Title

Contextual Correlates of Mental Health Care Utilization in Youth and Young Adults at Clinical High Risk for Psychosis

Author

Petti, Emily

Publication Date

2023

UNIVERSITY OF CALIFORNIA,
IRVINE

Contextual Correlates of Mental Health Care Utilization in Youth and Young Adults at Clinical High Risk for Psychosis

THESIS

submitted in partial satisfaction of the requirements
for the degree of

MASTER OF ARTS

in Social Ecology

by

Emily Petti

Thesis Committee:
Professor Jason Schiffman, Chair
Associate Professor Elizabeth A. Martin
Assistant Professor DeWayne P. Williams

2023

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGEMENTS

This work was supported in part by funding from the National Institute of Mental Health (5R01MH112613-05, 5R01MH112545-05, and 5R01MH112612-05).

Thank you to my advisor and committee chair, Dr. Jason Schiffman, for being an inspiring example of what it means to follow your passion and to do so by leading with curiosity and kindness. Thank you for challenging me, encouraging me, and believing in me. I am so grateful for your mentorship and support.

Thank you to my committee members, Drs. Elizabeth Martin and DeWayne Williams, for your invaluable and extremely thoughtful feedback and support throughout this process. I feel very lucky to learn from your insights and expertise.

Endless thanks to my LEAPS team, PREVENT Lab, and cohort besties who are both incredible friends and brilliant colleagues. Thank you for being my rocks both professionally and personally every step of the way and thank you for supporting me in my reputation era.

I also want to thank my family and friends for always encouraging me and checking in on me from near and far. A special thank you to my partner and my parents for your constant advice, patience, and love. Thank you for being my practice audiences, proofreaders, and my biggest supporters.

Finally, I would like to share my sincere gratitude for all of the participants in this study, without whom none of this work would be possible. Thank you for generously dedicating your time and effort to contribute to research.

ABSTRACT OF THE THESIS

Contextual Correlates of Mental Health Care Utilization in Youth and Young Adults at Clinical High Risk for Psychosis

by

Emily Petti
Master of Arts in Social Ecology
University of California, Irvine, 2023
Professor Jason Schiffman, Chair

Clinical high-risk (CHR) for psychosis is associated with distress, impairment, and elevated risk for developing full threshold psychosis. Though early intervention can improve prognostic outcomes in early psychosis, research on factors related to utilization of mental health services among individuals at CHR is limited. Given racial inequities in mental health care and links between CHR and sociocultural/contextual factors, an exploration of contextual correlates of mental health care utilization is needed. We conducted a secondary data analysis of an ongoing community psychosis-risk study to examine whether racialized identity, social support, racial discrimination, immigration status, and symptom severity are related to mental health care utilization among youth and young adults at CHR. Participants in the study are 16-30 year-olds who meet interview-based criteria for a psychosis-risk syndrome (*n* =180). Participants self-reported social support, experiences of discrimination, immigration status, and lifetime mental health care use. In regression analyses, Asian/Asian American participants were significantly less likely than White/European American participants to report receiving past mental health care, as were immigrants compared to those born in the United States. Black/African American participants were significantly less likely to report using services currently compared to White/European American participants, and distressing positive symptoms also significantly predicted receiving current services in the full sample. Overall, recent positive symptoms may be more closely associated with current service use, while sociocultural factors such as immigration status and racial identity may impact initial entry into or use of the mental health care system. As CHR research and practice increasingly focus on early intervention, findings underscore the importance of better understanding factors associated with mental health service use among youth at CHR.

INTRODUCTION

Psychosis, Clinical High Risk, and Early Intervention

Psychosis is conceptualized on a severity spectrum, ranging from relatively normative experiences to full-threshold psychotic disorders (Johns & Van Os, 2001; Krabbendam et al., 2004). In western countries, studies have estimated that the average length of duration of untreated psychosis (DUP), or the time between the first onset of psychosis and first entry into treatment (e.g., first antipsychotic treatment, medical consultation, or other adequate treatment), ranges from 61 to 64 weeks (Cascio et al., 2012; Penttilä et al., 2014). Longer DUP has been associated with worse clinical and functional outcomes such as greater severity of symptoms, lower remission rates, and worse social functioning (Johannessen et al., 1999; Penttilä et al., 2014; Tang et al., 2014). Conversely, shorter DUP facilitated by early identification and intervention has been associated with improved symptoms and higher remission rates, better functioning, and improved treatment engagement (Correll et al., 2018). Thus, research and practice efforts aimed at ameliorating psychosis and its impact increasingly focus on early identification and intervention. This study aimed to identify factors associated with receiving and seeking mental health care in a community sample of youth and young adults experiencing risk for psychosis.

Before the onset of full-threshold psychosis, individuals often experience what is termed the “clinical high risk” (CHR) phase of psychosis, characterized by attenuated positive symptoms of psychosis that cause distress and/or impairment, but are not severe or enduring enough to meet criteria for a psychotic disorder (McGlashan et al., 2010). Examples of psychosis-risk or CHR symptoms include experiencing confusion over whether something is real or imaginary, feeling mistrustful or suspicious of others, and experiencing perceptual abnormalities such as visual distortions or subthreshold auditory hallucinations. A recent meta-analysis estimated the prevalence of CHR syndromes at approximately 1.7% in general population samples and 19.2% in clinical samples (Salazar de Pablo et al., 2021). Another meta-analysis found that individuals who meet criteria for CHR have a much higher risk of developing full-threshold psychosis, with approximately 25% of those diagnosed with a CHR syndrome transitioning to full psychosis within three years (de Pablo et al., 2021; Fusar-Poli et al., 2015). Not only does the CHR phase confer increased risk for psychosis, but psychosis-risk syndromes in themselves are distressing and impairing, reflected in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) diagnosis Attenuated Psychosis Syndrome (APS).

Early intervention efforts for those at CHR have also demonstrated promise, with research suggesting intervention during the CHR phase can reduce the rate of conversion from CHR to psychosis (Fusar-Poli et al., 2012; Okuzawa et al., 2014). For example, a recent meta-analysis conducted by Mei and colleagues (2021) found that psychological interventions and cognitive behavioral therapy (CBT) reduced the rate of transition from high risk for psychosis to full-threshold psychosis at 12-month follow-up and up to 4-year follow-up. These findings echo earlier reviews that CBT interventions have the potential to reduce transition to psychosis (Stafford et al., 2013; van der Gaag et al., 2013). Despite promising results of intervening during the CHR phase, little is known about the factors that prevent or encourage youth at CHR to enter treatment, and research suggests that many individuals at CHR do not present to clinical services (Ben-David et al., 2018; Kelleher et al., 2012). A growing body of research suggests that contextual, environmental, and social factors may contribute to symptoms and help-seeking during the CHR phase.

Conceptual Model

Several conceptual models of psychosis and psychosis-risk, such as the psychosis proneness–persistence–impairment model (van Os et al., 2009), emphasize the impact of environmental and contextual factors in symptom severity and risk for psychosis. The current study sought to identify and examine potentially relevant contextual correlates of mental health care utilization among youth and young adults at CHR, namely race/ethnicity, discrimination, social support, immigration status, and psychosis-risk symptom severity. These factors were chosen based on their established links with both mental health care utilization and the psychosis spectrum (e.g., Bridgwater et al., 2023; Robustelli et al., 2017).

Racial/Ethnic Identity, Psychosis, and Clinical High Risk

Disparate rates of psychotic disorder diagnoses among racial groups have been well documented, with several studies observing higher rates of schizophrenia diagnoses among Black Americans compared to White and Latinx Americans (Anglin & Malaspina, 2008; Minsky et al., 2003; Schwartz & Blankenship, 2014). For example, one study found that Black/African Americans were at least three times more likely than White/European Americans to be diagnosed with schizophrenia, an association that was mediated by interviewers' perception of participant honesty, which was significantly lower for Black/African American participants (Eack et al., 2012). Studies of inpatient hospitalization have also identified race as a significant predictor of schizophrenia diagnoses, again citing higher rates for Black/African American inpatients (Barnes, 2004; Barnes, 2008; Neighbors et al., 2003). These higher diagnostic rates persist even when controlling for socioeconomic status (Bresnahan, et al., 2007; Kirkbride et al., 2008). The reasons behind increased diagnosis of psychotic disorders among Black Americans is unclear. It is possible that factors such as greater social stressors may lead to increased psychotic symptom severity among racially marginalized clients (Barrio et al., 2003; Janssen et al., 2003). At the same time, clinician bias may lead to poor diagnostic practices/overdiagnosis (Eack et al., 2012; Loring & Powell, 1988; Minsky, 2003).

As a newer area of research relative to more severe or chronic psychosis, the CHR literature is limited with regards to diagnostic trends across race. Nonetheless, findings thus far suggest racial/ethnic differences in CHR symptomatology and outcomes. Some research has pointed to differential levels of psychosis-risk symptoms among different racial/ethnic groups, whereby individuals among minority groups at CHR report higher positive symptom severity (Thompson et al., 2009). Additionally, CHR researchers have found differing rates of recovering and functioning by race/ethnicity among individuals at CHR. For example, one study found that White/European American participants at CHR had better rates of recovery and improvement than non-White participants at 18-month follow-up (Salokangas et al., 2013). Similarly, a study by Corcoran and colleagues (2011) observed lower social functioning and higher levels of negative and disorganized symptoms among racial/ethnic minority participants at CHR. Overall, more research is needed regarding potential racial/ethnic differences in symptoms and outcomes for youth at CHR. It is possible that targeted early intervention efforts may be beneficial in addressing racial/ethnic differences in CHR symptoms and outcomes; however, little work has examined potential racial/ethnic group differences in mental health care utilization among those at CHR.

Race/ethnicity and Mental Health Care Utilization

In general, racially marginalized groups in the United States tend to receive mental health care at lower rates and show higher rates of emergency service use compared to White/European Americans (Abrams et al., 2020; Alegria et al., 2002; McGuire & Miranda, 2008; Snowden et al., 2009; U.S. Department of Health and Human Services, 2001). This may be due to a plethora of barriers disproportionately impacting marginalized racial groups, ranging from historical racism in the health care system (Gamble, 1997), to disparate access to mental health care (Cook et al., 2017; Richardson & Norris, 2010), to the lack of a racially and culturally diverse mental health provider workforce (American Psychological Association [APA], 2018), to disproportionate involvement with police and the justice system during first pathways to care (Anderson et al., 2014), to a lack of culturally responsive treatment strategies (Smith, et al. in press). Some evidence also suggests that individuals from marginalized racial/ethnic backgrounds may seek informal support in lieu of mental health services, such as from family members or community groups, which may also contribute to differential service use rates (Pahwa et al., 2019). Nevertheless, there appears to be evidence of racial and ethnic disparities in mental health care and psychiatric outcomes whereby racially marginalized groups are not benefiting from mental health services, in particular preventative services, to the same extent as White/European American groups. Though research about these trends is limited in the subclinical and risk phases of psychosis, one recent study observed that among college students with high levels of psychosis-spectrum experiences, Asian/Asian American and Black/African American students reported significantly lower levels of service use ($N = 177$; Petti et al., 2021). Though participants in the study were not assessed for interview-based CHR criteria, results suggest potential racial/ethnic differences in mental health care utilization along the psychosis continuum, an observation that warrants further exploration among individuals at CHR who could benefit from early intervention (Eack & Newhill, 2012; Kessler et al., 2005; Ojeda & McGuire, 2006). It may also be important to explore factors that may help explain racial/ethnic differences in symptoms and mental health care utilization, such as discrimination.

Discrimination, CHR, and Mental Health Care Utilization

Experiences of racial/ethnic discrimination have been linked with attenuated symptoms of psychosis and to the development of full threshold psychosis (Anglin et al., 2018; Lopez et al., 2020; Oh et al., 2016). For example, one study examined perceived discrimination among a clinical high-risk sample finding that those at CHR experienced significantly more types of discrimination than healthy control participants (Stowkowy et al., 2016). Among other predictors in the study (trauma, bullying), experiences of discrimination were the only significant predictor of conversion to psychosis among the sample (*n* = 684; Stowkowy et al., 2016). Research examining the link between discrimination and mental health care utilization specifically in the subclinical and risk phases of the psychosis spectrum has been both limited and mixed. One study reported lower service engagement among those at CHR experiencing discrimination (Rüsch et al., 2014), and another study did not find an association between discrimination and service use among college students with high levels of psychotic-like experiences (Petti et al., 2021). Despite mixed findings in this area, research has linked experiences of discrimination to health care system mistrust more broadly. For example, one study found that Black/African Americans reported more health care system distrust compared to White Americans, and that experiences of discrimination explained increased health care system mistrust among Black/African Americans (Armstrong et al., 2013). Mistrust of the healthcare system, in turn, is associated with lower service use (LaVeist et al., 2009). Thus, discrimination, typically experienced by minoritized populations, may be an important factor to consider in connection with service utilization among those at CHR.

Social Support, CHR, and Mental Health Care Utilization

Social support is another contextual factor that has been linked with both the psychosis spectrum and mental health service use. Social support can serve as a protective factor against psychological distress (Ditzen & Heinrichs, 2014; Falcon et al., 2009). The inverse also appears to be true in relation to psychosis, as some evidence suggests that lower levels of social support may predict later development of psychotic symptoms (Wiles et al., 2006). Results from a systematic review also found lower levels of social support among individuals with psychosis relative to comparison groups (Gayer-Anderson & Morgan, 2013). Relatedly, lower levels of social support have been found among those at CHR compared to healthy controls (Robustelli et al., 2017; Huang et al., 2019; Pruessner et al., 2011), and less social support has been associated with greater positive symptom severity among those at CHR (Shi et al., 2016). Another study found an interaction between social support and psychotic symptom distress in predicting self-stigma, whereby psychotic symptom distress was associated with self-stigma but only among individuals with lower levels of social support, an important pattern to consider given that self-stigma may also be a barrier to service use (Denenny et al., 2015; Gary, 2005). With regards to mental health service use, greater social support has been linked with lower perceived need for mental health care, though this trend may be reversed for individuals with more serious mental illness (Thoits, 2011). As social support has been independently linked with both CHR and mental health service use, an exploration of social support as a correlate of service use among those at CHR is warranted.

Immigration Status, Psychosis/CHR, and Mental Health Care Utilization

Immigration has also been connected with psychosis risk and may have implications for mental health care utilization (Bourque et al., 2011; Jones et al., 2021). Studies have observed elevated rates of psychosis among immigrant populations globally, and immigration status has been implicated as a possible risk factor for psychosis (Radua et al., 2018; Weiser et al., 2008).

Multiple meta-analyses have suggested migration as a risk factor for schizophrenia and psychosis, finding rates of psychosis more than two times higher among immigrants compared to native-born individuals (Bourque et al., 2011; Cantor-Graae & Selten, 2005). Research investigating immigration status and DUP has been mixed, with some studies finding that migrants were more likely to have a longer DUP (Boonstra et al., 2012; Nerhus et al., 2013), and some finding no differences in DUP by immigration status (Golay et al., 2019). Geros and colleagues (2020) suggest that longer DUP among immigrants may mean that immigrants are less likely to present to mental health services during the CHR phase.

Limited research to date has directly examined the relation between immigration status and CHR, though a few studies have found no difference in rates of transition to psychosis between migrants and non-migrants at CHR (Geros et al., 2020; O'Donoghue et al., 2021). Immigrant status, however, has been linked to lower mental health service utilization in the United States (Derr, 2016; Bauldry & Szaflarski, 2017), and early intervention in psychosis providers have cited additional barriers to service engagement among recent immigrants (Jones et al., 2021). Thus, it may be important to understand the link between immigration and mental health care utilization among those at CHR in the U.S.

Current Study

Guided by the psychosis proneness–persistence–impairment model and considering contextual factors that have been linked with both CHR and mental health care utilization, the current study aimed to identify the extent to which positive symptom severity, race/ethnicity, experiences of racial discrimination, immigration status, and social support relate to mental health care utilization among youth and young adults at clinical high risk for psychosis.

Specifically, the current study evaluated these factors as correlates of past and current mental health care utilization, as well as intentions to seek future mental health care.

METHOD

This study is a secondary data analysis of an ongoing NIMH funded study, the Multisite Assessment of Psychosis-risk (MAP) study (Ellman et al., 2020). Participants are recruited from four broad catchment areas surrounding the University of Maryland, Baltimore County; Temple University; Northwestern University; and the University of California, Irvine. The study has been approved by the Institutional Review Boards at all four universities.

Participants

The analysis sample for the present study includes MAP study participants who met criteria for a psychosis-risk syndrome per the SIPS (described below; McGlashan et al., 2010), and who have at least one valid mental health care utilization variable and are not missing data on key variables (*n* = 180).

Measures

Demographics

During the initial online survey battery (described below), participants completed a demographic questionnaire where they self-reported race/ethnicity, immigration status, gender, and age, among other demographic variables.

Structured Interview for Psychosis-Risk Syndromes

The Structured Interview for Psychosis-Risk Syndromes (SIPS) is a semi-structured interview designed to assess the presence or absence of three psychosis-risk syndromes, the presence or absence of psychosis, and symptom severity (McGlashan et al., 2010). The SIPS consists of 19 symptoms that fall into four domains: positive symptoms, negative symptoms, disorganized symptoms, and general symptoms. The presence of psychosis or a psychosis-risk syndrome is determined by ratings on one or more of the five positive symptom items (unusual thought content; suspiciousness; grandiosity; perceptual abnormalities; disorganized communication). The SIPS has demonstrated strong interrater reliability and predictive validity (Miller et al., 2003). For this study, the SIPS was used to determine the analysis sample, including only those participants who met SIPS criteria for a psychosis-risk syndrome.

Prodromal Questionnaire

The Prodromal Questionnaire (PQ-92; Loewy et al., 2005) is a 92-item self-report screening questionnaire assessing levels of attenuated symptoms of psychosis, including positive, negative, disorganized, and general symptom domains. The PQ-92 has strong predictive and concurrent validity with the SIPS, internal consistency and test–retest reliability, and sensitivity in identifying individuals who meet interview-based criteria for psychosis-risk syndromes (Kotzalidis et al., 2017; Loewy et al., 2005). The version of the PQ-92 used in the current study included a measure of distress alongside each symptom; if an item was endorsed, participants also indicated whether the experience caused them distress. Total number of distressing positive symptoms were used as the measure of positive symptom severity in analyses. In the current study, the total number of distressing positive symptom items had an internal consistency of $\alpha = .88$.

Lubben Social Network Scale – Revised

The Lubben Social Network Scale (LSNS-R) is a 12-item self-report questionnaire measuring level of social engagement and support from family, friends, and neighbors (Lubben, 1988; Lubben & Gironda, 2003; Howard Sharp et al., 2017). Participants are asked to rate the frequency of their interactions with relatives and friends by responding to each question on a 0 to 5 scale, with 0 indicating no engagement and 5 indicating high social engagement (response anchors differ for each question). The LSNS-R is scored by generating a total sum score, ranging from 0 to 60, with higher scores indicating more perceived social support and engagement. LSNS-R total scores were used in regression analyses. In the present sample, internal consistency for the LSNS-R was estimated to be α = .83.

Experiences of Discrimination Scale

The Experiences of Discrimination Questionnaire (EOD: Krieger et al., 2005) is a self-report questionnaire querying participants about exposure to racial discrimination in several domains. The "situation" subscale of the measure asks participants to endorse whether they have experienced discrimination or unfair treatment in nine different situations, such as in getting medical care or getting a job. In the present study, the "situation" subscale was used in regression analyses, with scores representing the number of situations in which participants report having experienced racial discrimination (Krieger et al., 2005). In the current study, internal consistency for the EOD was estimated to be α = .83.

Mental Health Care Utilization Questions

Within the survey battery, service utilization was queried using a measure previously used in the same research group, where participants were asked about past, current, and prospective mental health care utilization (Andorko et al., 2017). Participants indicated whether or not they had received mental health care in the past (prior to three months ago) or whether they were currently receiving mental health services (within the past three months) by responding Yes (coded 1) or No (coded 0). Additionally, participants who responded that they were not currently receiving any mental health care were presented with a Likert-style scale ranging from “1-Not at all” to “5-Very much” on which to respond to the prompt “Please indicate how strongly you are considering seeking some type of mental health care by selecting a number below.”

Procedure

The study began with an initial online survey battery for which participants were compensated with a $10 gift card. Eligibility criteria for completing the online survey included being aged 16-30, located in one of the participating universities’ surrounding geographic regions, and a first-time survey taker. Inclusion criteria required participants to be able to speak and read English, and have vision conducive to reading an online survey. Recruitment procedures included placing flyers at local locations; posting web-based ads on platforms such as Craigslist, Facebook, and Reddit; and recruiting participants at local universities via Sona. Informed consent and eligibility screening were conducted via Qualtrics. Participants ages 16-17 were required to have a parent or legal guardian complete the consent process. If participants were eligible and provided assent/consent to participate, they were taken to another Qualtrics-administered survey battery consisting of several self-report questionnaires which took approximately 45-60 minutes to complete. The PQ-92, LSNS-R, EOD, demographic questions, and mental health care utilization questions (all described above) were completed during the survey portion of the study.

After completing the initial online survey battery, participants who scored above cut-off levels on either of two psychosis-risk screens and a random subset of low-scoring participants were invited to participate in an interview procedure. The interview procedure included the Structured interview for psychosis-risk syndromes (SIPS; described above) version 5.6

(McGlashan et al., 2010), the gold-standard assessment measure to determine the presence of psychosis-risk syndromes.

Analyses

Two logistic regressions were conducted to examine significant correlates of past (model 1) and current (model 2) mental health care use. A multiple linear regression was conducted to examine significant correlates of intentions to seek mental health services (model 3). Each regression model included positive symptom severity, race/ethnicity, immigration status, social support, and experiences of discrimination as predictors.

RESULTS

The analysis sample ($N_{analysis}$ = 180) included community-based study participants aged 16-30 years (*M* = 20.8, *SD* = 2.88; see Table 1 for sample characteristics). The sample was predominantly female (71.1%) and White (52.8%). Continuous predictors were evaluated for normality and outliers, with estimates suggesting reasonable normality (skew < 2 and kurtosis < 10; Curran et al., 1996). Post hoc power analyses were conducted using G*Power for significant effects and results ranged from .74 to .93 (Faul et al., 2009).

Model 1: Correlates of Past Mental Health Care Utilization

The overall model predicting past mental health care utilization was statistically significant (see Table 2). In terms of individual predictors, estimates indicated that racialized identity significantly predicted past mental health care utilization. In comparison to their White/European American counterparts, Asian/Asian American participants were 66% less likely to have received past mental health care (*p* = .031), and the same pattern was approaching significance for Asian/Asian American participants compared to Hispanic/Latinx participants (*p* = .069). No other statistically significant group differences in endorsement of past mental health care were observed (all *p*s > .10). Additionally, immigration status was a significant predictor of past mental health care utilization such that participants who self-identified as immigrants to the U.S. were approximately 65% less likely to report receiving mental health services in the past (*p* = .027). Positive symptoms were positively correlated with past service use at trend level significance, such that the likelihood of endorsing past mental health care utilization increased by 5% for every one unit increase in distressing positive symptoms (*p* = .077). Experiences of discrimination and social support did not significantly predict past mental health care utilization (both *p*s > .50).

Model 2: Correlates of Current Mental Health Care Utilization

The overall model predicting current mental health care utilization was statistically significant (see Table 3). Again, racialized/ethnic identity emerged as a significant predictor of current service use, with Black/African American participants about 75% less likely to report current service use compared to White/European American participants (*p* = .038). No other statistically significant group differences in endorsement of current mental health care were observed (all *p*s > .10). Symptom severity was also a significant predictor, such that the likelihood of endorsing utilizing mental health services currently increased by 6% for every one unit increase in distressing positive symptoms endorsed on the PQ-92 (*p* = .023). In this model, being born outside of the U.S. was negatively associated with current service use approaching significance (*p* = .077). Experiences of discrimination and social support did not significantly predict current service use (both *p*s > .10).

Model 3: Correlates of Interest in Seeking Mental Health Care

The overall model predicting interest in seeking mental health services was not statistically significant (see Table 4). Thus, in this study and sample, racialized/ethnic identity, immigration status, experiences of racial discrimination, social support, and positive symptom severity did not explain a significant amount of variation in interest in future mental health services. Individual predictor estimates suggested that symptom severity was positively associated with how strongly participants were considering seeking mental health services in the future ($p = .019$). However, since the overall model was not significant, significant individual predictor estimates should be interpreted with caution.

DISCUSSION

This study explored contextual and socioenvironmental predictors of mental health care utilization among youth and young adults at clinical high risk (CHR) for psychosis, aiming to expand upon conceptual models of psychosis risk that highlight the impact of contextual factors by exploring whether some of these factors also related to mental health care utilization. The study focused specifically on racialized identity, experiences of racial discrimination, level of social support, immigration status, and positive psychosis-spectrum symptom severity, all factors that have been associated with mental health care utilization more broadly and with the CHR phase. Findings lend support to the notion that some environmental and contextual factors may play an important role in service utilization for individuals at CHR.

Positive Symptoms and MHCU

Higher reports of distressing positive symptoms were associated with higher likelihood of *currently* receiving mental health services ($p = .02$). This relation was approaching significance for *past* service use ($p = .077$). Though the overall model predicting interest in seeking future services was not statistically significant ($p = .11$) results suggested a positive correlation between distressing positive symptoms and level of interest in seeking services ($p = .02$). Findings are consistent with previous research linking higher symptom severity with increased service use

(Petti et al., 2021). Notably, since the participant sample was limited to those who met criteria for CHR, even among a group already identified as having elevated psychosis-spectrum symptoms (i.e., met interview-based criteria for CHR), symptom severity was still a significant predictor of service use. This suggests that even among those at CHR, it may be important to attend to the severity and distress levels of symptoms.

Racialized/Ethnic Identity and MHCU

Racialized/ethnic identity was a significant predictor of both past and current mental health service use. While accounting for symptom severity, experiences of discrimination, immigration status, and level of social support, participants at CHR who identified as Asian/Asian American were less likely than White/European American and Hispanic/Latinx participants to have received previous mental health care, while Black/African American participants at CHR were less likely than White/European American participants to be currently receiving care. Prior studies have found that racialized/ethnic identity is a significant predictor of mental health care utilization among those experiencing psychosis-spectrum symptoms (Petti et al., 2021). This is one of the first studies to find that the same appears to be true specifically during the clinical high risk phase. This is important because early connection to services before a first episode of psychosis (e.g., during the CHR phase) can improve prognosis and lead to better long term clinical and functional outcomes (e.g., Mei et al., 2021). Thus, it is important to know that youth and young adults at CHR from marginalized or minoritized backgrounds may be less likely to have ever received mental health services in their lifetime compared to their White counterparts, and may be less likely currently engaging in services while in the CHR phase.

There are several potential explanations for differential reports of service use across racialized groups in this study. It is possible that cultural, familial, and internalized stigma acts as a deterrent to seeking services among Asian/Asian American and Black/African American youth at CHR (Ayalon & Alvidrez, 2007; Conner et al., 2009; Gary, 2005; Han & Pong, 2015; Masuda et al., 2009; Oluwoye et al., 2021). For example, one qualitative study in which family members of Black/African American individuals experiencing a first episode of psychosis were interviewed found that concern around negative stereotypes and stigma emerged as themes in terms of delaying seeking treatment (Franz et al., 2010). Similar processes may be at play for those at CHR. One qualitative study of young adults at CHR found that stigma-related concerns emerged as a barrier to seeking services, though this study did not examine trends across racial/ethnic groups (Ben-David et al., 2018). Another potential contributor to differential mental health care utilization across racial/ethnic groups is the racial/ethnic makeup of the mental health provider workforce, which is composed of majority White providers (APA, 2018). This may contribute to medical mistrust among groups who have been historically mistreated by medical and mental health care systems, or structural inequities in the mental health care system more broadly (e.g., Suite et al., 2007). Finally, individuals from groups reporting less mental health care utilization may instead seek support from spaces other than traditional mental health services, such as from social and familial networks, religious groups, and other community supports (Pahwa et al., 2019). Notably, the Black/African American participant group reported the highest mean level of social support of all racial/ethnic groups in the sample. Overall, racial/ethnic group differences emerged when accounting for other variables, meaning that these differences cannot be explained solely by experiences of racial discrimination or informal social support, and are perhaps more indicative of structural discrimination or systemic racism.

Immigration Status

Participants who reported immigrating to the U.S. were significantly less likely to have received mental health care in the past, and the same association was approaching significance for current service utilization. This is the first study to directly examine immigration status as a predictor of service use among those at CHR, finding that immigration may be linked to lower service utilization among this population. Results are in line with a previous study examining immigration among those with full threshold psychosis that found longer DUP among immigrants (Geros et al., 2020). Lower rates of MHCU observed among immigrants may be due to systemic barriers to accessing care for immigrants, such as cross-cultural differences in conceptualization of mental health concerns, or challenges to understanding and navigating new health care systems (Jones et al., 2021). Moreover, immigrants may be burdened with both overt discrimination and migration-related stress, both of which may act as deterrents to seeking care (Bridgwater et al., 2023). Psychosis-spectrum specialty services and mental health care providers may need to increase efforts to improve cultural awareness and responsiveness of services to be more accessible and effective for those who have immigrated to the country (Jones et al., 2021). Finally, given the finding that immigration status showed a stronger association with past mental health care utilization compared to current MHCU, it is possible that sociocultural factors such as immigration may impact initial entry into or use of the mental health care system.

Experiences of Discrimination

This study did not observe statistically significant associations between experiences of racial/ethnic discrimination and past, current, or prospective mental health care utilization. Though experiences of discrimination have been linked with health care system mistrust in general, findings are consistent with studies of youth with psychotic-like experiences (i.e., subthreshold psychosis-spectrum symptoms that may or may not meet criteria for CHR) whereby discrimination did not significantly predict MHCU (Petti et al., 2021). It is possible that for some, experiences of discrimination represent an ongoing stressor for which to seek mental health care, and that for others, experiences of discrimination act as a deterrent to seeking care from a predominantly White mental health care provider workforce. Additionally, the Experiences of Discrimination (EOD) measure used in the present study assesses situations – such as unfair treatment in applying to jobs or obtaining bank loans and mortgages – that may be less applicable or relevant to a sample whose mean age is under 21 years of age. Thus, it is possible that using other measures of discrimination more tailored to this age group may generate different results. Additionally, experiences of discrimination as assessed in the current study represent unfair treatment experienced at the level of the individual. It is possible that higher-order manifestations of discrimination, such as structural racism and systemic oppression, may impact service use for those at CHR more than individual experiences of interpersonal discrimination. If so, this may also partially explain the differential rates of service use across racial/ethnic groups.

Social Support

The present study did not observe a statistically significant association between level of social support and past, current, or prospective mental health care utilization. Research exploring any potential links between social support and MHCU among those at CHR is extremely limited, thus it is challenging to interpret null findings without the context of additional research in this area. Nevertheless, it is possible that some individuals with higher levels of social support feel supported and encouraged in seeking mental health services, while others with ample social support may not feel the need to seek additional support from formal mental health services, potentially resulting in null findings. Additionally, the LSNS-R measure used to quantify social support in the current study queries participants about how frequently they interact with family members, friends, and neighbors. Thus, social support as measured in the current study may not fully capture participants' perceptions of social support or other dimensions of social support – such as community programming or religious groups – that may have bearing on mental health care utilization for those at CHR.

Limitations

Due to small sample sizes, racial groups such as American/Alaskan Native and Native Hawaiian/Pacific Islander were excluded from current analyses, limiting the generalizability of the findings. Future research should prioritize and emphasize inclusion and recruitment of historically underrepresented groups to better understand mental health care utilization among all those at CHR. Additionally, although our measurement of past and current mental health care utilization is face valid and applicable to clinical settings, it is possible that this measure's operationalization of MHCU constructs did not capture some of the nuances of participants' service use. For example, findings using the measure of MHCU in the current study do not provide insight into MHCU constructs such as type of services used and frequency of care. Additionally, data were cross-sectional and thus we are not able to draw mechanistic conclusions. Future research may benefit from exploring underlying mechanisms driving the observed differences in past and current mental health care utilization between racial groups and immigrants/those born in the U.S. among those at CHR. Finally, post hoc power analyses suggested that the sample size in the current study may not be adequately powered to consistently detect all significant results currently reported. Power analyses suggested we were sufficiently powered to detect a significant difference in current mental health care utilization between Black/African American and White/European American participants ($1 - \beta = .93$). Based on typical conventions where power is $1 - \beta = .80$, we were slightly underpowered to detect small effects in other significant results, though power was approaching $1 - \beta = .80$, with lowest estimates of power at .74. The Black/African American and Hispanic/Latinx subsamples were slightly below $n = 30$, thus it is possible that lower variance may limit the study's ability to estimate the true underlying population parameter. In sum, replications with larger sample sizes should be pursued to confirm that the present results are not due to inflation of effects.

Conclusions

In sum, this study assessed several potential contextual correlates of mental health care utilization among youth and young adults at clinical high risk for psychosis. Specifically, we examined racial/ethnic identity, experiences of racial/ethnic discrimination, immigration status, and social support along with positive symptom severity as predictors of lifetime mental health care, current service use, and interest in future mental health services. The fact that symptom severity was a significant predictor of service use among a sample of youth at CHR may point toward the importance of attending to the dimensional nature of symptoms, including how distressing, severe, or impairing symptoms are, even among those categorized as being at CHR for psychosis. Racial/ethnic identity was a significant predictor of both past and current service use, while immigration status significantly predicted past service use and symptom severity significantly predicted current service use. These findings highlight that associations between sociocultural factors and MHCU exist even while controlling for the impact of clinical symptoms and social support. It is important to know that youth and young adults at CHR from marginalized, minoritized, or migrant backgrounds may be less likely to have ever received mental health services in their lifetimes, and may be less likely to be currently engaged in services while in the CHR phase. This may indicate a need to increase outreach efforts or work to increase accessibility of services for youth at CHR who may be less likely to receive care.

Finally, the overall model predicting interest in seeking services was not significant, indicating that other factors not captured in the current study likely better predict how strongly individuals at CHR are considering seeking services. Overall, more work is needed to understand the mechanisms behind the associations found in the current study, such as through longitudinal research and qualitative interviews with youth at clinical high risk for psychosis. Given that individuals at CHR are at higher risk of developing full threshold psychosis and may benefit from early connection to services, it is crucial to understand how context may impact utilization of care.

Table 1

Descriptive Statistics and Frequencies for Study Variables in the Analysis Sample

	Total Sample	Asian/Asian American Participants	Black/African American Participants	Hispanic/ Latinx Participants	White/European American Participants
	N = 180	*n* = 31	*n* = 27	*N* = 27	*n* = 95
	Frequency (% of sample)				
Sex assigned at birth					
Female	128 (71%)	26 (84%)	16 (59%)	18 (67%)	68 (72%)
Male	51 (28%)	5 (16%)	11 (41%)	8 (30%)	27 (28%)
Prefer not to answer/Missing	1 (<1%)	0 (0%)	0 (0%)	1 (3.7%)	0 (0%)
Born in US	153 (85%)	18 (58%)	24 (89%)	24 (89%)	87 (92%)
Current service users	71 (39%)	8 (26%)	6 (22%)	10 (37%)	47 (49%)
Past service users	118 (66%)	13 (42%)	15 (56%)	19 (70%)	71 (75%)
	Mean (*SD*)				
Age (years)	20.84 (2.88)	20.45 (2.69)	19.56 (2.26)	21.44 (2.94)	21.17 (2.98)
PQ pos. distress total	12.52 (7.25)	11.81 (6.48)	13.22 (7.58)	11 (6.71)	12.98 (7.55)
Experiences of Discrimination (EOD)	1.47 (2.06)	2.10 (1.60)	3.70 (2.57)	2.67 (2.42)	0.29 (0.70)
Social Support	29.79 (9.55)	27.94 (7.94)	39.33 (10.47)	28.41 (9.65)	30.92 (9.73)

Table 2

Binary Logistic Regression Predicting Past Service Use Among Individuals at CHR

	X^2	*df*	*p*	R^2
Overall Model	21.62	7, *N* = 178	<.001	.16
	***b* (*SE*$_b$)**	X^2	*p*	**OR**
Asian/Asian American[a]	-1.09 (0.50)	4.66	.031*	0.34
Black/African American[a]	-0.92 (0.58)	2.53	.112	0.40
Hispanic/Latinx[a]	0.01 (0.57)	0.00	.987	1.01
U.S. Immigrant	-1.07 (0.48)	4.92	.027*	0.35
PQ pos. distress total	0.05 (0.03)	3.14	.077	1.05
Social Support	0.01 (0.02)	0.35	.55	1.01
EOD	0.01 (0.11)	0.01	.932	1.01

[a] *White/European American participants were the referent group in this regression model.*

Table 3

Binary Logistic Regression Predicting Current Service Use among Individuals at CHR

	X^2	*df*	*p*	R^2
Overall Model	23.94	7, *N* = 180	.005*	.17
	***b* (*SE*$_b$)**	X^2	*p*	**OR**
Asian/Asian American[a]	-0.80 (0.53)	2.26	.133	0.45
Black/African American[a]	-1.37 (0.66)	4.31	.038*	0.25
Hispanic/Latinx[a]	-0.49 (0.54)	0.82	.364	0.61
U.S. Immigrant	-0.99 (0.56)	3.13	.077	0.37
PQ pos. distress total	0.06 (0.02)	5.20	.023*	1.06
Social Support	-0.02 (0.02)	1.64	.200	0.98
EOD	0.004 (0.11)	0.001	.972	1.00

[a] *White/European American participants were the referent group in this regression model.*

Table 4

Multiple Linear Regression Predicting Interest in Seeking Services among Individuals at CHR

	F	***df***	***p***	***R^2***
Overall Model	1.72	7, *N* = 108	.114	.05
	b (SE_b)	***t***	***p***	***f^2***
Asian/Asian American[a]	0.26 (0.42)	0.61	.544	0.00
Black/African American[a]	0.02 (0.45)	0.05	.960	0.00
Hispanic/Latinx[a]	0.74 (0.44)	1.67	.098	0.03
U.S. Immigrant	-0.31 (0.37)	-0.82	.414	0.01
PQ pos. distress total	0.05 (0.02)	2.38	.019*	0.06
Social Support	-0.01 (0.02)	-0.83	.409	0.01
EOD	0.06 (0.08)	0.65	.518	0.00

[a] *White/European American participants were the referent group in this regression model.*

REFERENCES

Abrams, A.H., Badolato, G.M., Boyle, M.D., McCarter, R., & Goyal, M.K. (2020). Racial and Ethnic Disparities in Pediatric Mental Health-Related Emergency Department Visits. *Pediatric Emergency Care.* https://doi.org/10.1097/PEC.0000000000002221

Alegría, M., Canino, G., Ríos, R., Vera, M., Calderón, J., Rusch, D., & Ortega, A. N. (2002). Inequalities in use of specialty mental health services among Latinos, African Americans, and non-Latino whites. *Psychiatric Services, 53*(12), 1547–1555. https://doi.org/10.1176/appi.ps.53.12.1547

American Psychological Association. (2018). *Demographics of the U.S. psychology workforce: Findings from the 2007-16 American Community Survey.* Washington, DC.

Anderson, K. K., Flora, N., Archie, S., Morgan, C., & McKenzie, K. (2014). A meta-analysis of ethnic differences in pathways to care at the first episode of psychosis. *Acta psychiatrica scandinavica, 130*(4), 257-268.

Andorko, N. D., Mittal, V., Thompson, E., Denenny, D., Epstein, G., Demro, C., Wilson, C., Sun, S., Klingaman, E., DeVylder, J., Oh, H., Postolache, T. T., Reeves, G., & Schiffman, J. (2017). The association between sleep dysfunction and psychosis-like experiences among college students. *Psychiatry research*, *248*, 6-12.

Anglin, D. M., Lui, F., Espinosa, A., Tikhonov, A., & Ellman, L. (2018). Ethnic identity, racial discrimination and attenuated psychotic symptoms in an urban population of emerging adults. *Early intervention in psychiatry*, *12*(3), 380-390.

Anglin, D.M., & Malaspina, D. (2008). Racial and ethnic effects on psychotic psychiatric diagnostic changes from admission to discharge: A retrospective chart review. *Journal of Clinical Psychiatry, 39*(3), 464-469.

Armstrong, K., Putt, M., Halbert, C. H., Grande, D., Schwartz, J. S., Liao, K., Marcus, N., Demeter, M. B., & Shea, J. A. (2013). Prior experiences of racial discrimination and racial differences in health care system distrust. *Medical care, 51*(2), 144–150. https://doi.org/10.1097/MLR.0b013e31827310a1

Ayalon, L., & Alvidrez, J. (2007). The experience of Black consumers in the mental health system—Identifying barriers to and facilitators of mental health treatment using the consumers' perspective. *Issues in Mental Health Nursing, 28*(12), 1323–1340. https://doi.org/10.1080/01612840701651454

Barnes A. (2004). Race, schizophrenia, and admission to state psychiatric hospitals. *Administration and policy in mental health*, *31*(3), 241–252. https://doi.org/10.1023/b:apih.0000018832.73673.54

Barnes A. (2008). Race and hospital diagnoses of schizophrenia and mood disorders. *Social work*, *53*(1), 77–83. https://doi.org/10.1093/sw/53.1.77

Barrio, C., Yamada, A.M., Atuel, H., Hough, R.L., Yee, S., Berthot, B., & Russo, P.A. (2003). A tri-ethnic examination of symptom expression on the positive and negative syndrome scale in schizophrenia spectrum disorders. *Schizophrenia Research, 60*(2-3), 259-269.

Bauldry, S., & Szaflarski, M. (2017). Immigrant-based disparities in mental health care utilization. *Socius, 3,* 2378023116685718.

Ben-David, S., Cole, A., Brucato, G., Girgis, R. R., & Munson, M. R. (2018). Mental health service use decision-making among young adults at clinical high risk for developing psychosis. *Early intervention in psychiatry, 13*(5), 1050-1055.

Bengtsson-Tops, A., & Hansson, L. (2001). Quantitative and qualitative aspects of the social network in schizophrenic patients living in the community. Relationship to sociodemographic characteristics and clinical factors and subjective quality of life. *International Journal of Social Psychiatry, 47*(3), 67-77.

Boonstra, N., Sterk, B., Wunderink, L., Sytema, S., De Haan, L., & Wiersma, D. (2012). Association of treatment delay, migration and urbanicity in psychosis. *European Psychiatry, 27*(7), 500-505.

Bourque, F., van der Ven, E., & Malla, A. (2011). A meta-analysis of the risk for psychotic disorders among first-and second-generation immigrants. *Psychological medicine, 41*(5), 897-910.

Bresnahan, M., Begg, M.D., Brown, A., Schaefer, C., Sohler, N., Insel, B., ...& Susser, E. (2007). Race and risk of schizophrenia in a US birth cohort: Another example of health disparity? *International Journal of Epidemiology, 36*(4), 751-758.

Bridgwater, M.A., Petti, E., Giljen, M., Akouri-Shan, L., DeLuca, J. S., Rakhshan Rouhakhtar, P., Millar, C., Karcher, N. R., Martin, E. A., DeVylder, J., Anglin, D. M., Williams, R., Ellman, L. M., Mittal, V. A., & Schiffman, J. (2023). Review of factors resulting in systemic biases in the screening, assessment, and treatment of individuals at clinical high-risk for psychosis in the United States. *Frontiers in Psychiatry, 14.* https://doi.org/10.3389/fpsyt.2023.1117022

Cantor-Graae, E., & Selten, J. P. (2005). Schizophrenia and migration: a meta-analysis and review. *American journal of psychiatry, 162*(1), 12-24.

Cascio, M. T., Cella, M., Preti, A., Meneghelli, A., & Cocchi, A. (2012). Gender and duration of untreated psychosis: a systematic review and meta-analysis. *Early intervention in psychiatry, 6*(2), 115-127.

Conner, K. O., Koeske, G., & Brown, C. (2009). Racial differences in attitudes toward professional mental health treatment: The mediating effect of stigma. *Journal of Gerontological Social Work, 52*(7), 695–712. https://doi.org/10.1080/01634370902914372

Cook, B. L., Trinh, N. H., Li, Z., Hou, S. S., & Progovac, A. M. (2017). Trends in Racial-Ethnic Disparities in Access to Mental Health Care, 2004-2012. *Psychiatric services, 68*(1), 9–16. https://doi.org/10.1176/appi.ps.201500453

Corcoran, C.M., Kimhy, D., Parrilla-Escobar, M.A., Cressman, V.L., Stanford, A.D., Thompson, J., ... & Malaspina, D. (2011). The relationship of social function to depressive and negative symptoms in individuals at clinical high risk for psychosis. *Psychological Medicine, 41*(2), 251-261.

Correll, C. U., Galling, B., Pawar, A., Krivko, A., Bonetto, C., Ruggeri, M., ... & Kane, J. M. (2018). Comparison of early intervention services vs treatment as usual for early-phase psychosis: a systematic review, meta-analysis, and meta-regression. *JAMA psychiatry, 75*(6), 555-565.

Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods, 1*(1), 16–29. https://doi.org/10.1037/ 1082-989X.1.1.16

Denenny, D., Thompson, E., Pitts, S. C., Dixon, L. B., & Schiffman, J. (2015). Subthreshold psychotic symptom distress, self-stigma, and peer social support among college students with mental health concerns. *Psychiatric Rehabilitation Journal, 38*(2), 164–170. https://doi.org/10.1037/prj0000124 de Pablo, G. S., Radua, J., Pereira, J., Bonoldi, I., Arienti, V., Besana, F., ... & Fusar-Poli, P. (2021). Probability of transition to psychosis in individuals at clinical high risk: an updated meta-analysis. *JAMA psychiatry, 78*(9), 970-978.

Derr, A. S. (2016). Mental health service use among immigrants in the United States: A systematic review. *Psychiatric Services, 67*(3), 265-274.

Ditzen, B., & Heinrichs, M. (2014). Psychobiology of social support: the social dimension of stress buffering. *Restorative neurology and neuroscience, 32*(1), 149-162.

Eack, S. M., Bahorik, A. L., Newhill, C. E., Neighbors, H. W., & Davis, L. E. (2012). Interviewer-perceived honesty as a mediator of racial disparities in the diagnosis of schizophrenia. *Psychiatric services*, *63*(9), 875–880. https://doi.org/10.1176/appi.ps.201100388

Eack, S. M., & Newhill, C. E. (2012). Racial Disparities in Mental Health Outcomes After Psychiatric Hospital Discharge Among Individuals With Severe Mental Illness. *Social work research, 36*(1), 41–52. https://doi.org/10.1093/swr/svs014

Ellman, L. M., Schiffman, J., & Mittal, V. A. (2020). Community Psychosis Risk Screening: An Instrument Development Investigation. *Journal of psychiatry and brain science, 5*, e200019. https://doi.org/10.20900/jpbs.20200019

Falcón, L. M., Todorova, I., & Tucker, K. (2009). Social support, life events, and psychological distress among the Puerto Rican population in the Boston area of the United States. *Aging and Mental Health, 13*(6), 863-873. https://doi.org/10.1080/13607860903046552

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41,* 1149-1160.

Fusar-Poli, P., Bonoldi, I., Yung, A.R., Borgwardt, S., Kempton, M.J., Valmaggia, L., ... & McGuire P. (2012). Predicting psychosis: Meta-analysis of transition outcomes in individuals at high clinical risk. *Archives of General Psychiatry, 69*(3), 220-229.

Fusar-Poli, P., Cappucciati, M., Rutigliano, G., Schultze-Lutter, F., Bonoldi, I., Borgwardt, S., ... & McGuire, P. (2015). At risk or not at risk? A meta-analysis of the prognostic accuracy of psychometric interviews for psychosis prediction. *World Psychiatry, 14*(3), 322-332.

Gary, F. A. (2005). Stigma: Barrier to mental health care among ethnic minorities. *Issues in Mental Health Nursing, 26*(10), 979–999. https:// doi.org/10.1080/01612840500280638

Han, M., & Pong, H. (2015). Mental health help-seeking behaviors among Asian American community college students: The effect of stigma, cultural barriers, and acculturation. *Journal of College Student Development, 56*(1), 1–14. https://doi.org/10.1353/csd.2015.0001

Howard Sharp, K. M., Schwartz, L. E., Barnes, S. E., Jamison, L. E., Miller-Graff, L. E., & Howell, K. H. (2017). Differential influence of social support in emerging adulthood across sources of support and profiles of interpersonal and non-interpersonal potentially traumatic experiences. *Journal of Aggression, Maltreatment & Trauma, 26*(7), 736-755.

Huang, Z. H., Hou, C. L., Huang, Y. H., He, X. Y., Wang, Q. W., Chen, X., ... & Jia, F. J. (2019). Individuals at high risk for psychosis experience more childhood trauma, life events and social support deficit in comparison to healthy controls. *Psychiatry research, 273,* 296-302.

Janssen, I., Hanssen, M, Bak, M. Bijl, M.R., De Graff, R., Vollebergh, W., ... & Van Os, J. (2003). Discrimination and delusional ideation. *British Journal of Psychiatry, 182*(1), 71-76.

Johannessen, J. O., Larsen, T. K., & McGlashan, T. (1999). Duration of untreated psychosis: An important target for intervention in schizophrenia? *Nordic Journal Of Psychiatry, 53*(4), 275-283.

Johns, L. C., & Van Os, J. (2001). The continuity of psychotic experiences in the general population. *Clinical psychology review*, *21*(8), 1125-1141. https://doi.org/10.1016/S0272-7358(01)00103-9

Jones, N., Kamens, S., Oluwoye, O., Mascayano, F., Perry, C., Manseau, M., & Compton, M. T. (2021). Structural disadvantage and culture, race, and ethnicity in early psychosis services: International provider survey. *Psychiatric services, 72*(3), 254-263.

Kennedy, J. L., Altar, C. A., Taylor, D. L., Degtiar, I., & Hornberger, J. C. (2014). The social and economic burden of treatment-resistant schizophrenia: a systematic literature review. *International clinical psychopharmacology, 29*(2), 63-76.

Kotzalidis, G. D., Solfanelli, A., Piacentino, D., Savoja, V., Fiori Nastro, P., Curto, M., & Schultze-Lutter, F. (2017). The Italian version of the 92-item prodromal Questionnaire: Concurrent validity with the SIPS and factor analysis in a sample of 258 outpatients aged 11–36 years. *Schizophrenia Research, 189,* 50–56. https://doi.org/10.1016/j.schres.2017.02.008

Krabbendam, L., Myin-Germeys, I., & Van Os, J. (2004). The expanding psychosis phenotype. *International Journal of Psychology and Psychological Therapy*, *4*(2), 411-421. https://doi.org/10.1093/schbul/sbr188

Krieger, N., Smith, K., Naishadham, D., Hartman, C., & Barbeau, E. M. (2005). Experiences of Discrimination Scale (EOD) [Database record]. APA PsycTests. https://doi.org/10.1037/t03883-000

LaVeist, T. A., Isaac, L. A., & Williams, K. P. (2009). Mistrust of health care organizations is associated with underutilization of health services. *Health services research*, *44*(6), 2093-2105. https://doi.org/10.1111/j.1475-6773.2009.01017.x

Loewy, R. L., Bearden, C. E., Johnson, J. K., Raine, A., & Cannon, T. D. (2005). The prodromal questionnaire (PQ): Preliminary validation of a self-report screening measure for prodromal and psychotic syndromes. *Schizophrenia Research, 79*(1), 117–125. https://doi.org/10.1016/j.schres.2005.03.007

Lopez, D., Altamirano, O., & Weisman de Mamani, A. (2020). The association between perceived racial discrimination and subclinical symptoms of psychosis. *Journal of mental health*, 1–8. Advance online publication. https://doi.org/10.1080/09638237.2020.1793120

Lubben, J. E. (1988). Assessing social networks among elderly populations. *Family and community health, 11*(3), 42-52.

Lubben, J., & Gironda, M. (2003). Centrality of social ties to the health and wellbeing of older adults. In B. Berkman & L. K. Harooytan (Eds.), *Social work and health care in an aging world* (pp. 319–350). New York: Springer.

Gamble, V. N. (1997). Under the shadow of Tuskegee: African Americans and health care. *American journal of public health, 87*(11), 1773-1778.

Gary F. A. (2005). Stigma: barrier to mental health care among ethnic minorities. *Issues in mental health nursing, 26*(10), 979–999. https://doi.org/10.1080/01612840500280638

Gayer-Anderson, C., & Morgan, C. (2013). Social networks, support and early psychosis: a systematic review. *Epidemiology and psychiatric sciences, 22*(2), 131-146.

Geros, H., Sizer, H., Mifsud, N., Reynolds, S., Kim, D. J., Eaton, S., ... & O'Donoghue, B. (2020). Migrant status and identification as ultra-high risk for psychosis and transitioning to a psychotic disorder. *Acta Psychiatrica Scandinavica, 141*(1), 52-59.

Golay, P., Baumann, P. S., Jaton, L., Restellini, R., Solida, A., Mebdouhi, N., & Conus, P. (2019). Migration in patients with early psychosis: a 3-year prospective follow-up study. Psychiatry research, 275, 108-114.

Kelleher, I., Murtagh, A., Molloy, C., Roddy, S., Clarke, M. C., Harley, M., & Cannon, M. (2012). Identification and characterization of prodromal risk syndromes in young adolescents in the community: a population-based clinical interview study. *Schizophrenia bulletin, 38*(2), 239-246.

Kessler, R. C., Demler, O., Frank, R. G., Olfson, M., Pincus, H. A., Walters, E. E., Wang, P., Wells, K. B., & Zaslavsky, A. M. (2005). Prevalence and treatment of mental disorders, 1990 to 2003. *The New England journal of medicine, 352*(24), 2515–2523. https://doi.org/10.1056/NEJMsa043266

Kirkbride, J.B., Baker, D., Cowden, F., Stamps, R., Yang, M., Jones, P.B., & Coid, J.W. (2008). Psychosis, ethnicity, and socio-economic status. *British Journal of Psychiatry, 193*(1), 18-24.

Loring, M., & Powell, B. (1988). Gender, race, and DSM-III: A study of objectivity of psychiatric diagnostic behavior. *Journal of Health and Social Behavior, 29*(3), 1-22.

Masuda, A., Anderson, P. L., Twohig, M. P., Feinstein, A. B., Chou, Y. Y., Wendell, J. W., & Stormo, A. R. (2009). Help-seeking experiences and attitudes among African American, Asian American, and European American college students. *International Journal for the Advancement of Counseling, 31*(3), 168–180. https://doi.org/10.1007/s10447-009-9076-2

McGlashan, T.H., Walsh, B.C., & Woods, S.W. (2010). *The psychosis risk syndrome: Handbook for diagnosis and follow-up.* Oxford: Oxford University Press.

McGuire, T. G., & Miranda, J. (2008). New Evidence Regarding Racial And Ethnic Disparities In Mental Health: Policy Implications. *Health Affairs, 27*(2), 393-403. https://doi.org/10.1377/hlthaff.27.2.393

Mei, C., van der Gaag, M., Nelson, B., Smit, F., Yuen, H. P., Berger, M., ... & McGorry, P. D. (2021). Preventive interventions for individuals at ultra high risk for psychosis: An updated and extended meta-analysis. *Clinical psychology review, 86,* 102005.

Miller, T. J., McGlashan, T. H., Rosen, J. L., Cadenhead, K., Ventura, J., McFarlane, W., Perkins, D. O., Pearlson, G. D., & Woods, S. W. (2003). Prodromal assessment with the structured interview for prodromal syndromes and the scale of prodromal symptoms: predictive validity, interrater reliability, and training to reliability. *Schizophrenia bulletin, 29*(4), 703-715.

Minsky, S., Vega, W., Miskimen, T., Gara, M., & Escobar, J. (2003). Diagnostic patterns in Latino, African American, and European American psychiatric patients. *Archives of General Psychiatry, 60*(6), 637-644.

Neighbors, H. W., Trierweiler, S. J., Ford, B. C., & Muroff, J. R. (2003). Racial differences in DSM diagnosis using a semi-structured instrument: the importance of clinical judgment in the diagnosis of African Americans. *Journal of health and social behavior*, *44*(3), 237–256.

Nerhus, M., Berg, A. O., Haram, M., Kvitland, L. R., Andreassen, O. A., & Melle, I. (2013). Migrant background and ethnic minority status as predictors for duration of untreated psychosis. *Early Intervention in Psychiatry, 9*(1), 61-65.

Nogueira, A. S., Andrade, J. C., Serpa, M. H., Alves, T. M., Freitas, E. L., Hortêncio, L., ... & Loch, A. A. (2021). Influence of migration on the thought process of individuals at ultra-high risk for psychosis. *Brazilian Journal of Psychiatry, 43*(3)*,* 285-288.

O'Donoghue, B., Geros, H., Sizer, H., Addington, J., Amminger, G. P., Beaden, C. E., ... & Nelson, B. (2021). The association between migrant status and transition in an ultra-high risk for psychosis population. Social Psychiatry and Psychiatric Epidemiology, 56(6), 943-952.

Oh, H., Cogburn, C. D., Anglin, D., Lukens, E., & DeVylder, J. (2016). Major discriminatory events and risk for psychotic experiences among Black Americans. *American journal of orthopsychiatry*, *86*(3), 277.

Ojeda, V. D., & McGuire, T. G. (2006). Gender and racial/ethnic differences in use of outpatient mental health and substance use services by depressed adults. *Psychiatric Quarterly*, *77*(3), 211-222.

Okuzawa, N., Kline, E., Fuertes, J., Negi, S., Reeves, G., Himelhoch, S., & Schiffman, J. (2014). Psychotherapy for adolescents and young adults at high risk for psychosis: a systematic review. *Early Intervention in Psychiatry, 8*(4), 307-322.

Oluwoye, O., Davis, B., Kuhney, F. S., & Anglin, D. M. (2021). Systematic review of pathways to care in the US for Black individuals with early psychosis. *NPJ Schizophrenia, 7*(1), 58. https://doi.org/10.1038/s41537-021-00185-w

Pahwa, R., Smith, M. E., Yuan, Y., & Padgett, D. (2019). The Ties That Bind and Unbound Ties: Experiences of Formerly Homeless Individuals in Recovery From Serious Mental Illness and Substance Use. *Qualitative Health Research, 29*(9), 1313–1323. https://doi.org/10.1177/1049732318814250

Penttilä, M., Jääskeläinen, E., Hirvonen, N., Isohanni, M., & Miettunen, J. (2014). Duration of untreated psychosis as predictor of long-term outcome in schizophrenia: Systematic review and meta-analysis. *British Journal of Psychiatry, 205*(2), 88-94. doi:10.1192/bjp.bp.113.127753

Petti, E., Klaunig, M.J., Smith, M.E., Bridgwater, M.A., Roemer, C., Andorko, N.D., Chibani, D., DeLuca, J.S., Pitts, S.C., Schiffman, J., & Rakhshan Rouhakhtar, P. (2021). Mental health care utilization in individuals with high levels of psychosis-like experiences: Associations with race and potentially traumatic events. *Cultural Diversity and Ethnic Minority Psychology.* Advance online publication. https://doi.org/10.1037/cdp0000500

Pruessner, M., Iyer, S. N., Faridi, K., Joober, R., & Malla, A. K. (2011). Stress and protective factors in individuals at ultra-high risk for psychosis, first episode psychosis and healthy controls. *Schizophrenia research, 129*(1), 29-35.

Radua, J., Ramella-Cravaro, V., Ioannidis, J. P., Reichenberg, A., Phiphopthatsanee, N., Amir, T., ... & Fusar-Poli, P. (2018). What causes psychosis? An umbrella review of risk and protective factors. *World psychiatry, 17*(1), 49-66.

Richardson, L. D., & Norris, M. (2010). Access to health and health care: how race and ethnicity matter. *Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine, 77*(2), 166-177.

Robustelli, B. L., Newberry, R. E., Whisman, M. A., & Mittal, V. A. (2017). Social relationships in young adults at ultra high risk for psychosis. *Psychiatry research, 247,* 345-351.

Rüsch, N., Müller, M., Heekeren, K., Theodoridou, A., Metzler, S., Dvorsky, D., ... & Rössler, W. (2014). Longitudinal course of self-labeling, stigma stress and well-being among young people at risk of psychosis. *Schizophrenia research, 158*(1-3), 82-84.

Salazar de Pablo, G., Woods, S. W., Drymonitou, G., de Diego, H., & Fusar-Poli, P. (2021). Prevalence of Individuals at Clinical High-Risk of Psychosis in the General Population and Clinical Samples: Systematic Review and Meta-Analysis. *Brain sciences, 11*(11), 1544. https://doi.org/10.3390/brainsci11111544

Salokangas, R.K.R., Nieman, D.H., Heinimaa, M., Svirskis, T., Luutonen, S., From., T., ... & Ruhrmann, S. (2013). Psychosocial outcome in patients at clinical high risk of psychosis: A prospective follow-up. *Social Psychiatry and Psychiatric Epidemiology, 48* (2), 303-311.

Schwartz, R. C., & Blankenship, D. M. (2014). Racial disparities in psychotic disorder diagnosis: A review of empirical literature. *World journal of psychiatry*, *4*(4), 133–140. https://doi.org/10.5498/wjp.v4.i4.133

Shi, J., Wang, L., Yao, Y., Chen, F., Su, N., Zhao, X., & Zhan, C. (2016). Protective factors in Chinese university students at clinical high risk for psychosis. *Psychiatry Research, 239,* 239-244.

Smith, M. E., Rakhshan Rouhakhtar, P., & Schiffman, P. (in press). Ensuring health development for all youth: Prevention of psychosis. In M. Spencer & M. Teasley (Eds.), *Racism and the grand challenges for the social work profession.* Oxford University Press.

Snowden, L. R., Catalano, R., & Shumway, M. (2009). Disproportionate Use of Psychiatric Emergency Services by African Americans. *Psychiatric Services, 60*(12), 1664-1671. https://doi.org/10.1176/ps.2009.60.12.1664

Stafford, M. R., Jackson, H., Mayo-Wilson, E., Morrison, A. P., & Kendall, T. (2013). Early interventions to prevent psychosis: systematic review and meta-analysis. *Bmj,* 346.

Stowkowy, J., Liu, L., Cadenhead, K. S., Cannon, T. D., Cornblatt, B. A., McGlashan, T. H., ... & Woods, S. W. (2016). Early traumatic experiences, perceived discrimination and conversion to psychosis in those at clinical high risk for psychosis. *Social psychiatry and psychiatric epidemiology, 51*(4), 497-503. https://doi.org/10.1007/s00127-016-1182-y

Suite, D. H., La Bril, R., Primm, A., & Harrison-Ross, P. (2007). Beyond misdiagnosis, misunderstanding and mistrust: Relevance of the historical perspective in the medical and mental health treatment of people of color. *Journal of the National Medical Association, 99*(8), 879–885. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2574307/

Tang, J. Y.-M., Chang, W.-C., Hui, C. L.-M., Wong, G. H.-Y., Chan, S. K.-W., Lee, E. H.-M., & Chen, E. Y. (2014). Prospective relationship between duration of untreated psychosis and 13-year clinical outcome: A first-episode psychosis study. *Schizophrenia Research, 153*(1–3), 1–8. https://doi.org/10.1016/j.schres.2014.01.022

Terrell, F., & Terrell, S. (1981). An inventory to measure cultural mistrust among Blacks. *The Western Journal of Black Studies, 5*(3), 180.

Thoits, P. A. (2011). Perceived social support and the voluntary, mixed, or pressured use of mental health services. *Society and Mental Health, 1*(1), 4-19.

Thompson, J.L., Kelly, M., Kimhy, D., Harkavy-Friedman, J.M., Khan, S., Messinger, J.W., ...& Corcoran, C. (2009). Childhood trauma and prodromal symptoms among individuals at clinical high risk for psychosis. *Schizophrenia Research, 180*(1-3), 176-181.

U.S. Department of Health and Human Services [HHS] Rockville, MD: Author; 2001. Mental health: Culture, race, and ethnicity—A supplement to mental health: A report of the surgeon general. Chapter 3 Mental Health Care for African Americans. Available from: https://www.ncbi.nlm.nih.gov/books/NBK44251/

van der Gaag, M., Smit, F., Bechdolf, A., French, P., Linszen, D. H., Yung, A. R., ... & Cuijpers, P. (2013). Preventing a first episode of psychosis: meta-analysis of randomized controlled prevention trials of 12 month and longer-term follow-ups. *Schizophrenia research, 149*(1-3), 56-62.

van Os, J., Linscott, R., Myin-Germeys, I., Delespaul, P., & Krabbendam, L. (2009). A systematic review and meta-analysis of the psychosis continuum: Evidence for a psychosis proneness–persistence–impairment model of psychotic disorder. *Psychological Medicine, 39*(2), 179-195. https://doi.org/10.1017/S0033291708003814

Weiser, M., Werbeloff, N., Vishna, T., Yoffe, R., Lubin, G., Shmushkevitch, M., & Davidson, M. (2008). Elaboration on immigration and risk for schizophrenia. *Psychological Medicine, 38*(8), 1113-1119.

Wiles, N. J., Zammit, S., Bebbington, P., Singleton, N., Meltzer, H., & Lewis, G. (2006). Self-reported psychotic symptoms in the general population: results from the longitudinal study of the British National Psychiatric Morbidity Survey. *The British journal of psychiatry: the journal of mental science, 188,* 519–526. https://doi.org/10.1192/bjp.bp.105.012179