAU	19	Cisgender Male	Heterosexual	Hispanic	High school degree	No	No
3	PCIP	22	Cisgender Female	Heterosexual	Hispanic	Some college	No	Yes
4	TAU	17	Cisgender Female	Heterosexual	Hispanic	Some high school	No	Yes
5	TAU	15	Cisgender Female	Heterosexual	Hispanic	Missing	No	No
6	PCIP	15	Cisgender Male	Heterosexual	Hispanic	Missing	No	No
7	PCIP	15	Cisgender Male	Heterosexual	Hispanic and White	Middle school	No	No
8	TAU	13	Cisgender Female	Bisexual	Hispanic	Missing	No	No
9	PCIP	18	Cisgender Female	Heterosexual	Not reported	Some high school	Yes	Yes

Table 2 illustrates the scores of barriers to treatment and each available dimension of engagement for the sample, along with whether they completed the intervention. Of note,

dimensions of treatment engagement were only available for participants randomized into the PCIP condition, given that participants in the TAU condition did not receive therapy in the trial. There were significant missing data in the study, which limited my ability to describe and analyze the data. Two out of the four participants randomized into the PCIP condition dropped out before the follow up assessment, and only one of the remaining enrolled participants completed the Working Alliance Inventory (alliance domain) and no participants completed the Acceptability of Intervention Measure (expectancy domain). I was, therefore, limited in my ability to examine patterns in the relationship between anticipated barriers to treatment and engagement outcomes.

All participants identified at least one possible anticipated barrier to treatment, and the mean score of the total sum of barriers endorsed on the BPTS was 39.71 (SD = 8.14). The total possible range of scores on the barriers measure was 17 to 85, with higher scores indicating greater anticipated barriers. Within this sample, the range in scores on the barriers measure was 25 to 52. The average item score for barriers endorsed on the individual, microsystemic, and exosystemic level was also computed for each participant. The possible range of responses for each item was one to five, with one indicating that the participant totally disagreed that the item would present a barrier to their participation in treatment and five indicating that the participant totally agreed that the item would present a barrier to their participation in treatment. The average item score for individual level barriers was 2.64 (SD = 0.68), microsystemic barriers was 2.11 (SD = 0.81), and exosystemic barriers was 1.88 (SD = 0.82). Taken together, this suggests that participants were most likely to identify individual level barriers to treatment participation and least likely to identify exosystemic barriers.

Regarding engagement, three out of four participants randomized into the PCIP condition completed the intervention. The average percentage of attended therapy sessions was 49.50%, indicating that nearly half of the scheduled therapy sessions within the RCT were either rescheduled or missed by participants. The average percentage of therapy homework assignments completed by participants was 66.67%, indicating that about a third of homework assignments were not completed. Only one participant completed the therapeutic alliance measure. Their score indicated a high level of alliance between the participant and therapist. Taken together, these results suggest significant difficulty with engagement throughout the trial.

Table 2.

Descriptive statistics for the proposed independent and dependent variables among participants randomized into the PCIP condition.

Participant	Condition	Barriers Sum	Individual Barriers	Microsystemic Barriers	Exosystemic Barriers	Treatment Completion?	Scheduled Sessions Attended (%)	Homework (%)	Alliance
1	TAU	39	3.40	2.20	1.57	-	-	-	-
2	TAU	44	2.80	2.80	3.14	-	-	-	-
3	PCIP	42	2.80	2.80	1.71	Yes	38%	50%	58
4	TAU	25	2.00	2.00	1.14	-	-	-	-
5	TAU	38	3.20	3.20	1.00	-	-	-	-
6	PCIP	52	3.40	3.40	2.71	Yes	60%	100%	-
7	PCIP	38	2.60	2.60	2.57	Yes	100%	50%	-
8	TAU	-	1.40	1.40	-	-	-	-	-
9	PCIP	25	2.20	2.20	1.14	No	0%	-	-

Table 3 illustrates additional information regarding the types of barriers endorsed by participants on the BPTS. In this table, endorsing a barrier is defined as a participant responding above a "1" on the Likert scale measuring whether they anticipate that the given barrier may impact their engagement in the intervention. Each barrier was endorsed by at least two participants and the most frequently endorsed barrier, wanting to handle psychological issues on one's own, was endorsed by all participants. Attitudinal and self-stigma barriers were most frequently endorsed by participants, including feeling ashamed of needing help, experiencing

stress, and deciding that treatment is not necessary.

Table 3

Number of participants endorsing each barrier on the BPTS

Barrier	N	Percent
I feel ashamed of needing help with my problem.	6	66.67%
I want to handle my problem on my own.	9	100.00%
I will decide that things are ok after all – that I don't really need to change.	8	88.89%
I will feel that help is no longer necessary because I will get better.	6	66.67%
Family health problems or illness in my home interfere with getting treatment.	5	55.56%
My health problems or illness will interfere with getting treatment.	5	55.56%
I will worry about what people would think if they knew I was in treatment.	5	55.56%
I will be afraid of being criticized by my family if I seek psychological help.	4	44.44%
I will have family problems that will prevent me from going to treatment.	2	22.22%
I will experience too much stress in my life to participate in treatment.	7	77.78%
The appointment will interfere with my/my family's work schedule.	3	33.33%
The appointment will interfere with my/my family's school schedule.	4	44.44%
Treatment would conflict with other activities in which I / my family is involved.	5	55.56%
I won't have enough time for treatment.	3	33.33%
Scheduling appointment times for treatment would be difficult.	4	44.44%
I will not have transportation (car, truck, taxi) to travel to treatment.	4	44.44%
I will not have the necessary technology (computer, smart phone, Wi-Fi) to access treatment.	3	33.33%

Qualitative Analyses

Out of the nine transcripts coded, eight participants identified potential barriers to participating in therapy. This suggests that, when asked directly, marginalized adolescents identify factors that may impact their ability to engage in psychological treatment. However,

participants appeared to have an easier time identifying barriers that had previously impacted their engagement in therapy as compared to prospectively identifying novel barriers that may impact their engagement in the RCT. Barriers identified by participants were coded into categories corresponding to a level of the (individual, microsystemic, exosystemic) socio-ecological model. Of note, participants did not endorse any microsystemic barriers to treatment within the interviews.

Individual Barriers

Four participants identified individual level barriers to participating in psychotherapy. All of the individual level barriers identified by participants had to do with potential concerns about treatment, or emotions that treatment may illicit. The specific attitudes and emotions that participants identified as barriers were disparate. One participant reported that feeling uncomfortable within a therapy session could potentially emerge as a barrier to continued participation in treatment:

"I don't know, just feeling uncomfortable by a question" (Participant 1)

Another participant reported that feeling bored within a therapy session may be a barrier to care:

"Interviewer: What might stop you from participating in therapy?

Participant: … I guess being bored, um…what else? Not in the mood, I guess."

(Participant 2)

Finally, two participants reported that having difficulty with discussing their personal thoughts, emotions, and experiences may be a barrier to participation in care:

"Well, there's the talking and opening, you know. In therapy, you're supposed to open up but I don't think I'm good at that" (Participant 8)

Exosystemic Barriers

The most common exosystemic barrier endorsed by participants was anticipated difficulty with scheduling therapy sessions, particularly when participants considered juggling competing responsibilities (n = 4). For example, one participant reported that it would be difficult to manage therapy related tasks while also attending to schoolwork:

> "Well, I guess, it would be my school 'cause sometimes I'm in school and if therapy's done, or is being done too, too early, I would miss school time, that would lower my grade, and it would affect me in both ways. I'd be worried and it'd be like, oh, if I go, I will have, I can talk about my problems but then I will miss this in this class, and I'll have to worry… about being able to catch up and knowing what happened." (Participant 7)

Another participant reported that due to her competing work, school, and childcare responsibilities, scheduling therapy sessions may emerge as a barrier to care. This participant also stated that managing scheduling concerns would be easier if sessions were delivered via Zoom, suggesting that telehealth may be an avenue towards alleviating exosystemic barriers to care:

> "Participant: Probably, like Zoom meetings or calling because, because of my daughter and because of school and then starting to work, it's kind of hard to balance… I mean I could go to the, to in person therapy. I just feel like it would be a little more difficult because, because of my daughter, I would kind of have to balance that out…" (Participant 3)

A second exosystemic barrier identified by a participant was difficulty with transportation. This participant reported that, in the past, difficult commutes to obtain therapy

services were a barrier to remaining in care and identified continued transportation concerns as a key reason for lack of motivation to seek out psychological treatment in the future:

> "Um I think it was the distance just because it was kind of far where I was going. So that kind of unmotivated me too because we had to commute there through public transportation… It was kind of difficult to actually have the motivation to go because it was so dreadful to spend an hour going in the sun and then… to go back. I feel like that's what kind of made me stop or made me steer away from it a little more" (Participant 4)

Finally, two participants identified a lack of availability of mental healthcare providers, therapy appointments, and staff turnover as a salient barrier to accessing psychological services:

> "We tried to… in the past, but it never really worked because there were like so many appointments or like doctors saying that there wasn't really appointments and stuff available." (participant 5)

Comparing Quantitative and Qualitative Results

Table 3 illustrates a comparison of the anticipated barriers endorsed by participants in the qualitative interviews and on the BPTS, defined as a participant marking the barrier as at least a "two" on the one through five Likert scale. Participants endorsed a wider range of possible anticipated barriers when asked to rate them quantitatively as compared to qualitatively. Notably, participant 6, who did not endorse any anticipated barriers in the qualitative interview, had the highest overall BPTS score in the sample. Participants also did not identify any anticipated microsystemic barriers during the qualitative interviews, and instead focused on individual and exosystemic barriers. However, numerous anticipated microsystemic barriers were endorsed on the BPTS. A particularly striking difference between the quantitative and qualitative findings is that almost all participants endorsed stigma related to receiving psychological treatment as a

possible anticipated barrier to care on the BPTS, either on the individual or microsystemic level, but no participants identified stigma as a possible barrier in the qualitative interviews. There were also several barriers endorsed in the qualitative interviews that were not directly captured in the BPTS, including some attitudes about treatment (e.g. feeling uncomfortable when asked question in therapy), and lack of availability of healthcare providers. However, it is possible that these barriers could have been captured by the BPTS within items assessing attitudes about treatment and scheduling concerns, although these items in the scale were slightly more general than the specific barriers endorsed by participants upon interview.

Table 4

Comparison of barriers endorsed in qualitative interviews and BPTS, by participant

Participant	Barriers - Qualitative	Barriers - BPTS
1	*Individual:* Attitudes about treatment (feeling uncomfortable when asked a question)	*Individual:* Feeling ashamed of needing help, wanting to handle the problem on their own, deciding treatment is unnecessary, individual illness *Microsystemic:* Family illness, fear of stigma *Exosystemic:* Scheduling issues
2	*Individual:* Attitudes about treatment (feeling bored) *Exosystemic:* Scheduling issues due to competing responsibilities	*Individual:* Feeling ashamed of needing help, wanting to handle the problem on their own, deciding treatment is unnecessary, personal stress *Exosystemic:* Scheduling issues, transportation issues, technology issues
3	*Exosystemic:* Scheduling issues due to competing responsibilities	*Individual:* Feeling ashamed of needing help, wanting to handle the problem on their own, deciding treatment is unnecessary, individual illness, personal stress *Microsystemic:* Family illness, fear of stigma *Exosystemic:* Scheduling issues
4	*Exosystemic:* Lack of availability of providers, transportation difficulties	*Individual:* Wanting to handle the problem on their own, deciding treatment is unnecessary, personal stress *Microsystemic:* Family illness, family conflict *Exosystemic:* Transportation issues

5	*Exosystemic:* Lack of availability of providers, scheduling issues due to competing responsibilities	*Individual:* Feeling ashamed of needing help, wanting to handle the problem on their own, deciding treatment is unnecessary, personal stress *Microsystemic:* Fear of stigma
6	None	*Individual:* Feeling ashamed of needing help, wanting to handle the problem on their own, deciding treatment is unnecessary, individual illness, personal stress *Microsystemic:* Family illness, fear of stigma, family conflict *Exosystemic:* Scheduling issues, transportation issues
7	*Exosystemic:* Scheduling issues due to competing responsibilities	*Individual:* Feeling ashamed of needing help, wanting to handle the problem on their own, deciding treatment is unnecessary, individual illness *Microsystemic:* Family illness *Exosystemic:* Scheduling issues, transportation issues, technology issues
8	*Individual:* Attitudes about treatment (difficulty discussing emotions)	*Individual:* Wanting to handle the problem on their own, personal stress *Microsystemic:* Fear of stigma *Exosystemic:* Scheduling issues
9	*Individual:* Attitudes about treatment (difficulty discussing emotions)	*Individual:* Wanting to handle the problem on their own, deciding treatment is unnecessary, individual illness, personal stress *Exosystemic:* Technology issues

Discussion

Despite significant rates of trauma exposure and subsequent psychological distress among youth, the number of adolescents who complete psychological treatment to target these concerns is low. Minority status adolescents, in particular, face difficulty in engaging in psychological services due to barriers across several socio-ecological levels. However, there is limited clarity regarding how to best measure barriers to care and which barriers are most related to engagement. There is particularly limited information regarding exosystemic and macrosystemic barriers to treatment engagement. An additional challenge is that there is little

agreement in the field regarding the definition of therapeutic engagement. The overall goal of the present study was to increase clarity regarding the relationship between barriers to care and treatment engagement.

Specifically, I aimed to examine whether asking participants to prospectively identify barriers to treatment ahead of therapy initiation would be related to their engagement within the intervention. In the present study, engagement was conceptualized as a multidimensional construct, composed of session attendance, expectancy, homework completion, and working alliance. An additional goal of the study was to examine whether different socio-ecological categories of barriers to treatment would be differentially related to different dimensions of engagement. A final aim of the study was to qualitatively analyze structured interviews with participants in service of identifying additional exosystemic barriers to engagement in psychotherapy, beyond those assessed quantitatively. There were significant difficulties with recruitment within the study, which limited my ability to adequately execute these research aims. Nonetheless, preliminary results are summarized below.

In the present study, I was unable to statistically test relationships between prospectively assessed barriers to care and domains of therapeutic engagement due to the small sample size. Therefore, the hypothesis that barriers to care would predict engagement in treatment was not tested in this paper. However, I did observe that participants were able to identify a range of possible barriers to treatment engagement in the study across different socio-ecological levels and, consistent with previous research, there was relatively low treatment engagement within the present study (Steinberg et al., 2019). Continued investigation of the relationship between self-identified barriers to care and treatment engagement is warranted, particularly given preliminary evidence that participants can identify a range of possible barriers when asked. If self-identified

barriers are ultimately related to engagement in therapy, it would suggest that asking adolescents to prospectively identify barriers to treatment is clinically meaningful. If therapists are aware of barriers to engaging in treatment, they have the opportunity to intervene and target said barriers before they impact adolescents' ability to engage in therapy.

I was also unable to assess differences in the relationships between barriers at different socio-ecological levels and the domains of engagement. However, there were some differences in the average number of barriers endorsed by participants at different socio-ecological levels. When completing the BPTS, participants were more likely to identify barriers on the individual and microsystemic level, defined as barriers related to individual beliefs, attitudes about treatment, social stigma, and family stress, as compared to the exosystemic level, defined as barriers related to scheduling concerns and access to necessary resources. Additional investigation of this difference is necessary to determine whether it will hold in a larger sample. Continuing this line of investigation is also necessary in service of determining if there are indeed differences in the strength of the relationship between different domains of barriers and engagement as, if there are differences, this would point to more precise points of intervention to promote engagement in care.

Qualitative data analysis revealed that participants had a more difficult time when asked to spontaneously identify potential barriers to care than they did when presented with a measure listing possible barriers to treatment. In qualitative interviews, participants reported limited barriers at the individual and exosystemic levels. On the individual level, participants reported that their emotions, attitudes, and beliefs about treatment may be a barrier to engagement in the intervention. Participants reported that the believed therapy may result in discussing personal information which would result in feelings of discomfort. This is in line with prior research

establishing that attitudinal barriers broadly impact psychotherapy engagement (Sweetman et al., 2021). More research is necessary to elucidate which factors contribute to attitudinal barriers to help seeking in service of identifying appropriate points of intervention to promote engagement in care. One promising intervention may be efforts to promote increased mental health literacy and positive expectancies for psychological treatment within diverse communities, perhaps through community education efforts (Tomczyk et al., 2020). Additionally, some participants endorsed that feeling bored may result in diminished engagement outcomes. It may be beneficial to conduct additional research into strategies to increase active engagement in therapy in service of decreasing boredom in therapy clients.

The exosystemic barriers endorsed by participants are also in line with previous research establishing that scheduling concerns, competing responsibilities, and limited availability of mental health care are barriers to access and engagement (Ellinghaus et al., 2021; Sweetman et al., 2021; Theimer et al., 2020; Trusz et al., 2011). Notably, limited availability of mental health care was a barrier endorsed by participants in qualitative interviews but was not assessed quantitatively. These results underscore the necessity for changing methods of psychological treatment delivery to promote increased access to treatment. Potential points of intervention include embedding ample mental health services within existing institutions that adolescents frequently come into contact with, such as schools, or delivering treatment though novel means, such as mobile app-based interventions.

Notably, participants did not identify any microsystemic barriers to care within interviews, despite identifying numerous microsystemic barriers in the quantitative assessment. A particularly salient microsystemic barrier endorsed on the BTPS was fear of stigma, which has been shown to be a strong predictor of adolescent treatment engagement within previous

research (Roberts et al., 2022; Sylwestrzak et al., 2015). Participants endorsed both self-stigma and a fear of judgments from others as a potential barrier to receiving care on the BPTS although self-stigma was slightly more frequently endorsed. However, adolescents did not identify stigma as a barrier to care within qualitative interviews. These findings illustrate that, despite intervention efforts, stigma remains a significant barrier to engaging in psychological services. There are numerous interventions that have been developed with the goal of decreasing mental health stigma, but the power of these interventions to alter attitudes related to stigma in the long term is limited (Freţian et al., 2021). Therefore, additional research should be conducted regarding promising avenues to create effective interventions to decrease stigma against mental health treatment.

The reason for differences in adolescents' report of barriers between the qualitative interviews and quantitative assessment is unclear. It is possible that, when asked in interviews, adolescents only identified barriers that immediately came to mind while when presented with a measure of potential barriers they considered a wider range of factors that could impact their engagement in the intervention. It is also possible that participants only identified barriers that they strongly believed would impact treatment engagement in interviews, while when completing the measure adolescents had the ability to identify factors that they were less certain would impact their engagement. Finally, it is possible that adolescents have different levels of comfort in disclosing barriers to care within interviews as compared to completing a measure. In the case of stigma, in particular, it is possible that disclosing this as a barrier to care within an interview with a mental healthcare provider would be less socially desirable than disclosing more "neutral" barriers to treatment engagement, such as scheduling concerns.

At this time, qualitative interviews have not elucidated any novel barriers to engagement. However, there were several barriers endorsed within the qualitative interviews that were not directly captured within the BPTS, including some attitudes about treatment (e.g. feeling uncomfortable when asked a question in a therapy session) and lack of availability of healthcare providers. Therefore, my hypothesis that qualitative interviews would elucidate novel barriers at the exosystemic and macrosystemic levels of the socio-ecological model was not supported at this time. Based on the preliminary evidence within this study, it seems that asking adolescents to identify barriers within an interview as compared to completing a measure will elicit different answers. It also seemed that, in the qualitative interview, participants had a particularly difficult time with spontaneously anticipating barriers that could impact their participation in the intervention and had an easier time identifying barriers that had previously impacted their engagement in therapy. This suggests that qualitatively assessing barriers to treatment for adolescents who have never accessed mental health services may be more difficult than for adolescents who have previously engaged in care. There did not seem to be differences in adolescents' ability to anticipate barriers on the BTPS based on prior exposure to therapy. It is recommended that clinicians interested in assessing barriers to engagement do so both qualitatively and quantitatively in service of identifying the full scope of factors that may impede an adolescent engaging in treatment. Based on the barriers endorsed by the adolescent, clinicians may identify appropriate intervention strategies to promote engagement in treatment.

As stated above, a significant limitation of the study was that there were difficulties with study recruitment which made it impossible to fully execute my research aims. This study was conducted in partnership with a community primary care clinic that had been established to specifically meet the needs of low-income youth with trauma exposure. Yet, there were

significant barriers to screening youth in the clinic for PTSD and providing them with information about the clinical trial. Of the 44 eligible families who were referred for the trial, only nine participants were ultimately recruited into the study. Those who were not ultimately enroll did not answer recruitments calls, return attempts to contact for study enrollment, or did not attend scheduled baseline study visits. These difficulties are common in community partnered health research and only serve to highlight the significant barriers marginalized youth face in accessing and engaging in care. Clinical trials also often have greater trauma focused treatment engagement rates as compared to care in the community (Wamser-Nanney & Walker, 2023), so it is highly likely that the youth being targeting for participation in our study would have an even more difficult time accessing care within community mental health setting.

These challenges with enrollment also highlight the overall difficulties with embedding psychological services in primary care settings. Integrating mental and physical health services is a key avenue towards improving access and engagement in treatment, but existing primary care clinics are often overburdened and have limited resources to implement the provision of additional services (Brady et al., 2020; Wang et al., 2023). Although these challenges have limited my capacity to execute the aims of the proposed dissertation study, they highlight the profound structural barriers that limit the capacity of our health systems to meet the needs of youth with trauma exposure. Additional research should be conducted to comprehensively investigate avenues to remit the influence of such structural barriers on engagement in psychological treatment.

In sum, although the results of this dissertation study are limited and preliminary, they support that there are numerous barriers to therapeutic engagement on several socio-ecological levels. Recruitment for the clinical trial is ongoing and, therefore, the present study will continue.

It is planned that once recruitment reaches the target sample size, the quantitative and qualitative analyses will be repeated to fully execute the research aims.

Study 3: How Do Exosystemic and Macrosystemic Stressors Influence Perceptions of EBI Effectiveness?

In the United States, over half of all children and adolescents will experience at least one traumatic event by the time they turn 18 (Finkelhor et al., 2005; McLaughlin et al., 2013). Marginalized youths (in terms of racial/ethnic identity, sexual orientation, SES status, nativity status, and/or gender identity) are particularly likely to experience traumatic events (Bridges et al., 2010; Goldberg & Meyer, 2013; Maguire-Jack et al., 2020; Mustanski et al., 2016; Roberts et al., 2011; Roberts et al., 2012). A portion of these youths will go on to develop post-traumatic stress disorder (PTSD), a debilitating disease characterized by profound stress and anxiety stemming from a traumatic incident. Fortunately, there are several evidence-based interventions (EBIs) that efficaciously treat PTSD among youth, including Trauma Focused Cognitive Behavioral Therapy and the Cognitive Behavioral Intervention for Trauma in Schools (Gutermann et al., 2017). Although the specific components of these EBIs vary, the central treatment philosophy is to help youth learn that the traumatic events have passed, that they are now safe, and to equip the youth with skills to adequately cope with reminders of the event.

However, marginalized youths are less likely to engage in and benefit from EBIs for PTSD, despite being at disproportionate risk of trauma exposure (Bridges et al., 2010; Choi et al., 2018; Goldberg & Meyer, 2013; Interian et al., 2013; Kataoka et al., 2002; Maguire-Jack et al., 2020; Mustanski et al., 2016; Roberts et al., 2011; Roberts et al., 2012). A hypothesized reason for the disparity in EBI engagement and effectiveness is that marginalized identity renders adolescents more likely to experience chronic contextual stressors on the exosystemic and macrosystemic level, or persistent stressors related to their environmental circumstances, (e.g. poverty, community violence, and discrimination) that further exacerbate psychological

problems and are not adequately targeted in EBIs (Vines et al., 2017; Williams et al., 2019). Regarding PTSD, the presence of chronic contextual stressors is associated with greater symptom severity and chronicity among marginalized groups, even when receiving evidence based psychological treatment (McClendon et al., 2021; Mekawi et al., 2021; Sibrava et al., 2019).

An additional challenge may be that the ongoing unpredictability of chronic contextual stressors is incompatible with the focus of PTSD interventions. As stated above, a key goal in clinical interventions for PTSD is to increase the adolescent's sense of safety and control over their environment, given that traumatic events are largely unexpected and beyond the youth's control. Similarly, the chronic contextual stressors that marginalized youths face are also unexpected and beyond their control, likely diminishing youth's sense of safety and perhaps limiting opportunity for post-traumatic growth. Chronic stressors, often referred to as "daily stressors", significantly influence PTSD symptom severity above and beyond the influence of trauma exposure (Miller & Rasmussen, 2010). It is hypothesized that the presence of chronic contextual stressors leaves marginalized individuals with less available resources to cope with the consequences trauma exposure and maintains the heightened reactivity of the stress response system, therefore diminishing intervention effectiveness (Ayazi et al., 2012; Miller et al., 2021; Miller & Rasmussen, 2010; Mock & Arai, 2011; Sibrava et al., 2019).

Despite evidence that suggests that chronic contextual stressors play a significant role in PTSD etiology and recovery, attention to such stressors in EBIs following trauma exposure is limited, and scholarship regarding the presence of these stressors in therapy sessions is scant (Bryant-Davis, 2019; Carlson et al., 2018; Gómez et al., 2021; Livingston et al., 2020; Sibrava et al., 2019). The lack of direct attention to structural stressors in trauma focused EBIs in favor of

targeting individual-level behaviors is hypothesized to make EBIs less acceptable to marginalized populations, and, therefore may be a driver of lower treatment engagement and effect sizes (Carlson et al., 2018; Dixon et al., 2016; Maercker & Hecker, 2016).

Researchers have called for making existing trauma focused EBIs more responsive to chronic contextual stressors in service of improving disparities in treatment response and engagement among marginalized groups (McClendon et al., 2021; Mekawi et al., 2021). I posit that one reason why clinical scientists have yet to identify an appropriate solution for attending to chronic contextual stressors within psychological interventions is that, while there is evidence that such stressors impact the efficaciousness of psychological interventions broadly, the actual frequency of the disclosure of such stressors as well as their content and context within individual client therapy sessions are unknown.

The purpose of the study was to use qualitative analysis of audio recorded therapy sessions and interviews to investigate how diverse, low-income adolescents talk about chronic contextual stressors during short term trauma focused therapy sessions. Specifically, this study aims to elucidate how often participants disclose chronic contextual stressors in therapy sessions, the types of chronic contextual stressors that are disclosed, as well as the context in which chronic contextual stressors are disclosed and the content of these disclosures. An additional goal of this study was to document how therapists respond to structural stressors in therapy sessions. A final goal of this study was to examine post-treatment semi-structured interviews with participants and clinicians to identify whether participants and therapist describe structural stressors as contributing to treatment effectiveness. This study is novel in that it allows for the unique opportunity to examine the natural emergence of chronic contextual stressors within a treatment that, although delivered to a diverse group of minority status clients, did not explicitly

focus on identity, culture, or associated structural stressors. Results from the study may highlight strategies for considering chronic contextual stressors in therapy in service of improving EBIs for marginalized youth with trauma exposure.

Method

Participants and Design

Participants were recruited as part of a pragmatic feasibility trial of the Primary Care Intervention for PTSD (PCIP): a novel, short-term, treatment for adolescent PTSD to be delivered in primary care with existing clinic staff (Ng et al., 2023; Srivastava et al., 2021). The PCIP is delivered in three therapy sessions and targets several mechanisms to reduce PTSD symptoms, including: psychoeducation, breathing retraining, and coping skills (Srivastava et al., 2021). The intervention was delivered in Boston Medical Center, a large safety net hospital that primarily serves minority status individuals, with 72% of clients insured by publicly funded insurance, such as Medicaid (Ng et al., 2023; Srivastava et al., 2021).

Participants were clients within the Adolescent Medicine multidisciplinary clinic at Boston Medical Center (BMC) and were referred to the study by clinic staff. Participants were eligible for the study if they experienced clinically significant PTSD symptoms or had a PTSD diagnosis. Study staff contacted eligible participants to obtain informed consent if they were over 18, and parents of eligible participants if they were under 18. Participants were then recruited to the study and completed pretreatment quantitative and qualitative assessments to gather demographic information, symptoms of PTSD, symptoms of anxiety, symptoms of depression, psychological distress, substance use, functional impairment, and knowledge of PTSD. Following intervention completion, or study drop out, participants were contacted for a follow up quantitative assessment to determine symptom change as well as semi-structured

qualitative interviews regarding evaluating the intervention. Study clinicians were also contacted following intervention completion or drop out to complete semi-structured qualitative interviews to evaluate the intervention.

The therapists were three clinical social workers employed in the Department of Pediatrics at Boston Medical Center. The therapists self-identified as White/European American women and held master's degrees in social work. The therapists were trained to deliver the PCIP through two half-day trainings delivered by the developer of the intervention (LN). Further information regarding the details of the study design can be found in Ng et al., 2023.

Data Collection

Qualitative data came from audio recorded individual therapy sessions. In total, there were 23 participants referred to participate in the feasibility trial. Of those participants, 20 consented to the trial, and 19 completed the pre-assessment. Of the 19, four participants no showed to the first session and were unable to be reached, and one participant cancelled and declined to participate. Therefore, only 14 completed at least one therapy session. In total, seven (50%) participants completed all three therapy sessions, four (28.5%) participants completed two therapy sessions, and three participants completed just one therapy session (21.4%). Participants often missed scheduled therapy sessions which then had to be rescheduled. The average number of missed sessions per participant was two. However, one participant did not have any therapy sessions recorded and is therefore excluded from the present study. Participants completed 32 therapy sessions, of those, 25 sessions were recorded and transcribed. Seven therapy tapes were missing from data analysis because they were not recorded by the therapists conducting the therapy sessions. One recording of a therapy session was prematurely cut off, likely due to the recording device either being switched off or running out of battery power.

Post-treatment interviews with clinicians were conducted for each participant and focused on: clinician satisfaction with treatment delivery, challenges with delivering the treatment to the specific participant, feasibility of executing the treatment, whether the treatment met the needs of the participant, and suggestions for improvement of the PCIP intervention. In total, 12 post-treatment interviews with clinicians were audio-recorded and transcribed. Post-treatment interviews were also conducted with a portion of participants, although several participants were lost to follow up. Interviews with participants focused on: aspects of the treatment that participants enjoyed, aspects of the treatment that participants did not enjoy, participant reactions to receiving psychological treatment in a primary care setting, participant perceptions of their assigned clinician, and suggestions for improvement of the intervention. In total, six post-treatment participant interviews were audio-recorded and transcribed.

A demographic questionnaire was also created for the feasibility trial of the PCIP intervention and was utilized to obtain information on participant's self-reported race/ethnicity, age, gender, education, and prior utilization of mental health services to contextualize the qualitative data. Additional demographic information, when available, was obtained through reviewing participant's medical charts or from information disclosed during taped therapy sessions. There were 13 participants included in the sample, the majority of whom (92.31%) were racial or ethnic minority adolescents. Participants were between 14 to 22 years old. Two participants identified as transgender women, one identified as a transgender man, nine identified as cisgender women, and one identified as a cisgender man. Four participants disclosed lesbian, gay, bisexual, or queer sexual orientation during the therapy sessions.

Data Analysis

Taped therapy sessions and interviews were analyzed using a mixture of deductive and inductive thematic content analysis (Fereday & Muir-Cochrane, 2006; Roberts et al., 2019). To start I utilized deductive content analysis to develop a preliminary codebook. The preliminary codebook, including code labels, definitions, and descriptions, was based on a review of relevant literature and the research question. A team of four undergraduate research assistants were then trained on codebook application. As part of this process, the research aims, codes, and definitions were explained to the research assistants and then they were asked to apply the codebook to a sample transcript. The research team met to correct mistakes and answer questions. Then, the research team applied the preliminary codebook to five additional transcripts, such that each additional transcript was coded by the first author and two research assistants. Inductive content analysis was utilized at this stage in the coding process as the research team noted the emergence of new themes within the transcripts and possible changes to existing codes. The research team met weekly to review progress in coding, memos, and to update the codebook based on new information gathered from the transcripts. Disagreements between coders were settled by consensus. After data saturation was reached and a finalized codebook was developed, the final codebook was applied to all of the transcripts utilizing Taguette, an open source qualitative coding software (See supplemental materials for final codebook) (Rampin, 2019). The finalized codebook included code labels, definitions/descriptions, qualifications or exclusions, and examples.

The finalized codebook was applied to each transcript, including the transcripts utilized during training and development of the final codebook. Each transcript was coded by two research assistants. Research assistants were asked to write memos while coding regarding patterns in code application they noticed that were relevant to disclosure of chronic contextual

stressors. The first author reviewed each transcript and identified discrepancies in the application of codes by the research assistants. Discrepancies and patterns in memos were discussed and resolved by consensus within weekly coding team meetings. Cohen's Kappa was calculated on the pre-consensus coded transcripts to determine inter-coder reliability (Kappa = 0.86, across all codes). The finalized codebook is available in Appendix E.

Once data were coded, data analysis focused on determining how frequently chronic contextual stressors emerged within therapy sessions by computing how many transcripts the "structural stressors" code was applied to. Qualitative thematic analysis was then utilized to identify themes in the content and context of chronic contextual stressors disclosures, clinician response, as well as mechanisms connecting exosystemic and macrosystemic stressors to perceived effectiveness (Braun & Clarke, 2006).

Results

Aim 1: How often are chronic contextual stressors disclosed within therapy sessions?

The code "structural stressors" was applied to therapy transcripts in service of assessing how frequently participants spontaneously mentioned chronic stressors related to their environment or minority identity status. Chronic contextual stressors mentioned by participants included: lower socio-economic status, discrimination, lack of community resources, tenuous living situations, family incarceration, unequal policing, and presence of community violence. We included an additional code: "identity", to capture when participants explicitly mentioned a characteristic of their identity, including: race/ethnicity, gender identity, or sexual minority status. The identity code was utilized to examine how often participants explicitly mentioned their identity status(s) and whether participants explicitly linked the presence of structural stressors to their identities.

The "structural stressors" code was applied at least once in at least one therapy session for ten out of thirteen participants, suggesting that chronic contextual stressors do naturally emerge within therapy sessions with marginalized adolescents. Please see the supplemental materials for a table with example quotes from each transcript.

Only two out of 13 participants explicitly verbally linked the presence of structural stressors to their identity. When participants did link the presence of a structural stressor to their identity, it was often because the salience of a particular stressor was magnified due to one or more minorized identity statuses of the participant. For example, a participant mentioned her identity as a transgender woman to describe how her living in her current all-male foster care group home was especially stressful:

> "It is a male group home. I am not a male. Yes. You heard that correctly. And I'm living there right now, and it is killing me 'cause I want to smack them all 24/7."

However, the association between the presence of a chronic structural stressor and marginalized identity status was typically less explicit in exchanges between participants and therapists. For example, one participant described how his identity status as a gay man has limited his ability to seek social support from a straight male friend.

> "Straight guys and gay guys have an interesting relationship, all of them... My relationships with a lot of straight men, I tend to walk on eggshells around them cause like you don't want to do something to keep them out. You don't want to do something to push them away."

Aim 2: What is the context during which chronic contextual stressors are disclosed, and what is the content of these disclosures?

Thematic analysis revealed three patterns of when participants were most likely to

disclose chronic contextual stressors: when structural stressors (1) exacerbated psychological distress, (2) impacted treatment engagement, and (3) decreased intervention effectiveness.

Chronic contextual stressors exacerbating psychological distress

Participants described structural stressors exacerbating their existing psychological distress. The stressors participants disclosed as exacerbating their distress were: socio-economic status, family incarceration, community violence, and their living situation. Notably, participants often described complex relationships between different kinds of structural stressors impacting their existing psychological symptoms. For example, a participant described the chronic structural stress of her socio-economic status exacerbating the impact of family interactions leading to negative self-evaluations:

> "And then like she's like mentally ill as well so … She just lashes out. I don't really have a lot of money, but when she asks, I feel bad not giving it to her, so then I get angry at myself… all the grown-ups in my life, I've been taking care of them for years and they expect things of me. When am I going to be able to take care of myself?"

Another participant described how the structural stress of the threat of community violence in her neighborhood has made her more fearful:

> "When I go outside, especially like when I'm walking to the train, I feel like I have to be on the phone with somebody. Like, I can't just walk outside to the train cause I feel like something is gonna happen. There's like a lot of violence in [neighborhood], so I always feel the need... I have to be on the phone."

The same participant went on to describe how unequal policing and a lack of adequate access to healthcare in her neighborhood has exacerbated feelings of anger following a traumatic event:

"I was also angry with what the police cause the-There's a police station right there. I don't understand why, there's like so much violence, and the ambulance they don't come on time. Every time they get transferred here, they don't make it."

Participants also reported that structural stressors have contributed to their sense of alienation from their community. For example, one participant described how the disparity between her socio-economic status and that of her friend's has led to interpersonal problems and a lack of perceived understanding:

"I just feel like [my classmates] don't understand me. Yeah, like they just don't get it. .. my roommate, she is privileged, and, um, I'm just-I go to school, and I go to work. Like I'm really not… they don't understand. She's like, 'Why do like working so much?'"

Chronic contextual stressors impacting treatment engagement

Several participants stated that structural stressors, most often related to their socio-economic status, impacted their ability to engage in the requirements of the PCIP. The individuals served at the hospital where the study took place are largely below the poverty line and, therefore, face a greater magnitude of uncertainty regarding their income and access to necessary resources. Uncertainty regarding work schedules was a particular barrier for participants scheduling therapy sessions in advance. An inconsistent schedule also impacted participants' ability to make a plan to ensure between-session homework completion, which was a specific treatment component of the intervention:

"*Therapist:* What is a time of day that you feel like you might be able to practice it and it's not a stressful time?

Participant: That's hard because… I work all the time.

Therapist: How many times a week do you think you-is realistic for you to try to do it? And again, only for a few minutes each time. We're just trying to help build the habit.

Participant: ...Maybe...depends. I mean, I work so many hours at work… I don't know."

Another participant reported that she had to work numerous hours each week to make ends meet, which resulted in overall exhaustion and limited time to complete therapy homework assignments:

"When I'm not working, I'm sleeping…. And when I'm not sleeping, I'm working. So, that thirty minutes a day or even twenty-five minutes a day can be very hard to find."

Chronic contextual stressors impacting perceived intervention effectiveness and acceptability

Finally, one participant explicitly described how structural stressors impacted her perceptions of intervention effectiveness and, therefore, her willingness to remain engaged in therapy. The participant dropped out of the study after two therapy sessions. This participant was a transgender woman of color who was involved in the foster care system. She had undergone several traumatic events and faced chronic discrimination that rendered her more likely to become retraumatized. For example, despite being a transgender woman, the participant was placed in a foster group home for males. Analysis of this participant's therapy transcripts revealed explicit examples of intervention components being incompatible with the chronic contextual stressors the participant faced, particularly considering continued discrimination and a lack of agency in ensuring her future safety. She explicitly described how the relaxation and psychoeducation skills introduced in the intervention were not suitable for targeting the distress associated with the traumatic events she has faced and continues to face due to her identity and associated structural stressors:

Participant: I was forced to become an adult before I was ready. I had to take care of myself. I had to feed myself. I went to a place where I was different. I knew I was different, and when I came out as different, I was abandoned again. I lived on the streets. I am homeless… It's like, you know, there's like a whole bunch of things that I could have control over if I ha-if I have the ability, but I don't… I have to look my trauma in the face every single day. The lack of control. The lack of power. And so, when you have to look at your trauma every day, how do you cope with it? You can't."

The same participant went on to describe how messages she has received in treatment regarding feeling safe after trauma exposure incompatible with the dangers she is exposed to, given her identity as a transgender woman of color:

"I'm scared of everything, and it's because I have to be because I don't have the luxury of nothing bad is gonna happen because being who I am means everything bad can happen. I could die leaving here. [laughs]… Those things sit with me, and although I don't think about them because that's way too depressing, I don't have the luxury to not think about them also.

Therapist: Mhm. I hear what you're saying. …The world's not a safe place for you. So, to say-to try to teach yourself or tell yourself that it is safe is potentially really dangerous."

Aim 3: How did therapists respond to chronic contextual stressors in therapy sessions?

Thematic analysis revealed limited patterns in how clinicians responded to disclosures of chronic contextual stressors in therapy sessions with participants. In most disclosures of chronic contextual stressors, therapist acknowledged the stressor and responded to it. Two themes emerged in these responses: validation and problem solving.

When confronted with a disclosure of a chronic structural stressor, many therapists utilized the technique of validation to acknowledge the stressor. In doing so, therapists acknowledged the participant's lived experience. For example, one therapist provided validation for the client's anger due to community violence:

"I think being angry is a valid feeling. Community violence is really terrible."

Often, statements of validation were short and followed by the therapist resuming discussion of therapeutic material. For example, after a participant disclosed stress due to continued discrimination following trauma exposure, her therapist provided validation for her experience and connected it to the lack of control individuals experience when exposed to traumatic events:

> "I think it's also a lot about power and control. Right? And, you know, to kind of bring it back to thinking about trauma and our reactions to trauma, a lot of times trauma happens in situations where you didn't have any control."

Another theme in response to structural stressors was utilizing problem solving in service of minimizing the impact of the stressor on the participant or, alternatively, identifying strategies to engage in the therapeutic material despite the impact of the stressor. For example, after a participant disclosed stress related to violence in her neighborhood exacerbating her trauma-related symptoms, her therapist engaged her in problem solving to identify therapeutic strategies, such as paced breathing, to decrease the deleterious impact of the stressor:

> "Do you think it's the kind of thing that you could… put headphones in if it's helpful just so that, you know, you could put on some relaxing music. Do you think breathing like that is something you might be able to do on the train or while walking?"

Aim 4: Did therapists and participants identify chronic contextual stressors as contributing to treatment effectiveness in post-treatment interviews?

Data analysis revealed that some therapists identified chronic contextual stressors as contributing to treatment effectiveness, while participants did not identify these stressors as impacting effectiveness. In total, 8 interviews with therapists (66.66%) included the therapist stating that chronic contextual stressors impacted effectiveness. Specifically, they stated that chronic contextual stressors impacted participants abilities to engage in the intervention, including attending sessions and completing therapeutic activities. Therapists reported that participants' competing scheduling obligations, most often unpredictably work schedules, and limited access to resources made it difficult for participants to attend sessions or complete intervention components. For example, one therapist reported that competing scheduling obligations and difficulties with transportation limited a participant's ability to engage in the intervention:

> "Therapist: I know she was very busy, I know she was working and in school so I do think that was a little bit of a barrier.
>
> Interviewer: Making time. Yeah. I'm sure. And then transportation, was that hard?
>
> Therapist: I think she took the train. Yeah."

Notably, therapists reported that chronic contextual stressors impacted engagement even when participants appeared to be highly motivated to participate in the intervention. For example, one therapist described that a participant's frequently shifting work schedule rendered her unable to attend scheduled therapy sessions, resulting in a pattern of no shows and rescheduling:

> "She seemed very motivated to come back. I think with her work schedule, it's a tricky work schedule, but I thought we would come up with something that would work. And then she just kept no-showing. When we rescheduled, we would like reschedule. 'Can you come like tomorrow?' And she was like: 'Yes, that would work' and then would no-show again, but rescheduling. When I had seen her both in the initial clinic and then the first PCIP session, she was very engaged, really seemed very connected, seemed very treatment-seeking, seemed like she really wanted to be there."

Finally, one therapist reported that the PCIP not directly targeting chronic contextual stressors negatively impacted intervention's effectiveness and acceptability. This therapist worked with the participant mentioned earlier in the results section, who stated that the intervention was inappropriate for targeting the level of chronic stress she faces due to her identity and associated experiences of discrimination. Upon interview, the therapist stated that it was difficult for her to know how to target this participant's trauma related symptoms, considering the impact of chronic contextual stressors on maintaining her distress. She also states that including guidance regarding how to target such stressors in the intervention may have positively impacted the participant's engagement in the intervention, given that the participant ultimately dropped out.

> "She identifies as a trans person of color… and some of her fears are based on trauma history, but also her reality is living as a trans person of color, and some of those were sort of really valid. And so managing, trying to help her figure that out, was definitely newer for me, but also figuring how do you differentiate between thoughts that are because of past trauma and maybe not really… balancing what is real?... It's probably true for a lot of our patients, and maybe they're not able to verbalize it or even understand

it in a way that she was… I think that probably acknowledging that would be important… I don't know if that would change it, but I think it might've made a difference."

Discussion

There is growing empirical evidence to suggest that chronic contextual stressors have a salient impact on the effectiveness of trauma focused psychotherapy, particularly for marginalized populations. However, the nature of discussions in how structural stressors arise during therapy sessions is unknown. I used qualitative thematic analysis to examine how often and under what conditions chronic contextual stressors emerge within therapy sessions with marginalized adolescents with trauma exposure. I found that a range of chronic contextual stressors emerged in therapy sessions and that stressors often exerted mutual influence on one another. Chronic contextual stressors were related to psychological distress, treatment engagement, and intervention effectiveness. I also examined therapist response to structural stressors and found that therapists most often responded with validation and problem solving. Finally, I found that therapists identified chronic contextual stressors as negatively impact treatment outcomes within post-treatment evaluation interviews.

Structural stressors were mentioned in therapy sessions with 77% of study participants, suggesting that therapy clients with marginalized backgrounds are likely to mention chronic contextual stressors, even when discussion of such stressors is not an explicit component of the intervention. The frequency at which participants explicitly disclosed stressors is consistent with research suggesting that marginalized individuals with trauma exposure are likely to experience frequent discrimination (Brooks Holliday et al., 2020; Sibrava et al., 2019), and expands on existing research by providing preliminary evidence that chronic contextual stressors, such as

experiences of discrimination, are likely to be explicitly mentioned by clients in therapy sessions. Although the sample size of the current study was small, the frequency at which participants disclosed chronic contextual stressors within a brief three session treatment suggests that similar disclosures are likely occurring within many therapy sessions with marginalized clients. This result is particularly striking given the overall lack of guidance in mainstream EBIs regarding how best to acknowledge structural stressors in treatment, or address their impact on clients' symptomology and treatment engagement.

Participants often described stressors that inherently exert disproportionate impact upon marginalized individuals, such as: community violence, financial stress, and discrimination. There were several instances when participants explicitly identified their minority status as contributing to the salience of structural stressors, but there were also many instances within therapy sessions wherein the connection between stressors and identity was simply implied. Therefore, the onus was often on the therapist to have knowledge regarding how systemic inequality disproportionately impacts marginalized participants, and to make the connection between the stressors that participants described and overarching systems of oppression. For example, one participant reported significant alienation from friends in college due to differences in their socio-economic status. The participant did not explicitly state that her interactions with her friends were influenced by classism, yet she reported that her higher income friends had more privilege than her, which resulted in interpersonal conflict. In this exchange, the therapist had to recognize the connection between the described stressor and the systemic inequality the participant was exposed to in order to make sense of the salience of distress experienced by the participant.

The results suggest that therapy clients are likely to mention chronic contextual stressors in the context of such stressors exacerbating existing psychological distress. This finding is in line with existing research suggesting that higher exposure to chronic contextual stressors may exacerbate psychological symptoms, even when individuals receive psychotherapy (Brooks Holliday et al., 2020; Price, McKetta, et al., 2021; Price, Weisz, et al., 2021; Sibrava et al., 2019). My results also highlight that individuals receiving therapy services seem to be explicitly aware of the impact that chronic contextual stressors are having on their symptoms. Simultaneously, therapists identified structural stressors as negatively impacting participants ability to engage in and benefit from the intervention. Taken together, this result highlights the need for incorporating guidelines regarding the discussion and consideration of structural stressors within psychological interventions and how this content may maintain psychological distress.

Notably, many participants in the present research study reported satisfaction with the treatment and had positive treatment outcomes in terms of symptom reduction (Ng et al., 2023). However, there were several participants who explicitly reported that the presence of structural stressors impacted their ability or desire to engage in the intervention. This finding suggests that a one size fits all solution to attending to structural stressors within therapy sessions may not be feasible.

Several participants and therapists described structural stressors as being a barrier to engagement in the intervention. Stressors related to participants' socio-economic statuses made it particularly challenging for them to attend sessions and complete therapy homework assignments. This finding suggests that marginalized individuals likely face additional barriers to participation in EBIs, which may lead to lesser treatment engagement and perhaps a lower dose

of the therapeutic intervention. Since financial stressors were a particular barrier to treatment completion, interventions aimed at increasing session attendance may be particularly helpful for retaining low-income marginalized adolescents in care. Accessibility promotion interventions, or those aimed at making therapy services more convenient to access (e.g. offering free transportation to therapy sessions), may improve engagement for this group given the challenges low income marginalized adolescents face in attending weekly therapy sessions (Becker et al., 2018).

One participant identified structural stressors as negatively impacting her desire to engage in the intervention. She reported that the components of the intervention were incompatible with her symptom presentation and associated chronic contextual stressors. In a post treatment evaluation interview, the participants therapist also reported that the intervention did not adequately target the chronic structural stress the participant faced. Notably, this participant's intersectional minority identity rendered her particularly likely to be exposed to multiple, and interacting, chronic contextual stressors. For example, the participant reported that the treatment mechanisms included in the intervention were not useful in reducing PTSD symptoms amid the constant discrimination and threats of community violence she faced due to her transgender identity and racial minority status. These threats were further heightened for the participant due to her identity as a formerly homeless youth. This finding supports existing claims that the lack of attention to chronic contextual stressors within EBIs for PTSD is related to the lower levels of treatment engagement and adherence observed among marginalized groups (Carlson et al., 2018; Dixon et al., 2016; Maercker & Hecker, 2016). It also suggests that adapting EBIs to directly address the influence of structural stressors within PTSD treatment may be necessary for individuals like this participant, particularly when considering the

influence of discrimination and delivering care to adolescents with intersecting marginalized identities. This result is in line with scholarship recommending a data driven approach to EBI adaptations (Lau, 2006). Taken together, these results could provide an explanation for the conflicting research evidence regarding whether cultural adaptations to evidence-based treatment are more efficacious than standard EBIs (Arundell et al., 2021; Castro et al., 2010; Escobar & Gorey, 2018; Healey et al., 2017). Perhaps, the efficaciousness of culturally adapted interventions is moderated by the unique experiences (e.g. chronic discrimination) and associated treatment needs of the individual.

A final theme was that chronic contextual stressors were often related to study participants lacking autonomy, control, and decision-making power. Notably, the participants in the study were adolescents, an age group that often does not have autonomy or control over their environment. Additionally, the marginalized status of the adolescents rendered them more likely to experience chronic contextual stressors (e.g., their living situation, level of community violence, and shifting work schedules) that further exacerbated their lack of autonomy and control. I posit that the lack of autonomy, control, and decision-making power may be a primary mechanism through which chronic contextual stressors decrease PTSD treatment effectiveness and acceptability for marginalized groups. The goal of PTSD treatment is to increase the client's sense of safety and control over their environment after experiencing a traumatic event wherein that client's sense of safety and control was taken away. However, the chronic stressors that marginalized adolescents face may drastically limit their ability to exert control over their environments in service of building a personal sense of safety and power. Existing PTSD EBIs do not provide clinical guidance regarding how to deal with this reality. Therefore, existing

PTSD interventions may be less efficacious for marginalized youths because they do not account for the environmental constraints of chronic contextual stressors.

Clinical Implications

These findings have several clinical implications. Overall findings from the current study suggest a need for provider training regarding the influence of chronic contextual stressors on psychological functioning, with a particular focus on how systemic inequality may impact symptom severity and presentation. It is recommended that clinicians seek out training in this domain and that graduate programs include this information in their standard coursework. In the present study, participants were likely to experience a range of chronic contextual stressors that influenced the severity of their psychological distress. The treatment within the current study relied on participants spontaneously disclosing such stressors and there was significant diversity regarding how structural stressors contributed to experiences of distress. It is recommended that future clinicians take time to assess the range of structural stressors that their clients are facing in service of increasing shared understanding within the therapeutic relationship. Similar to the patterns observed in the present study, clinicians are advised to respond to disclosures of chronic contextual stressors with empathy and validation. It is also recommended that, to the extent possible, clinicians engage in case management activities to mitigate the impact of chronic contextual stressors on the lives of their clients. Ultimately, these strategies may increase therapeutic alliance and assist the clinician in forming a strong case conceptualization.

Structural stressors related to socio-economic status stood out as a salient barrier to intervention engagement. Therefore, clinicians may benefit from utilizing established interventions to improve engagement, such as accessibility promotion or problem solving, to facilitate continued participation in treatment despite said stressors. For example, clinicians may

utilize a more flexible scheduling policy for clients with variable work schedules or may adapt therapy homework assignments to be completed more flexibly.

Chronic contextual stressors directly influence the severity of psychological distress, treatment engagement, and the acceptability of psychological interventions. However, it is more than likely that structural stressors impact clients' mental health in a myriad of ways not captured within the therapy room. Improving psychological interventions to address chronic contextual stressors is one potential avenue to reduce mental health disparities among marginalized groups, but clinicians must go beyond the therapy room to truly contribute to impactful change. Clinicians should strive to get involved in public health and policy interventions aimed at decreasing structural inequality on the city, county, state, and national level. For example, clinicians may become involved in efforts to reverse laws maintaining discriminatory practices. Another avenue for intervention may be for clinicians to leverage their expertise on the mental health implications of structural inequality to lobby for a more equitable division of resources within their communities (e.g., advocating for affordable housing). If clinicians shift their focus from the care of a single client to the care of the community, the impact on the lives of marginalized individuals is likely to be more pronounced.

Limitations

There were several limitations to the present study. First, the sample size in the study was small and each participant received a maximum of only three therapy sessions. The sample had limited variability in gender identity, particularly in that there was only one cisgender male in the study. The therapists in the study were also homogeneous, as they were all White/European American cisgender women. It is possible that the identity status of the therapists impacted participants willingness to disclose structural stressors. Therefore, the generalizability of these

results is unclear. Future research studies may examine when and how structural stressors emerge within therapy sessions across different treatment modalities and lengths, as well as in therapy sessions delivered by a diverse range of providers. Researchers should also examine structural stressors in therapy sessions with larger and more diverse samples of adolescents, with a particular focus on adolescents with intersecting marginalized identities. Additionally, although the current study provided preliminary results regarding how the disclosure of structural stressors in therapy sessions may be associated with treatment engagement and acceptability, the mechanisms driving these relationships remains unclear. Future studies should focus on examining the relationship between clients' experiences of chronic contextual stressors and treatment effectiveness and engagement, with a particular emphasis on malleable mechanisms connecting stressors to outcomes. A final limitation was that study participants were not directly asked about how chronic contextual stressors impact their experience of trauma focused therapy. Instead, we relied on the naturalistic emergence of relevant themes within therapy sessions. Therefore, the relevance of chronic contextual stressors within therapy sessions may be greater than what has been reported in this paper.

However, the naturalistic emergence of themes within this research study is also a significant study strength. Although the participants were never explicitly asked about the influence of chronic contextual stressors on their symptoms and experiences in treatment, clients and therapists often brought up these themes within their therapy sessions and post treatment evaluation interviews. To my knowledge, this was the first study to examine how structural stressors naturally emerge within therapy sessions and our findings suggest that these stressors are an important factor to consider when delivering care to marginalized groups exposed to trauma. Simultaneously, current high-quality evidence-based PTSD interventions seldom include

concrete guidance regarding how to target structural stressors in care. Therefore, there is a missed opportunity to improve the effectiveness of interventions for PTSD by incorporating intervention elements that directly target structural stressors. I hypothesize that if interventions for PTSD included clear evidence-based suggestions for targeting chronic contextual stressors within therapy, treatment engagement and response among marginalized groups would significantly improve. Therefore, future research studies should continue to investigate chronic contextual stressors within therapy sessions, with a particular focus on appropriate means of therapeutic response when such stressors emerge.

Global Conclusion

The purpose of this dissertation was to examine how, using a theoretical approach rooted in socio-ecological theory, contextual factors related to structural inequality contribute to access to, engagement in, and effectiveness of psychological treatment for marginalized adolescents with trauma exposure. Through three studies, I found that there are numerous contextual factors on the exosystemic and macrosystemic levels that impact adolescents' ability to access, engage in, and benefit from psychological treatment. There are two key takeaways from these findings.

First, contextual stressors have a substantial impact on the myriad ways that marginalized adolescents interact with the mental healthcare system. In study one, I found that inequality on the neighborhood level impacted adolescents' ability to access psychological treatment, even when accounting for their psychological need and marginalized identity. Specifically, increased neighborhood deprivation and decreased mental healthcare provider density were related to lower rates of adolescents accessing services. In study two, I found preliminary evidence that structural stressors, such as competing work obligations and limited access to resources, as well as stigma were identified by marginalized adolescents as anticipated barriers to participation in psychological treatment. In study three, I found that adolescents frequently endorse contextual stressors within therapy stressors and these stressors impact their psychological symptoms, ability to engage in care, and perceptions of intervention acceptability. These results are particularly notable considering the substantial literature documenting that marginalized adolescents are at increased risk of experiencing mental health concerns, often due to their disproportionate exposure to chronic contextual stressors. Therefore, marginalized youth are currently at "double jeopardy" for poor mental health outcomes, both due to their increased risk of developing psychological concerns and not receiving adequate care.

Second, the field of clinical psychology must do more to consider contextual stressors when developing and delivering evidence-based interventions (EBIs) for adolescents with trauma exposure. Throughout each study, it was clear that contextual stressors have a salient impact on adolescents ability to engage in and benefit from treatment. However, EBIs often do not include concrete guidance regarding how contextual stressors should be considered in intervention delivery. I hypothesize that not attending to contextual stressors within intervention development and delivery is a key reason for health disparities in whom accesses, engages in, and benefits from psychological treatment. Clinical psychologists must include concrete guidance regarding how to consider, and target, contextual stressors in all EBIs. Manualized interventions, in particular, would benefit from instruction regarding how to consider contextual stressors when delivering care.

In the highest quality psychological interventions, clinicians are asked to target psychological symptoms that are often maintained and perhaps even caused by profound structural inequality. In doing so, we are tasked with tackling the "downstream" psychological effects of structural inequality. I propose that, instead, clinical scientists begin to consider how researchers in our field can leverage our expertise to tackle the root causes of structural inequality. Throughout this dissertation, I have proposed several approaches clinical psychologists may take to enact psychological interventions at the structural level, including influencing public policy. To increase the effectiveness of psychologists in addressing these concerns, it is recommended that clinical psychologists receive additional training in the intersection of clinical science research methods and public policy.

References

Alegria, M., Vallas, M., & Pumariega, A. J. (2010). Racial and ethnic disparities in pediatric mental health. *Child and Adolescent Psychiatric Clinics of North America*, *19*(4), 759-774. https://doi.org/10.1016/j.chc.2010.07.001

Arundell, L. L., Barnett, P., Buckman, J. E. J., Saunders, R., & Pilling, S. (2021). The effectiveness of adapted psychological interventions for people from ethnic minority groups: A systematic review and conceptual typology. *Clin Psychol Rev*, *88*, 102063. https://doi.org/10.1016/j.cpr.2021.102063

Ayazi, T., Lien, L., Eide, A. H., Ruom, M. M., & Hauff, E. (2012). What are the risk factors for the comorbidity of posttraumatic stress disorder and depression in a war-affected population? a cross-sectional community study in South Sudan. *BMC Psychiatry*, *12*(1), 175. https://doi.org/10.1186/1471-244x-12-175

Baglivio, M. T., Wolff, K. T., Epps, N., & Nelson, R. (2017). Predicting adverse childhood experiences: The importance of neighborhood context in youth trauma among delinquent youth. *Crime & Delinquency*, *63*(2), 166-188. https://doi.org/10.1177/0011128715570628

Bammert, P., Schüttig, W., Novelli, A., Iashchenko, I., Spallek, J., Blume, M., Diehl, K., Moor, I., Dragano, N., & Sundmacher, L. (2024). The role of mesolevel characteristics of the health care system and socioeconomic factors on health care use - results of a scoping review. *International Journal of Equity in Health*, *23*(1), 37. https://doi.org/10.1186/s12939-024-02122-6

Becker, K. D., Boustani, M., Gellatly, R., & Chorpita, B. F. (2018). Forty years of engagement research in children's mental health services: Multidimensional measurement and

practice elements. *Journal of Clinical Child & Adolescent Psychology*, *47*(1), 1-23. https://doi.org/10.1080/15374416.2017.1326121

Becker, K. D., & Chorpita, B. F. (2023). Future directions in youth and family treatment engagement: Finishing the bridge between science and service. *Journal of Clinical Child and Adolescent Psychology*, *52*(2), 284-309. https://doi.org/10.1080/15374416.2023.2169926

Becker, K. D., Dickerson, K., Boustani, M. M., & Chorpita, B. F. (2021). Knowing what to do and when to do it: Mental health professionals and the evidence base for treatment engagement. *Administration and Policy in Mental Health and Mental Health Services Research*, *48*(2), 201-218. https://doi.org/10.1007/s10488-020-01067-6

Brady, K., Durham, M., Francoeur, A., Henneberg, C., Adhia, A., Morley, D., Tamene, M., Singerman, A., Morris, A., Fortuna, L., & Bair-Merritt, M. (2020). Barriers and facilitators to integrating behavioral health services and pediatric primary care. *Clinical Practice in Pediatric Psychology*, *9*. https://doi.org/10.1037/cpp0000356

Braithwaite, R. L., & Lythcott, N. (1989). Community empowerment as a strategy for health promotion for black and other minority populations. *Jama*, *261*(2), 282-283.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Bridges, A. J., de Arellano, M. A., Rheingold, A. A., Danielson, C. K., & Silcott, L. (2010). Trauma exposure, mental health, and service utilization rates among immigrant and United States-born Hispanic youth: Results from the Hispanic family study. *Psychological Trauma: Theory, Research, Practice, and Policy*, *2*(1), 40-48. https://doi.org/http://dx.doi.org/10.1037/a0019021

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, *32*(7), 513-531. https://doi.org/http://dx.doi.org/10.1037/0003-066X.32.7.513

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22*(6), 723-742. https://doi.org/10.1037/0012-1649.22.6.723

Bronfenbrenner, U. (1992). Ecological systems theory. In *Six theories of child development: Revised formulations and current issues.* (pp. 187-249). Jessica Kingsley Publishers.

Brooks Holliday, S., Dubowitz, T., Haas, A., Ghosh-Dastidar, B., Desantis, A., & Troxel, W. M. (2020). The association between discrimination and PTSD in African Americans: exploring the role of gender. *Ethnicity & Health*, *25*(5), 717-731. https://doi.org/10.1080/13557858.2018.1444150

Bryant-Davis, T. (2019). The cultural context of trauma recovery: Considering the posttraumatic stress disorder practice guideline and intersectionality. *Psychotherapy (Chic)*, *56*(3), 400-408. https://doi.org/10.1037/pst0000241

Carlson, M., Endlsey, M., Motley, D., Shawahin, L. N., & Williams, M. T. (2018). Addressing the impact of racism on veterans of color: A race-based stress and trauma intervention. *Psychology of Violence*, *8*(6), 748-762. https://doi.org/http://dx.doi.org/10.1037/vio0000221

Castro, F. G., Barrera, M., & Holleran Steiker, L. K. (2010). Issues and Challenges in the Design of Culturally Adapted Evidence-Based Interventions. *Annu Rev Clin Psychol*, *6*(1), 213-239. https://doi.org/10.1146/annurev-clinpsy-033109-132032

Chacko, A., Jensen, S. A., Lowry, L. S., Cornwell, M., Chimklis, A., Chan, E., Lee, D., & Pulgarin, B. (2016). Engagement in behavioral parent training: Review of the literature and implications for practice. *Clinical Child and Family Psychology Review*, *19*(3), 204-215. https://doi.org/10.1007/s10567-016-0205-2

Chavira, D. A., Stein, M. B., Bailey, K., & Stein, M. T. (2004). Child anxiety in primary care: Prevalent but untreated. *Depression and Anxiety*, *20*(4), 155-164. https://doi.org/10.1002/da.20039

Chen, W.-Y., Corvo, K., Lee, Y., & Hahm, H. C. (2017). Longitudinal trajectory of adolescent exposure to community violence and depressive symptoms among adolescents and young adults: Understanding the effect of mental health service usage. *Community Mental Health Journal*, *53*(1), 39-52. https://doi.org/10.1007/s10597-016-0031-5

Choi, K. R., Briggs, E. C., Seng, J. S., Graham-Bermann, S. A., Munro-Kramer, M. L., & Ford, J. D. (2018). Service usage typologies in a clinical sample of trauma-exposed adolescents: a latent class analysis. *Psychological Trauma: Theory, Research, Practice, and Policy*, *10*(6), 652-661. https://doi.org/http://dx.doi.org/10.1037/tra0000340

Collins, K., Connors, K., Davis, S., Donohue, A., Gardner, S., Goldblatt, E., Hayward, A., Kiser, L., Strieder, F., & Thompson, E. (2010). Understanding the impact of trauma and urban poverty on family systems: Risks, resilience, and interventions. *Baltimore, MD: Family Informed Trauma Treatment Center*.

Cook, B. L., Zuvekas, S. H., Chen, J., Progovac, A., & Lincoln, A. K. (2017). Assessing the Individual, Neighborhood, and Policy Predictors of Disparities in Mental Health Care. *Medical Care Research and Review*, *74*(4), 404-430. https://doi.org/10.1177/1077558716646898

Costello, E. J., He, J.-P., Sampson, N. A., Kessler, R. C., & Merikangas, K. R. (2014). Services for adolescents with psychiatric disorders: 12-Month data from the national comorbidity survey–adolescent. *Psychiatric Services*, *65*(3), 359-366. https://doi.org/10.1176/appi.ps.201100518

Coulton, C. J., Crampton, D. S., Irwin, M., Spilsbury, J. C., & Korbin, J. E. (2007). How neighborhoods influence child maltreatment: A review of the literature and alternative pathways. *Child Abuse & Neglect*, *31*(11), 1117-1142. https://doi.org/https://doi.org/10.1016/j.chiabu.2007.03.023

De Haan, A. M., Boon, A. E., De Jong, J. T. V. M., & Vermeiren, R. R. J. M. (2018). A review of mental health treatment dropout by ethnic minority youth. *Transcultural Psychiatry*, *55*(1), 3-30. https://doi.org/10.1177/1363461517731702

Derr, A. S. (2016). Mental health service use among immigrants in the United States: A systematic review. *Psychiatric Services*, *67*(3), 265-274. https://doi.org/10.1176/appi.ps.201500004

Dixon, L. E., Ahles, E., & Marques, L. (2016). Treating posttraumatic stress disorder in diverse settings: Recent advances and challenges for the future. *Current Psychiatry Reports*, *18*(12). https://doi.org/10.1007/s11920-016-0748-4

Durbin, A., Moineddin, R., Lin, E., Steele, L. S., & Glazier, R. H. (2015). Examining the relationship between neighbourhood deprivation and mental health service use of immigrants in Ontario, Canada: a cross-sectional study. *BMJ Open*, *5*(3), e006690-e006690. https://doi.org/10.1136/bmjopen-2014-006690

Ellinghaus, C., Truss, K., Liao Siling, J., Phillips, L., Eastwood, O., Medrano, C., & Bendall, S. (2021). “I'm tired of being pulled from pillar to post”: A qualitative analysis of barriers to

mental health care for trauma-exposed young people. *Early Intervention in Psychiatry*, *15*(1), 113-122. https://doi.org/https://doi.org/10.1111/eip.12919

Escobar, K. M., & Gorey, K. M. (2018). Cognitive behavioral interventions for depression among Hispanic people: promising meta-analytic evidence for deep cultural adaptations. *Social Work in Mental Health*, *16*(6), 746-758. https://doi.org/10.1080/15332985.2018.1476284

Eslinger, J. G., Sprang, G., & Otis, M. D. (2014). Child and Caregiver Dropout in Child Psychotherapy for Trauma. *Journal of Loss and Trauma*, *19*(2), 121-136. https://doi.org/10.1080/15325024.2012.742720

Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. *International Journal of Qualitative Methods*, *5*(1), 80-92. https://doi.org/10.1177/160940690600500107

Finkelhor, D., Ormrod, R., Turner, H., & Hamby, S. L. (2005). The victimization of children and youth: a comprehensive, national survey. *Child Maltreat*, *10*(1), 5-25. https://doi.org/10.1177/1077559504271287

Finkelhor, D., Turner, H., & Laselva, D. (2021). Receipt of behavioral health services among US children and youth with adverse childhood experiences or mental health symptoms. *JAMA Network Open*, *4*(3), e211435. https://doi.org/10.1001/jamanetworkopen.2021.1435

Firebaugh, G., & Acciai, F. (2016). For blacks in America, the gap in neighborhood poverty has declined faster than segregation. *Proceedings of the National Academy of Sciences*, *113*(47), 13372-13377. https://doi.org/doi:10.1073/pnas.1607220113

Forthman, K. L., Colaizzi, J. M., Yeh, H.-W., Kuplicki, R., & Paulus, M. P. (2021). Latent variables quantifying neighborhood characteristics and their associations with poor mental health. *International Journal of Environmental Research and Public Health*, *18*(3), 1202. https://doi.org/10.3390/ijerph18031202

Fowler, P. J., Tompsett, C. J., Braciszewski, J. M., Jacques-Tiura, A. J., & Baltes, B. B. (2009). Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents. *Development and Psychopathology*, *21*(1), 227-259. https://doi.org/10.1017/s0954579409000145

Franklin, S. B., Gibson, D. J., Robertson, P. A., Pohlmann, J. T., & Fralish, J. S. (1995). Parallel Analysis: a method for determining significant principal components. *Journal of Vegetation Science*, *6*(1), 99-106. https://doi.org/10.2307/3236261

Fraynt, R., Ross, L., Baker, B. L., Rystad, I., Lee, J., & Briggs, E. C. (2014). Predictors of treatment engagement in ethnically diverse, urban children receiving treatment for trauma exposure. *Journal of Traumatic Stress*, *27*(1), 66-73. https://doi.org/http://dx.doi.org/10.1002/jts.21889

Freţian, A. M., Graf, P., Kirchhoff, S., Glinphratum, G., Bollweg, T. M., Sauzet, O., & Bauer, U. (2021). The long-term effectiveness of interventions addressing mental health literacy and stigma of mental illness in children and adolescents: Systematic review and meta-analysis. *International Journal of Public Health*, *66*. https://doi.org/10.3389/ijph.2021.1604072

Garcia, J. A., & Weisz, J. R. (2002). When youth mental health care stops: Therapeutic relationship problems and other reasons for ending youth outpatient treatment. *Journal of*

Consulting and Clinical Psychology, *70*(2), 439-443. https://doi.org/http://dx.doi.org/10.1037/0022-006X.70.2.439

Goldberg, N. G., & Meyer, I. H. (2013). Sexual orientation disparities in history of intimate partner violence: results from the California health interview survey. *Journal of Interpersonal Violence*, *28*(5), 1109-1118. https://doi.org/10.1177/0886260512459384

Gómez, J. M., Gobin, R. L., & Barnes, M. L. (2021). Discrimination, violence, & healing within marginalized communities. *Journal of Trauma & Dissociation*, *22*(2), 135-140. https://doi.org/10.1080/15299732.2021.1869059

Guterman, N. B., Haj-Yahia, M. M., Vorhies, V., Ismayilova, L., & Leshem, B. (2010). Help-seeking and internal obstacles to receiving support in the wake of community violence exposure: The case of Arab and Jewish adolescents in Israel. *Journal of Child and Family Studies*, *19*(6), 687-696. https://doi.org/10.1007/s10826-010-9355-x

Gutermann, J., Schwartzkopff, L., & Steil, R. (2017). Meta-analysis of the long-term treatment effects of psychological interventions in youth with PTSD symptoms. *Clinical Child and Family Psychology Review*, *20*(4), 422-434. https://doi.org/10.1007/s10567-017-0242-5

Hatzenbuehler, M. L., & Pachankis, J. E. (2021). Does Stigma Moderate the Efficacy of Mental- and Behavioral-Health Interventions? Examining Individual and Contextual Sources of Treatment-Effect Heterogeneity. *Current Directions in Psychological Science*, 096372142110438. https://doi.org/10.1177/09637214211043884

Healey, P., Stager, M. L., Woodmass, K., Dettlaff, A. J., Vergara, A., Janke, R., & Wells, S. J. (2017). Cultural adaptations to augment health and mental health services: a systematic review. *BMC Health Services Research*, *17*(1). https://doi.org/10.1186/s12913-016-1953-x

Horvath, A. O., & Greenberg, L. S. (1989). Development and validation of the Working Alliance Inventory. *Journal of Counseling Psychology*, *36*(2), 223-233. https://doi.org/http://dx.doi.org/10.1037/0022-0167.36.2.223

Hruska, B., Pacella-Labarbara, M. L., Castro, I. E., George, R. L., & Delahanty, D. L. (2022). Incorporating community-level risk factors into traumatic stress research: Adopting a public health lens. *Journal of Anxiety Disorders*, 102529. https://doi.org/10.1016/j.janxdis.2022.102529

Interian, A., Lewis-Fernández, R., & Dixon, L. B. (2013). Improving treatment engagement of underserved U.S. racial-ethnic groups: A review of recent interventions. *Psychiatric Services*, *64*(3), 212-222. https://doi.org/10.1176/appi.ps.201100136

Jablonska, B., Kosidou, K., Ponce De Leon, A., Wettermark, B., Magnusson, C., Dal, H., & Dalman, C. (2020). Neighborhood socioeconomic characteristics and utilization of ADHD medication in schoolchildren: A population multilevel study in Stockholm County. *Journal of Attention Disorders*, *24*(2), 265-276. https://doi.org/10.1177/1087054716643257

Kataoka, S. H., Zhang, L., & Wells, K. B. (2002). Unmet need for mental health care among U.S. children: Variation by ethnicity and insurance status. *American Journal of Psychiatry*, *159*(9), 1548-1555. https://doi.org/10.1176/appi.ajp.159.9.1548

Kazdin, A. E., Holland, L., Crowley, M., & Breton, S. (1997). Barriers to Treatment Participation Scale: Evaluation and Validation in the Context of Child Outpatient Treatment. *Journal of Child Psychology and Psychiatry*, *38*(8), 1051-1062. https://doi.org/10.1111/j.1469-7610.1997.tb01621.x

Khoury, L., Tang, Y. L., Bradley, B., Cubells, J. F., & Ressler, K. J. (2010). Substance use, childhood traumatic experience, and Posttraumatic Stress Disorder in an urban civilian population. *Depression and Anxiety*, *27*(12), 1077-1086. https://doi.org/10.1002/da.20751

Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 Criteria. *Journal of Traumatic Stress*, *26*(5), 537-547. https://doi.org/10.1002/jts.21848

Lakind, D., Bradley, W. J., Patel, A., Chorpita, B. F., & Becker, K. D. (2021). A multidimensional examination of the measurement of treatment engagement: Implications for children's mental health services and research. *Journal of Clinical Child & Adolescent Psychology*, 1-16. https://doi.org/10.1080/15374416.2021.1941057

Lau, A. S. (2006). Making the case for selective and directed cultural adaptations of evidence-based treatments: Examples from parent training. *Clinical Psychology: Science and Practice*, *13*(4), 295-310. https://doi.org/https://doi.org/10.1111/j.1468-2850.2006.00042.x

Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. *Psychol Bull*, *126*(2), 309-337. https://doi.org/10.1037/0033-2909.126.2.309

Lindert, J., Von Ehrenstein, O. S., Grashow, R., Gal, G., Braehler, E., & Weisskopf, M. G. (2014). Sexual and physical abuse in childhood is associated with depression and anxiety over the life course: systematic review and meta-analysis. *International Journal of Public Health*, *59*(2), 359-372. https://doi.org/10.1007/s00038-013-0519-5

Livingston, N. A., Berke, D., Scholl, J., Ruben, M., & Shipherd, J. C. (2020). Addressing Diversity in PTSD Treatment: Clinical Considerations and Guidance for the Treatment of PTSD in LGBTQ Populations. *Current Treatment Options in Psychiatry*, *7*(2), 53-69. https://doi.org/10.1007/s40501-020-00204-0

Lu, W., Todhunter-Reid, A., Mitsdarffer, M. L., Muñoz-Laboy, M., Yoon, A. S., & Xu, L. (2021). Barriers and facilitators for mental health service use among racial/ethnic minority adolescents: A systematic review of literature [Systematic Review]. *Frontiers in Public Health*, *9*. https://doi.org/10.3389/fpubh.2021.641605

Maercker, A., & Hecker, T. (2016). Broadening perspectives on trauma and recovery: a socio-interpersonal view of PTSD†. *European Journal of Psychotraumatology*, *7*(1), 29303. https://doi.org/10.3402/ejpt.v7.29303

Maguire-Jack, K., Lanier, P., & Lombardi, B. (2020). Investigating racial differences in clusters of adverse childhood experiences. *American Journal of Orthopsychiatry*, *90*(1), 106-114. https://doi.org/10.1037/ort0000405

Makley, A. T., & Falcone, R. A. (2010). Posttraumatic Stress Disorder in the Pediatric Trauma Patient. *Seminars in Pediatric Surgery*, *19*(4), 292-299. https://doi.org/10.1053/j.sempedsurg.2010.06.006

Marques, L., Leblanc, N. J., Weingarden, H. M., Timpano, K. R., Jenike, M., & Wilhelm, S. (2010). Barriers to treatment and service utilization in an internet sample of individuals with obsessive-compulsive symptoms. *Depression and Anxiety*, *27*(5), 470-475. https://doi.org/10.1002/da.20694

McClendon, J., Kressin, N., Perkins, D., Copeland, L. A., Finley, E. P., & Vogt, D. (2021). The impact of discriminatory stress on changes in posttraumatic stress severity at the

intersection of race/ethnicity and gender. *Journal of Trauma & Dissociation*, *22*(2), 170-187. https://doi.org/10.1080/15299732.2020.1869079

McDonald, C. C., & Richmond, T. R. (2008). The relationship between community violence exposure and mental health symptoms in urban adolescents. *Journal of Psychiatric and Mental Health Nursing*, *15*(10), 833-849. https://doi.org/10.1111/j.1365-2850.2008.01321.x

McLaughlin, K. A., Koenen, K. C., Hill, E. D., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2013). Trauma exposure and posttraumatic stress disorder in a national sample of adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, *52*(8), 815-830.e814. https://doi.org/10.1016/j.jaac.2013.05.011

Mekawi, Y., Carter, S., Brown, B., Martinez De Andino, A., Fani, N., Michopoulos, V., & Powers, A. (2021). Interpersonal trauma and posttraumatic stress disorder among black women: Does racial discrimination matter? *Journal of Trauma & Dissociation*, *22*(2), 154-169. https://doi.org/10.1080/15299732.2020.1869098

Merikangas, K. R., He, J.-P., Burstein, M., Swendsen, J., Avenevoli, S., Case, B., Georgiades, K., Heaton, L., Swanson, S., & Olfson, M. (2011). Service utilization for lifetime mental disorders in U.S. adolescents: Results of the National Comorbidity Survey–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*, *50*(1), 32-45. https://doi.org/10.1016/j.jaac.2010.10.006

Messer, L. C., Laraia, B. A., Kaufman, J. S., Eyster, J., Holzman, C., Culhane, J., Elo, I., Burke, J. G., & O'Campo, P. (2006). The Development of a Standardized Neighborhood Deprivation Index. *Journal of Urban Health*, *83*(6), 1041-1062. https://doi.org/10.1007/s11524-006-9094-x

Miller, H. N., LaFave, S., Marineau, L., Stephens, J., & Thorpe, R. J., Jr. (2021). The impact of discrimination on allostatic load in adults: An integrative review of literature. *Journal of Psychosomatic Research*, *146*, 110434. https://doi.org/10.1016/j.jpsychores.2021.110434

Miller, K. E., & Rasmussen, A. (2010). War exposure, daily stressors, and mental health in conflict and post-conflict settings: Bridging the divide between trauma-focused and psychosocial frameworks. *Social Science & Medicine*, *70*(1), 7-16. https://doi.org/https://doi.org/10.1016/j.socscimed.2009.09.029

Mmari, K., Marshall, B., Hsu, T., Shon, J. W., & Eguavoen, A. (2016). A mixed methods study to examine the influence of the neighborhood social context on adolescent health service utilization. *BMC Health Services Research*, *16*(1). https://doi.org/10.1186/s12913-016-1597-x

Mock, S., & Arai, S. (2011). Childhood trauma and chronic illness in adulthood: Mental health and socioeconomic status as explanatory factors and buffers [Original Research]. *Frontiers in Psychology*, *1*(246). https://doi.org/10.3389/fpsyg.2010.00246

Mohnen, S. M., Schneider, S., & Droomers, M. (2019). Neighborhood characteristics as determinants of healthcare utilization – a theoretical model. *Health Economics Review*, *9*(1). https://doi.org/10.1186/s13561-019-0226-x

Murphy, R. A., Sink, H. E., Ake, G. S., Carmody, K. A., Amaya-Jackson, L. M., & Briggs, E. C. (2014). Predictors of Treatment Completion in a Sample of Youth Who Have Experienced Physical or Sexual Trauma. *Journal of Interpersonal Violence*, *29*(1), 3-19. https://doi.org/10.1177/0886260513504495

Mustanski, B., Andrews, R., & Puckett, J. A. (2016). The effects of cumulative victimization on mental health among lesbian, gay, bisexual, and transgender adolescents and young

adults. *American Journal of Public Health*, *106*(3), 527-533. https://doi.org/10.2105/ajph.2015.302976

Najavits, L. M. (2015). The problem of dropout from "gold standard" PTSD therapies. *F1000Prime Reports*, *7*. https://doi.org/10.12703/p7-43

Nemoyer, A., Cruz-Gonzalez, M., Alvarez, K., Kessler, R. C., Sampson, N. A., Green, J. G., & Alegría, M. (2020). Reducing racial/ethnic disparities in mental health service use among emerging adults: community-level supply factors. *Ethnicity & Health*, 1-21. https://doi.org/10.1080/13557858.2020.1814999

Ng, L. C., Miller, A. N., Bowers, G., Cheng, Y., Brigham, R., Tai, M.-H., Smith, A. M., Mueser, K. T., Fortuna, L. R., & Coles, M. (2023). A pragmatic feasibility trial of the Primary Care Intervention for PTSD: A health service delivery model to reduce health disparities for low-income and BIPOC youth. *Behaviour Research and Therapy*, *165*, 104310. https://doi.org/https://doi.org/10.1016/j.brat.2023.104310

Ngamini Ngui, A., Perreault, M., Fleury, M. J., & Caron, J. (2012). A multi-level study of the determinants of mental health service utilization. *Revue d'Epidemiologie et de Sante Publique*, *60*(2), 85-93. https://doi.org/10.1016/j.respe.2011.09.007

Overstreet, S., & Braun, S. (2000). Exposure to community violence and post-traumatic stress symptoms: Mediating factors. *American Journal of Orthopsychiatry*, *70*(2), 263-271. https://doi.org/10.1037/h0087828

Peters, W., Rice, S., Alvarez-Jimenez, M., Hetrick, S. E., Halpin, E., Kamitsis, I., Santesteban-Echarri, O., & Bendall, S. (2022). Relative efficacy of psychological interventions following interpersonal trauma on anxiety, depression, substance use, and PTSD

symptoms in young people: A meta-analysis. *Early Intervention in Psychiatry*. https://doi.org/10.1111/eip.13265

Price, M. A., McKetta, S., Weisz, J. R., Ford, J. V., Lattanner, M. R., Skov, H., Wolock, E., & Hatzenbuehler, M. L. (2021). *Cultural sexism moderates efficacy of psychotherapy: Results from a spatial meta-analysis* [doi:10.1037/cps0000031].

Price, M. A., Weisz, J. R., McKetta, S., Hollinsaid, N. L., Lattanner, M. R., Reid, A. E., & Hatzenbuehler, M. L. (2021). Meta-analysis: Are Psychotherapies Less Effective for Black Youth in Communities With Higher Levels of Anti-Black Racism? *Journal of the American Academy of Child & Adolescent Psychiatry*. https://doi.org/https://doi.org/10.1016/j.jaac.2021.07.808

Radez, J., Reardon, T., Creswell, C., Lawrence, P. J., Evdoka-Burton, G., & Waite, P. (2021). Why do children and adolescents (not) seek and access professional help for their mental health problems? A systematic review of quantitative and qualitative studies. *European Child & Adolescent Psychiatry*, *30*(2), 183-211. https://doi.org/10.1007/s00787-019-01469-4

Rampin, R., Steeves, V. , & DeMott, S. (2019). *Taguette (Version 0.9)*. 10.5281/zenodo.3551632

Roberts, A. L., Austin, S. B., Corliss, H. L., Vandermorris, A. K., & Koenen, K. C. (2010). Pervasive trauma exposure among US sexual orientation minority adults and risk of posttraumatic stress disorder. *American Journal of Public Health*, *100*(12), 2433-2441. https://doi.org/10.2105/ajph.2009.168971

Roberts, A. L., Gilman, S. E., Breslau, J., Breslau, N., & Koenen, K. C. (2011). Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress

disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psychological medicine*, *41*(1), 71-83. https://doi.org/10.1017/S0033291710000401

Roberts, A. L., Rosario, M., Corliss, H. L., Koenen, K. C., & Austin, S. B. (2012). Elevated risk of posttraumatic stress in sexual minority youths: mediation by childhood abuse and gender nonconformity. *American Journal of Public Health*, *102*(8), 1587-1593. https://doi.org/10.2105/AJPH.2011.300530

Roberts, K., Dowell, A., & Nie, J.-B. (2019). Attempting rigour and replicability in thematic analysis of qualitative research data; a case study of codebook development. *BMC Medical Research Methodology*, *19*(1). https://doi.org/10.1186/s12874-019-0707-y

Roberts, M., Jones, J., Garcia, L., & Techau, A. (2022). Adolescents' perceptions of barriers and facilitators to engaging in mental health treatment: A qualitative meta-synthesis. *Journal of Child and Adolescent Psychiatric Nursing*, *35*(2), 113-125. https://doi.org/https://doi.org/10.1111/jcap.12354

Sibrava, N. J., Bjornsson, A. S., Pérez Benítez, A. C. I., Moitra, E., Weisberg, R. B., & Keller, M. B. (2019). Posttraumatic stress disorder in African American and Latinx adults: Clinical course and the role of racial and ethnic discrimination. *American Psychologist*, *74*(1), 101-116. https://doi.org/10.1037/amp0000339

Smith, P., Dalgleish, T., & Meiser-Stedman, R. (2019). Practitioner Review: Posttraumatic stress disorder and its treatment in children and adolescents. *Journal of Child Psychology and Psychiatry*, *60*(5), 500-515. https://doi.org/10.1111/jcpp.12983

Spilsbury, J. C., Belliston, L., Drotar, D., Drinkard, A., Kretschmar, J., Creeden, R., Flannery, D. J., & Friedman, S. (2007). Clinically Significant Trauma Symptoms and Behavioral

Problems in a Community-based Sample of Children Exposed to Domestic Violence. *Journal of Family Violence*, *22*(6), 487-499. https://doi.org/10.1007/s10896-007-9113-z

Sprang, G., Craig, C. D., Clark, J. J., Vergon, K., Tindall, M. S., Cohen, J., & Gurwitch, R. (2013). Factors affecting the completion of trauma-focused treatments: What can make a difference? *Traumatology: An International Journal*, *19*(1), 28-40. https://doi.org/http://dx.doi.org/10.1177/1534765612445931

Srivastava, A., Miller, A. N., Coles, M. S., Brigham, R., Peterson, E. R., Kreida, E., Mueser, K. T., & Ng, L. C. (2021). Development of a brief primary care intervention for PTSD in adolescents. *Clinical Practice in Pediatric Psychology*. https://doi.org/10.1037/cpp0000382

Stallard, P. (2006). Psychological interventions for post-traumatic reactions in children and young people: A review of randomised controlled trials. *Clinical Psychology Review*, *26*(7), 895-911. https://doi.org/10.1016/j.cpr.2005.09.005

Steinberg, A. M., Layne, C. M., Briggs, E. C., Liang, L.-J., Brymer, M. J., Belin, T. R., Fairbank, J. A., & Pynoos, R. S. (2019). Benefits of treatment completion over premature termination: Findings from the national child traumatic stress network. *Psychiatry: Interpersonal and Biological Processes*, *82*(2), 113-127. https://doi.org/http://dx.doi.org/10.1080/00332747.2018.1560584

Stoddard, P. J., Laraia, B. A., Warton, E. M., Moffet, H. H., Adler, N. E., Schillinger, D., & Karter, A. J. (2013). Neighborhood Deprivation and Change in BMI Among Adults With Type 2 Diabetes. *Diabetes Care*, *36*(5), 1200-1208. https://doi.org/10.2337/dc11-1866

Sweetman, J., Knapp, P., Varley, D., Woodhouse, R., McMillan, D., & Coventry, P. (2021). Barriers to attending initial psychological therapy service appointments for common

mental health problems: A mixed-methods systematic review. *Journal of Affective Disorders*, *284*, 44-63. https://doi.org/https://doi.org/10.1016/j.jad.2021.01.089

Sylwestrzak, A., Overholt, C. E., Ristau, K. I., & Coker, K. L. (2015). Self-reported barriers to treatment engagement: Adolescent perspectives from the national comorbidity survey-adolescent supplement (NCS-A). *Community Mental Health Journal*, *51*(7), 775-781. https://doi.org/10.1007/s10597-014-9776-x

Tetley, A., Jinks, M., Huband, N., & Howells, K. (2011). A systematic review of measures of therapeutic engagement in psychosocial and psychological treatment. *Journal of Clinical Psychology*, *67*(9), 927-941. https://doi.org/10.1002/jclp.20811

Theimer, K., Mii, A. E., Sonnen, E., McCoy, K., Meidlinger, K., Biles, B., Huit, T. Z., Flood, M. F., & Hansen, D. J. (2020). Identifying and addressing barriers to treatment for child sexual abuse survivors and their non-offending caregivers. *Aggression and Violent Behavior*, *52*, 101418. https://doi.org/10.1016/j.avb.2020.101418

Tolan, P. H. (2016). Community Violence Exposure and Developmental Psychopathology. *Developmental Psychopathology*, 1-43. https://doi.org/10.1002/9781119125556.devpsy402

Tomczyk, S., Schmidt, S., Muehlan, H., Stolzenburg, S., & Schomerus, G. (2020). A prospective study on structural and attitudinal barriers to professional help-seeking for currently untreated mental health problems in the community. *The Journal of Behavioral Health Services & Research*, *47*(1), 54-69. https://doi.org/10.1007/s11414-019-09662-8

Trusz, S. G., Wagner, A. W., Russo, J., Love, J., & Zatzick, D. F. (2011). Assessing barriers to care and readiness for cognitive behavioral therapy in early acute care PTSD

interventions. *Psychiatry: Interpersonal and Biological Processes*, *74*(3), 207-223. https://doi.org/10.1521/psyc.2011.74.3.207

U.S. Department of Commerce. (2023). *Geographic inequality on the rise in the U.S.* U.S. Department of Commerce. https://www.commerce.gov/news/blog/2023/06/geographic-inequality-rise-us

Van Der Linden, J., Drukker, M., Gunther, N., Feron, F., & Van Os, J. (2003). Children's mental health service use, neighbourhood socioeconomic deprivation, and social capital. *Social Psychiatry and Psychiatric Epidemiology*, *38*(9), 507-514. https://doi.org/10.1007/s00127-003-0665-9

Vibhakar, V., Allen, L. R., Gee, B., & Meiser-Stedman, R. (2019). A systematic review and meta-analysis on the prevalence of depression in children and adolescents after exposure to trauma. *Journal of Affective Disorders*, *255*, 77-89. https://doi.org/10.1016/j.jad.2019.05.005

Vines, A. I., Ward, J. B., Cordoba, E., & Black, K. Z. (2017). Perceived racial/ethnic discrimination and mental health: a review and future directions for social epidemiology. *Current Epidemiology Reports*, *4*(2), 156-165. https://doi.org/10.1007/s40471-017-0106-z

Wamser-Nanney, R. (2020). Risk factors for attrition From pediatric trauma-focused treatment. *Child Maltreatment*, *25*(2), 172-181. https://doi.org/http://dx.doi.org/10.1177/1077559519874406

Wamser-Nanney, R., & Steinzor, C. E. (2016). Characteristics of attrition among children receiving trauma-focused treatment. *Psychological Trauma: Theory, Research, Practice, and Policy*, *8*(6), 745-754. https://doi.org/http://dx.doi.org/10.1037/tra0000143

Wamser-Nanney, R. (2020). Predictors of Attrition Among Young Children Receiving Trauma-Focused Therapy. *Journal of Traumatic Stress*, *33*(4), 564-574. https://doi.org/10.1002/jts.22513

Wamser-Nanney, R., & Walker, H. E. (2023). Attrition from pediatric trauma-focused cognitive behavioral therapy: A meta-analysis. *Journal of Traumatic Stress*, *36*(1), 17-30. https://doi.org/10.1002/jts.22890

Wang, T., Tan, J.-Y., Liu, X.-L., & Zhao, I. (2023). Barriers and enablers to implementing clinical practice guidelines in primary care: an overview of systematic reviews. *BMJ Open*, *13*(1), e062158. https://doi.org/10.1136/bmjopen-2022-062158

Weiner, B. J., Lewis, C. C., Stanick, C., Powell, B. J., Dorsey, C. N., Clary, A. S., Boynton, M. H., & Halko, H. (2017). Psychometric assessment of three newly developed implementation outcome measures. *Implementation Science*, *12*(1). https://doi.org/10.1186/s13012-017-0635-3

Williams, D. R., Lawrence, J. A., & Davis, B. A. (2019). Racism and health: Evidence and needed research. *Annual Review of Public Health*, *40*(1), 105-125. https://doi.org/10.1146/annurev-publhealth-040218-043750

Williams, K. A., & Chapman, M. V. (2011). Comparing health and mental health needs, service use, and barriers to services among sexual minority youths and their peers. *Health & Social Work*, *36*(3), 197-206. https://doi.org/10.1093/hsw/36.3.197

Yasinski, C., Hayes, A. M., Alpert, E., McCauley, T., Ready, C. B., Webb, C., & Deblinger, E. (2018). Treatment processes and demographic variables as predictors of dropout from trauma-focused cognitive behavioral therapy (TF-CBT) for youth. *Behaviour Research and Therapy*, *107*, 10-18. https://doi.org/10.1016/j.brat.2018.05.008

Zandberg, L. J., Rosenfield, D., Alpert, E., McLean, C. P., & Foa, E. B. (2016). Predictors of dropout in concurrent treatment of posttraumatic stress disorder and alcohol dependence: Rate of improvement matters. *Behaviour Research and Therapy*, *80*, 1-9. https://doi.org/10.1016/j.brat.2016.02.005

Zhang, Y., Ancker, J. S., Hall, J., Khullar, D., Wu, Y., & Kaushal, R. (2020). Association between residential neighborhood social conditions and health care utilization and costs. *Medical Care*, *58*(7), 586-593. https://doi.org/10.1097/mlr.0000000000001337

Appendix A

Study 1: Results of PCA for County Deprivation

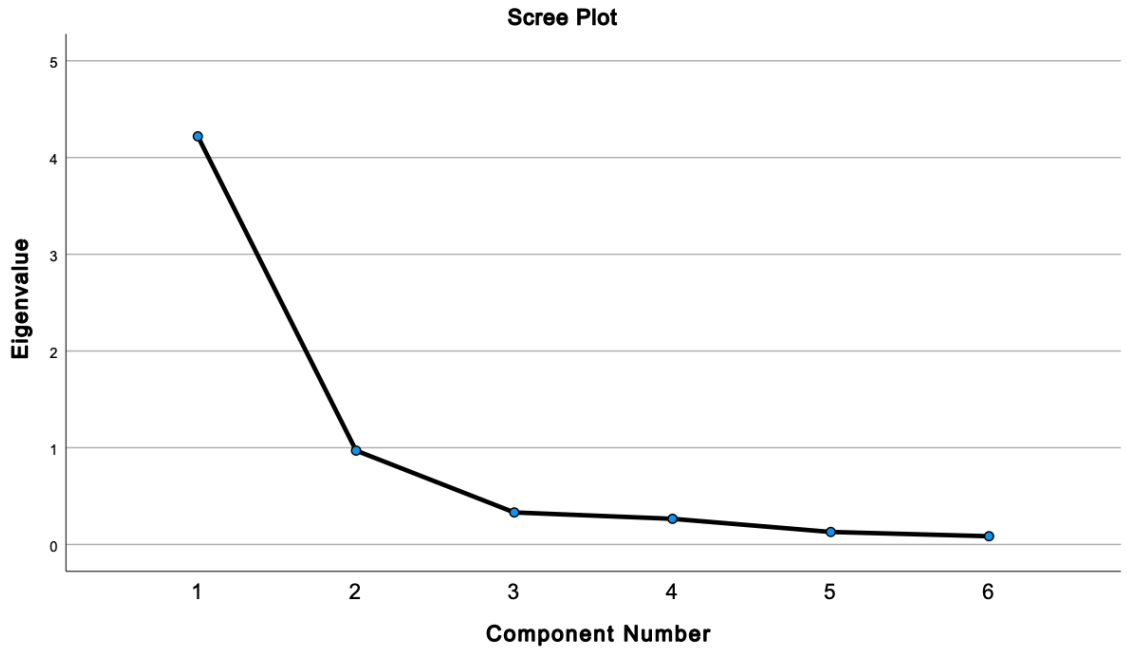
Table 1

Total variance explained by each component within the PCA for county deprivation

Component	Total	Percent of Variance	Cumulative Percent
1	4.22	70.32%	70.32%
2	0.97	16.17%	86.49%
3	0.33	5.52%	92.01%
4	0.27	4.42%	96.43%
5	0.13	2.15%	98.58%
6	0.09	1.42%	100.00%

Figure 1.

Scree illustrating the variance explained by each component in the PCA for county deprivation



Appendix B

Study 1: Results of PCA for County Violence

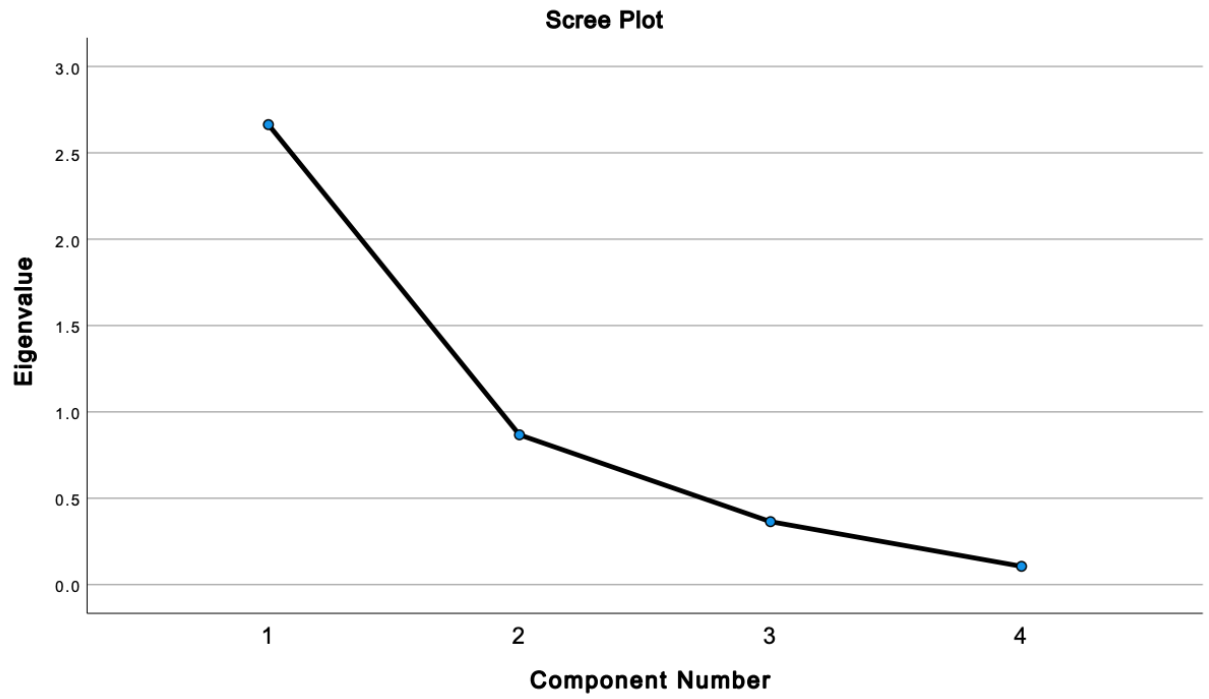
Table 1

Total variance explained by each component within the PCA for county violence

Component	Total	Percent of Variance	Cumulative Percent
1	2.66	66.58%	66.58%
2	0.87	21.68%	88.26%
3	0.36	9.11%	97.36%
4	0.11	2.64%	100.00%

Figure 1.

Scree illustrating the variance explained by each component in the PCA for deprivation



Appendix C

Study 1: Preliminary Models

Table 1
Model 1: Impact of individual-level covariates on odds of utilizing psychological services

	exp(B) (Odds Ratio)	95% CI	*p*
Intercept	0.02	0.02, 0.04	<.01
US Born	1.85	1.33, 2.57	<.01
Female Gender	1.39	1.21, 1.60	<.01
Uninsured Status	0.79	0.63, 0.99	.05
White Race	1.68	1.41, 1.99	<.01
Hispanic Ethnicity	1.34	1.09, 1.65	.01

Table 2
Model 2: Impact of individual-level covariates and focal predictors on odds of utilizing psychological services

	exp(B) (Odds Ratio)	95% CI	*p*
Intercept	0.02	0.02, 0.04	<.01
US Born	1.67	1.21, 2.33	<.01
Female Gender	1.31	1.13, 1.51	<.01
Uninsured Status	0.74	0.58, 0.93	.01
White Race	1.94	1.63, 2.32	<.01
Hispanic Ethnicity	1.27	1.03, 1.56	.03
Depression	1.07	1.06, 1.08	<.01
Victimization	1.54	1.34, 1.78	<.01

Table 3
Model 3: Impact of individual-level covariates, focal predictors, and county level predictors on odds of utilizing psychological services

	exp(B) (Odds Ratio)	95% CI	*p*
Intercept	0.02	0.02, 0.04	<.01
US Born	1.79	1.28, 2.50	<.01
Female Gender	1.30	1.12, 1.50	<.01
Uninsured Status	0.75	0.59, 0.95	.02
White Race	1.93	1.61, 2.32	<.01
Hispanic Ethnicity	1.18	0.95, 1.46	.13
Depression	1.07	1.06, 1.08	<.01
Victimization	1.51	1.30, 1.75	<.01
County Deprivation	0.86	0.76, 0.98	.03
County Violence	1.03	0.91, 1.17	0.69
Provider Density	1.00	0.99, 1.01	0.09
Depression (group mean)	1.09	1.02, 1.15	<.01

Appendix D

Study 2: Barriers to Psychotherapy Treatment Scale

You are seeking psychological help. Below are some statements that can make it difficult to participate in psychological treatment. For each item, please indicate how much you anticipate that you will agree with each statement throughout your psychological treatment.

"1" = Totally disagree

"2" = Somewhat disagree

"3" = Neutral

"4" = Somewhat agree

"5" = Totally agree

1. I feel ashamed of needing help with my problem.
2. I want to handle my problem on my own.
3. I will decide that things are ok after all – that I don't really need to change.
4. I will feel that help is no longer necessary because I will get better.
5. Family health problems or illness in my home interfere with getting treatment.
6. My health problems or illness will interfere with getting treatment.
7. I will worry about what people would think if they knew I was in treatment.
8. I will be afraid of being criticized by my family if I seek psychological help.
9. I will have family problems that will prevent me from going to treatment.
10. I will experience too much stress in my life to participate in treatment.
11. The appointment will interfere with my/my family's work schedule.
12. The appointment will interfere with my/my family's school schedule.

13. Treatment would conflict with other activities in which I / my family is involved.

14. I won't have enough time for treatment.

15. Scheduling appointment times for treatment would be difficult.

16. I will not have transportation (car, truck, taxi) to travel to treatment.

17. I will not have the necessary technology (computer, smart phone, Wi-Fi) to access treatment.

Appendix E

Study 3: Final Codebook

Code	Definition	Qualification/Exclusion	Example
Socio-Environmental Factor	Participant mentions something that is related to their environment and/or identity. This can include SES status, race/ethnicity, living situation, community violence, etc. Please double code any socio-environmental factor subcodes with the overall socio-environmental factors code.		“You have someone to give you money. You don’t have to work. But I have to work,”. Everything I that I got, I got it all by myself.
SEF - Context	Participant mentions a characteristic of their immediate environment that has influenced their behavior and/or emotional state, examples of contextual factors include: work stress, family dynamics, and community violence.		"They were like shooting right outside the house, so then taking Ubers every day."
SEF- Identity	Participant mentions a characteristic of their identity, including but not limited to: race, class, gender identity, sexual minority status, vocation, or hobby.		"I don’t have my parents. Like everybody has their moms and their dads coming in to like help them with moving day. I really didn’t have anybody but my cousin and my girlfriend. So, I did feel some type of way."
SEF – Impacting Mental Health	Participant specified that a socio-environmental factor has impacted their mental health and/or participation in therapy, I.e. socio-environmental factor has made PTSD symptoms better.		"Like I would always go to my other roommate’s room cause like soothing like she just reminded me that I have so much work like just being in there."
Comorbidity	Code for any mention of co-occurring mental and/or physical health issues that the client may ASIDE from PTSD.	The co-occurring issue could be mentioned by the therapist or by the client. Should not be double coded with SEF.	“T: Mm, ‘kay. Um, focus, have difficulty focusing and concentrating on things? P: [pause] Uhm, I don’t think that’s because of [pause] T: Trauma.

			P: Yeah. T::More like ADHD? [Pause] Right? P: Yeah.”
Systems of Oppression	Parent code for mentioning any discriminatory institutions, social norms, or structures that are embedded in society.	Can include racism, sexism, homophobia, transphobia, intimate partner violence, or any other inequality based on identity and/or social status.	"I was also angry with what the police cause the-There's a police station right there. I don’t understand why so-there's like so much violence, and the ambulance they don’t come on time. Every time they get transferred here, they don’t make it. Every time [voice quavers] [long pause]"
Therapist Response	Parent code for coding therapist responses to client bringing up SEF.	Double code any sub-codes with the general "therapist response" parent code. Therapist response must include the statement therapist says right after participant brings up with SEF. Always code for therapist response after the participants brings up a SEF.	"T: Yeah, that’s really hard."
Therapist Response – Direct Response to SEF	Therapist responds to client mentioning a SEF.	Has to be more than a “parrot response” for instance, if the client brings up an SEF and the therapist asks a follow up question OR if the therapist provides some kind of statement acknowledging the impact of the SEF on the participant. Use just one therapist response child code.	"T: I think being angry is a valid feeling. Community violence is really terrible."
Therapist Response – Non-directive Therapy Technique	Therapist responds to SEF using a non-directive therapy technique.	Can include (but is not limited to) validation, reflective listening, fostering hope. Use just one therapist response child code.	"T: Yeah, that’s really hard."
Therapist Response – Lack of Response to SEF	Therapist responds to client right after client mentioned a SEF but does not directly acknowledge SEF, for instance focuses on another part of the client's statement.	Use just one therapist response child code.	"Procrastinate. Yeah." (*This code is challenging to find a good example quote for as it is coding for the therapist ignoring a part of the client's statement*)

Therapist Brings up SEF	Therapist spontaneously brings up SEF related to client, without the client mentioning the SEF.		"P: I want to tell especially young people that they can do it cause a lot of people they have lost their significant others to violence. T: Yeah. Far too often, right? P: Yeah. They need like a pick-me-up. T: Especially in communities of color"