©Copyright 2024
Arieh Lisitza

Inequities in access to mental health care at intersections of race/ethnicity, gender identity, and gender modality: An application of Multilevel Analysis of Individual Heterogeneity and Discriminatory Accuracy (MAIHDA)

Arieh Lisitza

A thesis

submitted in partial fulfillment of the

requirements for the degree of

Master of Science

University of Washington

2024

Committee:

Anjum Hajat

Amanda L. Swarr

Katarina Guttmannova

Program Authorized To Offer Degree:

Epidemiology

University of Washington

## Abstract

Inequities in access to mental health care at intersections of race/ethnicity, gender identity, and gender modality: An application of Multilevel Analysis of Individual Heterogeneity and Discriminatory Accuracy (MAIHDA)

Arieh Lisitza

Chair of the Supervisory Committee:

Anjum Hajat

Department of Epidemiology

Transgender populations, and particularly transgender women of color, are burdened by high rates of both mental illness and healthcare avoidance. Despite this, research examining the patterns of non-use of mental healthcare within this community is lacking, and has further suffered due to the difficulty of collecting large, population-based samples of transgender adults in general, and transgender people of color in particular. We therefore use data from the Census Bureau's new Household Pulse Study in conjunction with the novel Multilevel Analysis of Individual Heterogeneity and Discriminatory Accuracy (MAIHDA) method to assess the prevalence of unmet mental healthcare needs at critical intersections of gender modality, gender identity, and race/ethnicity. Participants were 699,843 U.S. adults who completed the Household Pulse Survey between July 2021 to May 2022. Participants were sorted into intersectional strata by race and ethnicity (Asian, Black, White, Hispanic, and mixed/another race), gender modality and sexuality (cisgender heterosexual, cisgender LGB+, and transgender) and gender identity (dichotomized here as masculine vs feminine). We then fit a multilevel log-binomial regression model with strata and participant-level random intercepts to assess the main effects, and calculated stratum-level residuals as a measure of intersectional effects. Unmet mental health needs were more prevalent among transgender

people (PR=2.63, 95% CI= 2.22, 3.11), cisgender LGB+ people (PR=2.25, 95% CI=1.93, 2.63), women (PR=1.36, 95% CI= 1.25, 1.48), and people who self-identified as Black (PR=1.56, 95% CI=1.31, 1.86), Hispanic (PR=1.81, 95% CI=1.51, 2.15) mixed/another race (PR=2.11, 95% CI=1.75, 2.53). The most negative intersectional effects were for transfeminine people and for non-Black cisgender heterosexual men. The largest positive intersectional effects were for Black cisgender women and for transmasculine people. These findings suggest that although racism, transphobia, and misogyny might each independently increase the prevalence of unmet mental health needs, race and gender modality additionally impact the degree to which various groups are impacted by gender norms when seeking mental healthcare. Intersectional effects are thus essential to evaluate when studying mental healthcare use and non-use among transgender people of color.

## Introduction

Healthcare avoidance is a major problem within the transgender community, and can be attributed to a mix of socioeconomic barriers to care,[1] anticipated discrimination in healthcare settings,[2,3] and most recently, COVID-19 related barriers to care.[4] Transgender people are more likely to live in poverty,[5] less likely to have completed high school,[6] less likely to be employed[5] and more likely to be uninsured[6] compared to cisgender people. Transgender people additionally experience high rates of discrimination in healthcare settings, may avoid healthcare due to fear of mistreatment, and overall have minimal trust in their providers' competency in transgender health[5]. Psychiatry in particular has been criticized by transgender activists and scholars[7–15] for pathologizing transgender and gender diverse people and for "gatekeeping" medical and legal forms of transition (e.g., hormones, surgery, identity documents, etc.). Additionally, transgender "conversion therapy" at the hands of mental health professionals remain prevalent; according to the 2015 United States Transgender Survey (USTS), 9% of transgender and gender non-conforming individuals report lifetime exposure to a secular mental health professional who attempted to stop them from identifying as transgender, and 14% reported lifetime exposure to any form of conversion therapy[5,16] Transgender people experience high rates of mental illness, substance use disorders, and suicide,[5] but these prior negative experiences with mental health professionals may reduce future willingness to seek mental health treatment.[17] Mental health service non-use likely exacerbates the mental health crisis among transgender adults. Despite this, the vast majority of research on healthcare non-use in transgender adults focuses on HIV/reproductive health, primary care, and/or transition-related care.[1–4,18–26] Research examining the patterns of non-use of mental healthcare within this community is sorely lacking, and has further suffered due to the difficulty of collecting large, population-based samples of transgender adults in general, and transgender people of color (TPOC) in particular.

Both qualitative and quantitative research has highlighted the need to study mental healthcare utilization as a product of intersectional effects of race, gender identity and gender modality. For the sake of clarity when discussing these intersections, we are using the term gender modality, coined by Florence Ashley,[27] to refer to the relationship between assigned sex and gender identity. For instance, transgender and cisgender are both gender modalities. Gender identity, on the other hand, is used to mean one's

internal sense of gender, e.g. as a man or as a woman. Transgender women and cisgender women thus are considered to have the same gender identity but different gender modalities. Intersectionality, coined by Kimberlé Crenshaw [28] explains how the concurrence of different axes of social identity represent unique social locations that are greater than the sum of their parts. For instance, she found that Black women were systematically discriminated against by certain employers, even when White women and Black men were hired equitably[29]. Thus, she theorizes, Black + Woman ≠ Black Woman. Building on this framework, we hypothesize Black + Transgender + Woman ≠  Black Transgender Woman.

In the context of Black and trans feminist studies, prior scholars have claimed gender is inseparable from their racial and ethnic identities,[30,31] and that there is therefore a need to examine transgender people of color's experiences of inequity as not originating solely from transphobia, but via mutually constitutive relationships with racism, classism, etc.[32] Similarly, trans feminist scholars have noted that transgender women/transfeminine people are at a unique intersection of both misogyny and transphobia, and thus are more likely to be pathologized, harassed and assaulted than transgender men/transmasculine people.[33] This is referred to as "transmisogyny," and once again suggests that it is not simply transphobia, but rather transphobia's relationship to misogyny (termed "transmisogyny" by trans feminist scholar Julia Serano) that influences whether or not transfeminine people receive mental health care.[33] Transmisogyny has been theorized to be intrinsically related to misogynoir[30] (a term coined by Moya Bailey to describe the mutually constitutive relationship between anti-Black racism and misogyny[34]), in that both transgender women and Black women share an experience of being denied the protections of White cisgender femininity. These prior theoretical discussions suggest health disparities research in transgender populations must take into account the related effects of racism (particularly anti-Black racism) and misogyny when exploring the effects of transphobia.

Quantitative health disparities research has further suggested  transgender women of color are at a critical intersection of racism, misogyny, and transphobia that increases both risk factors for mental health concerns (e.g. traumatic events, low social support) and barriers to care (e.g. anticipated discrimination, low socioeconomic status).[35,36] Transgender women of color are more likely to experience employment and housing discrimination, to be physically or sexually assaulted, to be harrassed by police officers, to be incarcerated, and to experience homelessness and subsequently be denied access to

homeless shelters relative to both transgender men of color and White transgender women.[5] These factors, among many others, create an environment in which transgender women of color are at high risk of developing mental health concerns but are unlikely to be able to access it.[37]

The limited research on mental healthcare avoidance among TPOC and transfeminine people has tentatively supported the hypothesis that transgender women of color are particularly likely to have unmet mental healthcare needs due to the aforementioned risk factors. TPOC in general are more likely to avoid healthcare due to both cost and fear of mistreatment.[5] Notably, a study conducted by TransLifeline did not find significant differences in odds of receiving mental health care by gender identity, race or ethnicity. However, this survey was limited by its small sample of TPOC and inattention to intersectional effects or variation within social strata.[38] Similarly, a recent analysis of Household Pulse Study data found no interaction between transgender identity and race and ethnicity in terms of unmet mental health needs, although it did find that transgender people had higher rates of unmet needs than cisgender people. The same study also found that cisgender lesbian, gay, bisexual, and other sexual minority (LGB+) people had higher rates of unmet mental health needs than cisgender heterosexual people, but not as high as transgender people.[39] In contrast, a secondary analysis of the 2015 USTS identified racial and ethnic disparities in the prevalence of severe psychological distress and access to gender-affirming mental healthcare. White transgender people of both assigned sexes were found to have the lowest odds of severe psychological distress and the highest odds of access to gender-affirming mental healthcare relative to transgender people of other ethnoracial groups. However, patterns of racial inequities varied by assigned sex such that Assigned Male At Birth (AMAB) respondents showed greater racial and ethnic inequities.[40] This highlights the need to assess the interaction between race/ethnicity and gender identity in TPOC populations.

Transgender populations are burdened by both high rates of mental illness and many social determinants of health (such as lack of health insurance, poverty, and medical mistrust) that predict reduced access to care.[5] Despite this, the vast majority of research on healthcare non-use in transgender adults focuses on HIV/reproductive health, primary care, and/or transition-related care.[1–4,18–26] We hypothesize the prevalence of unmet mental healthcare needs will be lowest among participants who are White, cisgender and/or masculine-identified. Additionally, we hypothesize that participants at critical

intersections of race, gender identity and gender modality (i.e. transfeminine people of color) will have higher prevalences of unmet need than would be accounted for solely by adding the individual effects of race, gender identity, and gender modality. In this project we aim to:

1. Assess whether gender modality, race and gender identity are associated with the prevalence of not receiving mental health treatment despite needing it.
2. Assess whether race, gender identity and gender modality interact in determining the prevalence of unmet mental healthcare needs; in other words, whether there are significant intersectional effects.

## Methods

### *Study Design*

The Household Pulse Survey[41] (HPS) is a series of cross-sectional surveys designed to assess the impacts of the Covid-19 pandemic in near real-time. Beginning July 21st, 2021, the HPS became the first Census Bureau survey to assess gender modality.[42]

### *Study Setting*

Data collection began in April 2020 and is ongoing. Data collection was conducted in 2 week-long "phases", with an additional two weeks in between collection periods. Data from July 2021 through May 2022 were used in the current study. Surveys were administered online via Qualtrics. All households in the United States (including District of Columbia, but not Puerto Rico or the U.S. Virgin Islands) with a listed cell phone number or email address on their Census contact sheet were included in the sampling frame.

### *Study Participants*

All household units in the United States with at least one individual aged 18 and older were eligible to take part in the survey. For the purposes of the Household Pulse Survey, group living quarters such as prisons and non-traditional living quarters such as tent cities are not considered households. From July 2021 to May 2022, the HPS collected a total sample size of 699,843 participants (excluding those who were not asked or did not respond to questions regarding gender identity, age, or mental health treatment).

***Data Collection***

HPS used a systematic sample of U.S. housing units via the Census Bureau's Master Address File (MAF), an up-to-date inventory of all housing units in the United States. Housing units were randomly sampled from the MAF, with adjustments to ensure state and MSA-level samples would be large enough to produce regional estimates. Email and telephone numbers from the Census Bureau Contact Frame (a list of email and telephone numbers for each housing unit taken from commercial, federal, and state-level sources) were used in conjunction with the MAF to facilitate rapid deployment. Of the 147,658,000 addresses in the MAF, 130,220,000 (88%) had an email or telephone associated. Sampled households received an email and/or SMS message with a link to the Qualtrics survey. Only one survey was sent to each household and adults in each household self-selected who would take the survey. Households were each surveyed a maximum of once per biweekly data collection period. The survey was offered in both English and Spanish.

The primary exposures are sexuality and gender modality, gender identity, and race and ethnicity. These variables serve as imperfect proxies for exposure to broader social forces such as transphobia, misogyny, and racism. To assess gender modality, assigned sex at birth was compared to current gender identity. Participants were asked whether they were assigned male or female at birth. They were then asked if they currently identified as male, female, transgender, or "none of these". These options were mutually exclusive. Participants were coded as cisgender if their sex assigned at birth matched their current gender identity. All other participants were coded as "transgender". The cisgender group was then further split up by sexual orientation. Participants were asked whether they think of themselves as "gay or lesbian," "straight, that is not gay or lesbian," "bisexual," "something else," or "I don't know." Cisgender people who self-identified as straight were coded as "cisgender heterosexual," and all other cisgender participants were coded as "cisgender LGB+". The choice to code LGB+ cisgender people separately from heterosexual cisgender people is in line with the finding that these groups have different prevalence of unmet mental healthcare needs (UMHN)[39]; sexual orientation is therefore an important factor to consider. We elected not to code the transgender category by sexual orientation in part due to sample size concerns, but also because these categories are being thought of as being important because they are proxies for exposure to homophobia and transphobia across the lifecourse, but sexual

identity at the time the survey was taken is not necessarily a good proxy for exposure to homophobia across the lifecourse among transgender people. For instance, a heterosexual transgender man may have once identified as a cisgender lesbian; thus coding him as heterosexual based solely on his current identity would miss prior exposure to homophobia. Similarly, we are not interested in identification with the word “transgender” but rather in exposure to transphobia. Thus, the definition of “transgender” we use here is intentionally very broad and likely includes some intersex and gender non-conforming people who may not identify with the term but likely have similar stigmatized experiences. These decisions resulted in 3 categories: cisgender heterosexual, cisgender LGB+ and transgender (any sexuality).

Gender identity was coded as woman/feminine for all individuals who reported they currently identify as “female,” and as man/masculine for all individuals who reported they currently identify as “male”. There is no way to determine a participant's gender identity for those who simply responded “transgender” or “none of these”. Therefore, gender identity for participants who gave such responses was coded as feminine-identified (for AMAB respondents) or as masculine-identified (for AFAB respondents). For the sake of clarity and brevity, cisgender masculine-identified and feminine-identified participants are referred to as cisgender men and women for the remainder of the paper, and transgender masculine-identified and feminine-identified participants are referred to as transmasculine and transfeminine people.

Although the original HPS questionnaire listed five total ethnic categories and fourteen racial categories (including multiple write-in options), due to privacy concerns the public use dataset lists participant races as “White alone,” “Asian alone,” “Black alone,” or “Any other race alone, or race in combination”. Ethnicity is provided as “Yes, of Hispanic, Latino, or Spanish origin” or “No, not of Hispanic, Latino, or Spanish origin”. For this study, participant race and ethnicity were condensed and re-coded into five categories: “Non-Hispanic White,” “Non-Hispanic Asian,” “Non-Hispanic Black,” “Non-Hispanic, another or mixed race,” or “Hispanic, any race”.

The primary outcome is unmet mental healthcare needs. Participants were asked “At any time in the last 4 weeks, did you need counseling or therapy from a mental health professional, but DID NOT GET IT for any reason?” Participants who responded “yes” were considered to have unmet mental healthcare needs.

***Data Analysis***

Three multilevel log-binomial regression models were used to assess intersectional effects of gender modality and sexual orientation, gender identity, and race and ethnicity on prevalence of unmet mental healthcare needs. This approach is referred to as the Multilevel Analysis of Individual Heterogeneity and Discriminatory Accuracy (MAIHDA) method and has a number of advantages over conventional regression models including improved model parsimony and an explicit grounding in the intersectionality framework[43,44]. These larger social locations were modeled as higher-level units of analysis. In this approach individuals (level 1) are clustered within their intersectional social strata (level 2). In our case 30 strata were identified (5 ethnoracial groups x 3 gender modality and sexual orientation groups x 2 gender identities). Strata were, for instance, non-Hispanic (NH) White cisgender LGB+ men, NH White cisgender heterosexual women, NH White transgender men/masculine people, NH White transgender women/feminine people etc. A random intercept for each strata was specified.

Models were developed in a stepwise manner. Model 1 is a “null model,” with only random intercepts and no fixed effects. Model 2 adds race and ethnicity, gender modality and sexual orientation, and gender identity. Model 3 additionally controls for differences in age by including it as a fixed-effect. In the MAIHDA approach adding interaction terms for the different identity groups is not recommended, as the intersectional identities are treated as strata in the model. These models assessed not only differences in probability of receiving mental health treatment, but the degree of variance that is due to group-level rather than individual-level effects. As suggested by Merlo et al.[45], Median Prevalence Ratio was used in place of Intraclass Correlation Coefficient as a measure of group-level variation. Parametric bootstrapping was used to obtain 95% confidence intervals for the Median Prevalence Ratio.

Although survey weights are provided, they were not used in any of the models for this study because they were calculated with the assumption that assigned sex at birth measured in HPS would be equivalent to the sex measure in the Census Bureau’s Population Estimates Program (which is based on the Decennial census). This is a reasonable assumption for cisgender populations, but because the Decennial census conflates sex and gender this method may not provide reliable survey weights for transgender populations. Pending bias analyses of this method in transgender populations, we have opted not to use these weights.

## Results

### *Demographics*

NH Black participants, Hispanic participants, and NH participants of another or mixed race were more likely to be uninsured or on Medicaid, had lower incomes, and had lower levels of education than NH White and NH Asian participants. NH White participants were older and were more likely to be married than participants from other racial groups. Participants of mixed or another race were the least likely to self-identify as heterosexual. NH Asian participants had the lowest PHQ-9 scores, were less likely to have received mental health services, and were less likely to have UMHN relative to other ethnoracial groups.

Relative to masculine-identified participants, feminine-identified participants were more likely to be on Medicaid and had slightly lower incomes and levels of educational attainment. Feminine-identified participants were also younger than masculine-identified participants on average and were more likely to identify as bisexual. Feminine-identified participants also had higher PHQ-4 scores, were more likely to have received mental health treatment, and were more likely to have UMHN.

LGB+ and transgender participants were also demographically distinct from cisgender heterosexual participants. Cisgender heterosexual participants were the least likely to be uninsured (3.2%) or insured by Medicaid (4.0%), followed by cisgender LGB+ (5.5%; 7.5%) with transgender respondents having the highest prevalence of uninsured (7.9%)/insured by Medicaid (8.0%). LGB+ and transgender participants also had higher PHQ-9 scores (with transgender participants having the highest mean) and lower incomes (with transgender participants having the lowest incomes). Transgender participants were also the least likely to have completed high school. LGB+ and transgender people were less likely than cisgender heterosexual participants to have ever been married and were younger on average than cisgender heterosexual participants. Transgender participants were also 33.4% heterosexual, which was notably lower than the ~90% of the cisgender sample that identified as heterosexual.

### *Main Effects*

Model 1, the null model (which did not include any fixed effects), had a Median Prevalence Ratio of 1.24 (95% CI=1.20, 1.27), which suggests a significant amount of variance in UMHN is due to stratum-level effects. Comparing the between-strata variance from the null model (0.31, SD=0.58) relative

to Model 3 (0.03, SD=0.16) reveals 8.7% of between-strata variance is not explained by the main effects and is therefore attributable to intersectional effects. Although this is a relatively small percentage of the overall between-strata variance, it nonetheless suggests there are significant intersectional effects at hand. The median prevalence ratio for Model 3 was 1.17 (95% CI= 1.15, 1.21), further supporting that there is a relatively small but statistically significant amount of clustering in the data.

All fixed effects in both Model 2 and Model 3 were statistically significant (see Table 2). Feminine gender identity (Prevalence Ratio (PR)=1.36, 95% Confidence Interval (CI)=1.25, 1.48; adjusted PR (aPR)=1.32, 95% CI=1.20, 1.45), cisgender LGB+ identity (PR=2.25, 95% CI=1.93, 2.63; aPR=1.88, 95% CI=1.65, 2.15), and transgender identity (PR=2.63, 95% CI= 2.22, 3.11; aPR=2.29, 95% CI=1.98, 2.64) were all associated with higher rates of UMHN. Rates of UMHN decreased significantly with age. The addition of age into the model attenuated the associations of gender identity, gender modality, and sexuality.

Asian racial identity was associated with the lowest rates of UMHN, all other racial groups had significantly higher rates of UMHN. Prevalence ratios in Model 2 were 1.56 (95% CI=1.31, 1.86), 1.81 (95% CI=1.51, 2.15), 1.57 (95% CI=1.45, 1.71), 2.11 (95% CI=1.75, 2.53) for NH Black, Hispanic (any race), NH White, and NH another or mixed race participants, respectively. When adjusting for age in Model 3, these prevalence ratios were 1.73 (95% CI=1.47, 2.03), 1.83 (95% CI=1.55, 2.17), 1.76 (95% CI=1.60, 1.94), 2.13 (95% CI=1.81, 2.51) respectively.

***Intersectional Effects***

Random effects were visualized in Figure 1 and shown in Table 3. The six strata with the most negative random effects (suggesting lower probability of UMHN relative to what main effects alone would predict) were NH Black transfeminine people, NH Asian cisgender men, NH White cisgender men, NH White transfeminine people, NH transfeminine people of another or mixed race, and Hispanic cisgender men of any race. The six strata with the most positive random effects (suggesting higher probability of UMHN relative to what main effects alone would predict) were NH Asian transmasculine people, NH Black cisgender women, NH transmasculine people of another or mixed race, Hispanic transmasculine people of any race, NH White transmasculine people, and NH Asian LGB+ women.

Age-adjusted predicted probabilities for each strata were additionally visualized in Figure 2 and shown in Table 3. The six strata with the lowest probabilities of UMHN were NH Asian cisgender heterosexual men, NH Asian cisgender heterosexual women, NH White cisgender heterosexual men, NH Asian cisgender LGB+ men, NH Black cisgender heterosexual men, and Hispanic cisgender heterosexual men of any race. The six strata with the highest probabilities of UMHN were NH transmasculine people of another or mixed race, NH White transmasculine people, NH transfeminine people of another or mixed race, NH cisgender LGB+ women of another or mixed race, Hispanic transmasculine people of any race, and Hispanic transfeminine people of any race.

**Discussion**

We used a large national sample of U.S. adults to investigate both the main and intersectional associations of race and ethnicity, sexual and gender modality, and gender identity on prevalence of UMHN when adjusting for age. We found all aforementioned factors have statistically significant associations with the prevalence of unmet mental health needs, with NH Asian, cisgender heterosexual, and masculine-identified groups typically having the lowest adjusted prevalence of UMHN, and another or mixed race, transgender, and feminine-identified groups generally having the highest prevalence of unmet mental health need. Findings also suggest there are significant intersectional effects at play. Namely, non-Black cisgender heterosexual men typically had lower prevalences of UMHN than would be expected from main effects alone, as did transfeminine people. Transmasculine populations typically had higher than expected prevalences of UMHN, as did some ethnoracial groups of LGB+ cisgender women.

Notably, a prior analysis of the same Household Pulse Survey data as the present study found no significant interaction effect between race and ethnicity and gender modality on the odds of unmet mental health needs[39]. We expect these discrepancies were due to several major methodological issues in the aforementioned study. First, Chen et al. did not use the two-step method for coding gender modality, which reduced their cell sizes for transgender populations and may have reduced the power of their analysis and/or biased their results due to some transgender participants being miscoded as cisgender. Second, the authors opted to control for a number of socioeconomic factors (e.g. insurance status and income) that we conceptualize as explanatory mechanisms of the tested associations[46,47]. This approach likely attenuated their effect sizes. Finally, the authors used the fixed effects method to assess

intersectional effects, rather than the MAIHDA approach. One of the unique strengths of the MAIHDA method is its ability to improve model parsimony in cases where multiple axes of identity need to be evaluated simultaneously. The use of the fixed effects model may have impacted the authors' choice to evaluate only the intersections of gender modality and race and ethnicity. However, our results suggest gender identity also interacts with gender modality and race and ethnicity, and therefore cannot be left out of intersectional analyses. The present study thus serves as a clear example of why methodologies such as MAIHDA that reflect theoretical advancements in queer, feminist, and critical race theory are essential in health disparities research.

Although research found that White transgender people had the lowest odds of severe psychological distress and the highest odds of receiving gender affirming care relative to transgender people of other racial groups[40], the present study found that NH Asian and NH Black groups (including transgender groups) generally had lower prevalence of UMHN than other racial groups. One possible explanation for this discrepancy would be differences in beliefs about seeking mental healthcare among transgender people of different racial and ethnic groups. In other words, NH Black and NH Asian transgender people may have high psychological distress but not perceive themselves as needing mental healthcare. This may be due to stigma around mental health in these communities or because they perceive professional mental healthcare as unhelpful or even harmful[48–50]. More research is needed to explore the implications of these findings on mental health research and practice on TPOC communities.

To our knowledge, this is the first study to examine intersectional effects of gender modality and sexuality, race and ethnicity, and gender identity on the prevalence of UMHN. The intersectional effects observed in this study revealed several notable trends. First of all, non-Black cisgender heterosexual men had lower prevalence of UMHN than would have been expected via main effects alone. This suggests that because non-Black cisgender heterosexual men experience multiple forms of privilege, they are able to leverage these privileges simultaneously in ways that compound on one another. For instance, prior research has found White men are pushed into higher paying positions relative to both White women and Black men because White masculinity is treated as signifying both competence (unlike White femininity) and trustworthiness (unlike Black masculinity)[51]. Non-Black cisgender heterosexual men might thus be less likely to experience stressors that would result in a mental health concern, more likely to be able to

afford care when needed, and less likely to avoid care due to anticipated discrimination relative to Black, feminine-identified, and queer groups.

Transfeminine strata also had lower prevalence of UMHN than would have been expected via main effects alone, but given the overall high prevalence of UMHN among these strata we are hesitant to interpret this intersectional effect as a privilege. Rather, we hypothesize that the high rates of conversion therapy and psychiatric abuse experienced by transfeminine people[5] have resulted in this population being much less likely to want mental healthcare than cisgender women. We also found that transmasculine strata had higher prevalence of UMHN than would be predicted by main effects alone. We hypothesize this may be because transmasculine people are not able to leverage patriarchal norms to the same degree as other masculine-identified strata (particularly because 73.0% of the transmasculine participants in our sample explicitly said they did not identify as men).

Finally, we found that NH Black transfeminine people had one of the most negative intersectional effects and cisgender NH Black women had one of the most positive intersectional effects. In other words, the impacts of gender modality seem to be much smaller for NH Black women than for other demographic groups. Prior scholars have suggested that transmisogyny and misogynoir may be intrinsically related phenomena, given both forms of oppression can be thought of as denying a category of women the traditional protections of White femininity[30]. We thus posit that misogynoir[34] and transmisogyny[33] interfere with one another because they are related forms of oppression. In other words, Black transgender women cannot be denied the protections of White femininity on the basis of gender modality because Black cisgender women are not afforded those protections either. For instance, cisgender Black women have reported such extreme discrimination in medical settings[52] that the additional impact of transphobia for Black transgender women may not be easily detectable. Further research is needed to fully evaluate the many pathways by which transgender people, and particularly transgender people of color, negotiate the mental healthcare system.

Although this study produced a number of novel findings, it nonetheless had several limitations. In particular, although the overall sample was large, cell sizes for transgender strata and mixed race strata were relatively small. This necessitated several analytic choices that were not ideal for intersectional research, such as aggregating all Hispanic racial groups together and aggregating all mixed race

participants together with participants who had self-reported they were “another race.” Small cell sizes also contributed to the decision to aggregate transgender people of all sexualities together, although this choice was also informed by the lack of data regarding pre-transition sexual identity.

The data also did not include detailed information about the racial identities of participants who reported they were “another race,” making it difficult to interpret findings for participants who are another or mixed race. The survey also did not include details on the gender identities of those who reported only that they were “transgender,” which meant there was no way to distinguish non-binary from binary-identified transgender people. This resulted in gender identity for transgender participants being coded based on assigned sex. Although this is certainly a limitation, we were primarily interested in gender identity as a proxy for transmisogyny. Transmisogyny is theorized as being about the rejection of patriarchal norms that is implied by an AMAB person not identifying as a man.[33] We therefore believe coding transgender participants’ gender identities by assigned sex at birth was the best option for capturing this effect given the data limitations. Future national health surveillance surveys should oversample transgender participants (particularly TPOC) and should collect detailed information about gender and racial identity.

Relatedly, it is unknown whether the Census Bureau’s Population Estimate Program produces reliable survey weights for transgender populations. We thus elected not to incorporate survey weights into our analysis, which means these findings are not generalizable to the overall U.S. population. Future research should include a bias analysis of this method for calculating survey weights, so that it may be incorporated into future studies.

**Conclusion**

This application of the MAIHDA method demonstrated associations between race and ethnicity, sexual orientation and gender modality, and gender identity and UMHN, such that non-Asian, feminine-identified, and LGB and transgender participants had the highest rates of UMHN. We also identified notable intersectional effects between gender modality, gender identity, and race and ethnicity, contrary to past analyses of this dataset. More research is needed to determine the underlying causes of unmet mental health needs among TPOC and transfeminine people in particular.

## Figures

*Table 1*

Demographic Characteristics of Household Pulse Study Data, July 2021 through May 2022

| | Race and ethnicity | | | | | Gender identity | | Gender modality | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Asian | Black | Hispanic (any race) | White | Another or multiple races | Man / masculine | Woman / feminine | Cisgender heterosexual | Cisgender LGB+[a] | Transgender | — |
| N (%) | 39170 (5%) | 59120 (7.6%) | 72110 (9.2%) | 582237 (74.5%) | 28380 (3.6%) | 319640 (40.9%) | 461377 (59.1%) | 701692 (89.8%) | 67756 (8.7%) | 11569 (1.5%) | 781017 |
| Insurance Status | Asian | Black | Hispanic (any race) | White | Another or multiple races | Man / masculine | Woman / feminine | Cisgender heterosexual | Cisgender LGB+ | Transgender | Total |
| Uninsured | 1216 (3.1%) | 2853 (4.8%) | 5636 (7.8%) | 16456 (2.8%) | 2853 (4.8%) | 12063 (3.8%) | 15320 (3.3%) | 22734 (3.2%) | 3733 (5.5%) | 916 (7.9%) | 27383 (3.5%) |
| Medicaid | 1148 (2.9%) | 4294 (7.3%) | 5103 (7.1%) | 21427 (3.7%) | 4294 (7.3%) | 8504 (2.7%) | 25250 (5.5%) | 27768 (4.0%) | 5056 (7.5%) | 930 (8.0%) | 33754 (4.3%) |
| Medicare | 1527 (3.9%) | 2766 (4.7%) | 2987 (4.1%) | 52289 (9%) | 2766 (4.7%) | 26093 (8.2%) | 34531 (7.5%) | 57167 (8.1%) | 2992 (4.4%) | 465 (4.0%) | 60624 (7.8%) |
| Employer | 18439 (47.1%) | 17742 (30.0%) | 23993 (33.3%) | 238518 (41.0%) | 17742 (30.0%) | 125693 (39.3%) | 181761 (39.4%) | 274222 (39.1%) | 29363 (43.3%) | 3869 (33.4%) | 307454 (39.4%) |
| Private | 2125 (5.4%) | 2314 (3.9%) | 3671 (5.1%) | 36904 (6.3%) | 2314 (3.9%) | 18051 (5.6%) | 28099 (6.1%) | 41270 (5.9%) | 4201 (6.2%) | 679 (5.9%) | 46150 (5.9%) |
| Other insurance | 555 (1.4%) | 1621 (2.7%) | 1950 (2.7%) | 14297 (2.5%) | 1621 (2.7%) | 10068 (3.1%) | 10342 (2.2%) | 18488 (2.6%) | 1586 (2.3%) | 336 (2.9%) | 20410 (2.6%) |
| Multiple forms of insurance | 8086 (20.6%) | 16209 (27.4%) | 15324 (21.3%) | 141039 (24.2%) | 16209 (27.4%) | 81201 (25.4%) | 107745 (23.4%) | 174258 (24.8%) | 12423 (18.3%) | 2265 (19.6%) | 188946 (24.2%) |
| Missing | 6074 (15.5%) | 11321 (19.1%) | 13446 (18.6%) | 61307 (10.5%) | 11321 (19.1%) | 37967 (11.9%) | 58329 (12.6%) | 85785 (12.2%) | 8402 (12.4%) | 2109 (18.2%) | 96296 (12.3%) |
| Income | Asian | Black | Hispanic (any race) | White | Another or multiple races | Man / masculine | Woman / feminine | Cisgender heterosexual | Cisgender LGB+ | Transgender | Total |
| Less than 25k | 2228 (5.7%) | 8769 (14.8%) | 9071 (12.6%) | 45835 (7.9%) | 8769 (14.8%) | 22481 (7.0%) | 47439 (10.3%) | 58916 (8.4%) | 8979 (13.3%) | 2025 (17.5%) | 69920 (9.0%) |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25-35k | 1847 (4.7%) | 5794 (9.8%) | 6677 (9.3%) | 39164 (6.7%) | 5794 (9.8%) | 18949 (5.9%) | 37051 (8%) | 48728 (6.9%) | 6168 (9.1%) | 1104 (9.5%) | 56000 (7.2%) |
| 35-50k | 2292 (5.9%) | 5980 (10.1%) | 7375 (10.2%) | 49890 (8.6%) | 5980 (10.1%) | 24868 (7.8%) | 43419 (9.4%) | 60363 (8.6%) | 6816 (10.1%) | 1108 (9.6%) | 68287 (8.7%) |
| 50-75k | 3942 (10.1%) | 7747 (13.1%) | 9443 (13.1%) | 82395 (14.2%) | 7747 (13.1%) | 42055 (13.2%) | 65375 (14.2%) | 96459 (13.7%) | 9613 (14.2%) | 1358 (11.7%) | 107430 (13.8%) |
| 75-100k | 3867 (9.9%) | 4999 (8.5%) | 6600 (9.2%) | 71725 (12.3%) | 4999 (8.5%) | 37645 (11.8%) | 52373 (11.4%) | 81794 (11.7%) | 7237 (10.7%) | 987 (8.5%) | 90018 (11.5%) |
| 100-150k | 5958 (15.2%) | 5282 (8.9%) | 7264 (10.1%) | 93254 (16%) | 5282 (8.9%) | 52485 (16.4%) | 62441 (13.5%) | 105573 (15%) | 8338 (12.3%) | 1015 (8.8%) | 114926 (14.7%) |
| 150-200k | 3584 (9.1%) | 2380 (4%) | 3254 (4.5%) | 45578 (7.8%) | 2380 (4.0%) | 26821 (8.4%) | 29514 (6.4%) | 52014 (7.4%) | 3869 (5.7%) | 452 (3.9%) | 56335 (7.2%) |
| 200k+ | 6315 (16.1%) | 2003 (3.4%) | 3530 (4.9%) | 56127 (9.6%) | 2003 (3.4%) | 36447 (11.4%) | 33217 (7.2%) | 64478 (9.2%) | 4545 (6.7%) | 641 (5.5%) | 69664 (8.9%) |
| Missing | 9137 (23.3%) | 16166 (27.3%) | 18896 (26.2%) | 98269 (16.9%) | 16166 (27.3%) | 57889 (18.1%) | 90548 (19.6%) | 133367 (19%) | 12191 (18%) | 2879 (24.9%) | 148437 (19%) |
| PHQ-4 score (mean) | 2.9 (SD 3.4) | 3.2 (SD 3.5) | 2.4 (SD 3.1) | 3.6 (SD 3.6) | 4 (SD 3.8) | 2.5 (SD 3.3) | 3.3 (SD 3.5) | 2.8 (SD 3.3) | 4.6 (SD 3.9) | 5.3 (SD 4.3) | 3 (SD 3.5) |
| Age (mean) | 48.1 (SD 14.9) | 48 (SD 15.3) | 51.8 (SD 14.4) | 55.1 (SD 15.9) | 48.9 (SD 15.5) | 54.6 (SD 16.4) | 53 (SD 15.5) | 54.6 (SD 15.6) | 45.4 (SD 15.9) | 46 (SD 18.7) | 53.7 (SD 15.9) |
| Marital status | Asian | Black | Hispanic (any race) | White | Another or multiple races | Man / masculine | Woman / feminine | Cisgender heterosexual | Cisgender LGB+ | Transgender | Total |
| Divorced | 3025 (7.7%) | 10684 (14.8%) | 11231 (19%) | 91971 (15.8%) | 4745 (16.7%) | 38375 (12%) | 83281 (18.1%) | 111394 (15.9%) | 8714 (12.9%) | 1548 (13.4%) | 121656 (15.6%) |
| Married | 25457 (65%) | 37117 (51.5%) | 23146 (39.2%) | 346265 (59.5%) | 13379 (47.1%) | 201176 (62.9%) | 244188 (52.9%) | 416933 (59.4%) | 24327 (35.9%) | 4104 (35.5%) | 445364 (57%) |
| Never Married | 8971 (22.9%) | 18625 (25.8%) | 18823 (31.8%) | 98171 (16.9%) | 7944 (28%) | 63841 (20%) | 88693 (19.2%) | 116435 (16.6%) | 31293 (46.2%) | 4806 (41.5%) | 152534 (19.5%) |
| Separated | 529 (1.4%) | 2628 (3.6%) | 2465 (4.2%) | 7789 (1.3%) | 722 (2.5%) | 4509 (1.4%) | 9624 (2.1%) | 12253 (1.7%) | 1501 (2.2%) | 379 (3.3%) | 14133 (1.8%) |
| Widowed | 1002 (2.6%) | 2743 (3.8%) | 3138 (5.3%) | 36042 (6.2%) | 1473 (5.2%) | 10635 (3.3%) | 33763 (7.3%) | 42039 (6%) | 1688 (2.5%) | 671 (5.8%) | 44398 (5.7%) |
| Missing | 186 (0.5%) | 313 (0.4%) | 317 (0.5%) | 1999 (0.3%) | 117 (0.4%) | 1104 (0.3%) | 1828 (0.4%) | 2638 (0.4%) | 233 (0.3%) | 61 (0.5%) | 2932 (0.4%) |

| Education | Asian | Black | Hispanic (any race) | White | Another or multiple races | Man / masculine | Woman / feminine | Cisgender heterosexual | Cisgender LGB+ | Transgender | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Less than High School | 202 (0.5%) | 1956 (2.7%) | 394 (0.7%) | 2055 (0.4%) | 270 (1.0%) | 2069 (0.6%) | 2808 (0.6%) | 3710 (0.5%) | 711 (1%) | 456 (3.9%) | 4877 (0.6%) |
| Some High School | 428 (1.1%) | 3071 (4.3%) | 1438 (2.4%) | 5117 (0.9%) | 565 (2.0%) | 4025 (1.3%) | 6594 (1.4%) | 9015 (1.3%) | 1299 (1.9%) | 305 (2.6%) | 10619 (1.4%) |
| High School | 1845 (4.7%) | 12417 (17.2%) | 9026 (15.3%) | 63683 (10.9%) | 3884 (13.7%) | 34256 (10.7%) | 56599 (12.3%) | 82502 (11.8%) | 6839 (10.1%) | 1514 (13.1%) | 90855 (11.6%) |
| Associates | 2451 (6.3%) | 8125 (11.3%) | 6982 (11.8%) | 60741 (10.4%) | 3435 (12.1%) | 28499 (8.9%) | 53235 (11.5%) | 74440 (10.6%) | 6241 (9.2%) | 1053 (9.1%) | 81734 (10.5%) |
| Some College | 4357 (11.1%) | 17870 (24.8%) | 15345 (26%) | 119166 (20.5%) | 7815 (27.5%) | 65346 (20.4%) | 99207 (21.5%) | 146091 (20.8%) | 15682 (23.1%) | 2780 (24%) | 164553 (21.1%) |
| Bachelors | 13801 (35.2%) | 15906 (22.1%) | 12969 (21.9%) | 175381 (30.1%) | 6985 (24.6%) | 97093 (30.4%) | 127949 (27.7%) | 202321 (28.8%) | 19832 (29.3%) | 2889 (25%) | 225042 (28.8%) |
| Graduate | 16086 (41.1%) | 12765 (17.7%) | 12966 (21.9%) | 156094 (26.8%) | 5426 (19.1%) | 88352 (27.6%) | 114985 (24.9%) | 183613 (26.2%) | 17152 (25.3%) | 2572 (22.2%) | 203337 (26%) |
| **Sexual Orientation** | **Asian** | **Black** | **Hispanic (any race)** | **White** | **Another or multiple races** | **Man / masculine** | **Woman / feminine** | **Cisgender heterosexual** | **Cisgender LGB+** | **Transgender** | **Total** |
| Gay or lesbian | 967 (2.5%) | 2950 (4.1%) | 1691 (2.9%) | 19369 (3.3%) | 1056 (3.7%) | 16000 (5.0%) | 10033 (2.2%) | - | 24695 (36.4%) | 1338 (11.6%) | 26033 (3.3%) |
| Straight | 35773 (91.3%) | 62202 (86.3%) | 54514 (92.2%) | 529091 (90.9%) | 23979 (84.5%) | 287583 (90.0%) | 417976 (90.6%) | 701692 (100%) | - | 3867 (33.4%) | 705559 (90.3%) |
| Bisexual | 969 (2.5%) | 3147 (4.4%) | 1519 (2.6%) | 20217 (3.5%) | 1717 (6.1%) | 7290 (2.3%) | 20279 (4.4%) | - | 25642 (37.8%) | 1927 (16.7%) | 27569 (3.5%) |
| Something else | 451 (1.2%) | 1889 (2.6%) | 587 (1%) | 7379 (1.3%) | 852 (3%) | 4329 (1.4%) | 6829 (1.5%) | - | 8274 (12.2%) | 2884 (24.9%) | 10561 (1.4%) |
| I don't know | 995 (2.5%) | 1887 (2.6%) | 791 (1.3%) | 6121 (1.1%) | 767 (2.7%) | 4350 (1.4%) | 6211 (1.3%) | - | 9145 (13.5%) | 1416 (12.2%) | 11158 (1.4%) |
| Missing | 15 (0.0%) | 18 (0.0%) | 35 (0.0%) | 60 (0.0%) | 9 (0.0%) | 88 (0.0%) | 49 (0.0%) | -[b] | -[b] | -[b] | 137 (0.0%) |
| **Received mental health services** | **Asian** | **Black** | **Hispanic (any race)** | **White** | **Another or multiple races** | **Man / masculine** | **Woman / feminine** | **Cisgender heterosexual** | **Cisgender LGB+** | **Transgender** | **Total** |
| Yes | 2379 | 7279 | 5427 | 61571 | 3643 | 24472 | 55827 | 63816 | 13855 | 2628 | 80299 |

| | (6.1%) | (10.1%) | (9.2%) | (10.6%) | (12.8%) | (7.7%) | (12.1%) | (9.1%) | (20.4%) | (22.7%) | (10.3%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No | 31236 (79.7%) | 52755 (73.2%) | 43330 (73.3%) | 464245 (79.7%) | 20926 (73.7%) | 260586 (81.5%) | 351906 (76.3%) | 559146 (79.7%) | 46309 (68.3%) | 7037 (60.8%) | 612492 (78.4%) |
| Missing | 5555 (14.2%) | 12076 (16.7%) | 10363 (17.5%) | 56421 (9.7%) | 3811 (13.4%) | 34582 (10.8%) | 53644 (11.6%) | 78730 (11.2%) | 7592 (11.2%) | 1904 (16.5%) | 88226 (11.3%) |

| Unmet mental health needs | Asian | Black | Hispanic (any race) | White | Another or multiple races | Man / masculine | Woman / feminine | Cisgender heterosexual | Cisgender LGB+ | Transgender | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Yes | 2049 (5.2%) | 7951 (11%) | 6333 (10.7%) | 53377 (9.2%) | 3995 (14.1%) | 21025 (6.6%) | 52680 (11.4%) | 57720 (8.2%) | 13403 (19.8%) | 2582 (22.3%) | 73705 (9.4%) |
| No | 31596 (80.7%) | 52126 (72.3%) | 42493 (71.9%) | 472764 (81.2%) | 20596 (72.6%) | 264275 (82.7%) | 355300 (77%) | 565698 (80.6%) | 46792 (69.1%) | 7085 (61.2%) | 619575 (79.3%) |
| Missing | 5525 (14.1%) | 12033 (16.7%) | 10294 (17.4%) | 56096 (9.6%) | 3789 (13.4%) | 34340 (10.7%) | 53397 (11.6%) | 78274 (11.2%) | 7561 (11.2%) | 1902 (16.4%) | 87737 (11.2%) |

[a]Lesbian, Gay, Bisexual, or other sexual minority

[b]Missingness could not be calculated

*Table 2*

Prevalence ratios and 95% Confidence Intervals For The Associations Of Unmet Mental Health Need And Demographic Variables

| | Model 2 Prevalence Ratio (95% CI) | Model 3 Prevalence Ratio (95% CI)[a] |
|---|---|---|
| **Fixed effects** | | |
| Intercept | **0.05 (0.05, 0.05)** | **0.08 (0.07, 0.09)** |
| ***Gender identity*** | | |
| Man/masculine | (ref) | (ref) |
| Woman/feminine | **1.36 (1.25, 1.48)** | **1.32 (1.20, 1.45)** |
| ***Gender modality*** | | |
| Cisgender Heterosexual | (ref) | (ref) |
| Cisgender LGB+ | **2.25 (1.93, 2.63)** | **1.88 (1.65, 2.15)** |
| Transgender | **2.63 (2.22, 3.11)** | **2.29 (1.98, 2.64)** |
| ***Race and ethnicity*** | | |
| Asian only, NH | (ref) | (ref) |
| Black only, NH | **1.56 (1.31, 1.86)** | **1.73 (1.47, 2.03)** |
| Hispanic (any race) | **1.81 (1.51, 2.15)** | **1.83 (1.55, 2.17)** |
| White, NH | **1.57 (1.45, 1.71)** | **1.76 (1.60, 1.94)** |
| Another or mixed race, NH | **2.11 (1.75, 2.53)** | **2.13 (1.81, 2.51)** |
| ***Age*** | | |
| 18-29 years old | - | (ref) |
| 30-39 years old | - | **0.88 (0.86, 0.9)** |
| 40-49 years old | - | **0.74 (0.72, 0.75)** |
| 50-59 years old | - | **0.58 (0.57, 0.6)** |
| 60-69 years old | - | **0.38 (0.37, 0.39)** |
| 70+ years old | - | **0.21 (0.2, 0.21)** |
| **Random Effects** | | |
| Intercept (Variance) | 0.04 (SD=0.21) | 0.03 (SD=0.16) |
| **Percent of Between-Strata Variation Unexplained by Main Effects** | 14.1% | 8.70% |
| **Median Prevalence Ratio** | **1.24 (1.20, 1.27)** | **1.17 (1.15, 1.21)** |

Bold indicates values that are significant at $p<.05$

[a]Adjusted for age

*Table 3*

Age-adjusted Residuals, Expected Probabilities, and Predicted Probabilities by Strata

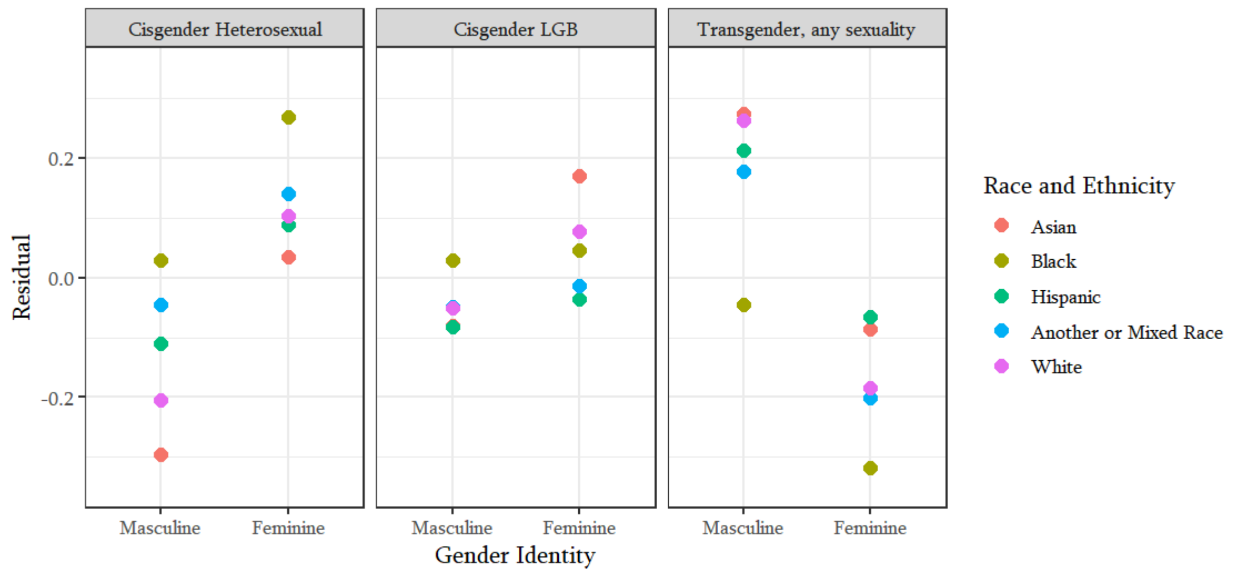
| Strata # | Race | Gender Modality | Gender Identity | Residual | Expected probabilities (95% CI)[a] | Predicted probabilities (95% CI)[a] | n |
|---|---|---|---|---|---|---|---|
| 110 | Asian (NH) | Cishet | M | **-0.3 (-0.37, -0.22)** | 0.05 (0.04, 0.05) | 0.03 (0.03, 0.04) | 16051 |
| 111 | Asian (NH) | Cishet | F | 0.03 (-0.02, 0.09) | 0.06 (0.05, 0.07) | 0.06 (0.06, 0.07) | 14567 |
| 120 | Asian (NH) | Cis LGB+ | M | -0.08 (-0.23, 0.07) | 0.09 (0.08, 0.1) | 0.08 (0.07, 0.1) | 1359 |
| 121 | Asian (NH) | Cis LGB+ | F | **0.17 (0.06, 0.28)** | 0.11 (0.1, 0.13) | 0.14 (0.11, 0.16) | 1264 |
| 130 | Asian (NH) | Trans | M | **0.27 (0.06, 0.48)** | 0.11 (0.09, 0.12) | 0.14 (0.11, 0.18) | 230 |
| 131 | Asian (NH) | Trans | F | -0.09 (-0.33, 0.15) | 0.14 (0.12, 0.16) | 0.13 (0.1, 0.17) | 174 |
| 210 | Black (NH) | Cishet | M | 0.03 (-0.03, 0.09) | 0.08 (0.07, 0.09) | 0.08 (0.07, 0.1) | 13449 |
| 211 | Black (NH) | Cishet | F | **0.27 (0.24, 0.29)** | 0.11 (0.09, 0.12) | 0.14 (0.12, 0.16) | 31168 |
| 220 | Black (NH) | Cis LGB+ | M | 0.03 (-0.08, 0.14) | 0.15 (0.13, 0.18) | 0.15 (0.13, 0.19) | 1271 |
| 221 | Black (NH) | Cis LGB+ | F | 0.05 (-0.02, 0.11) | 0.2 (0.17, 0.23) | 0.21 (0.17, 0.25) | 2143 |
| 230 | Black (NH) | Trans | M | -0.04 (-0.19, 0.1) | 0.18 (0.15, 0.22) | 0.17 (0.14, 0.22) | 591 |
| 231 | Black (NH) | Trans | F | **-0.32 (-0.53, -0.11)** | 0.24 (0.2, 0.28) | 0.18 (0.13, 0.23) | 204 |
| 310 | Hispanic (any race) | Cishet | M | **-0.11 (-0.16, -0.06)** | 0.08 (0.07, 0.1) | 0.08 (0.06, 0.09) | 20216 |
| 311 | Hispanic (any race) | Cishet | F | **0.09 (0.06, 0.11)** | 0.11 (0.09, 0.13) | 0.12 (0.1, 0.14) | 31483 |
| 320 | Hispanic (any race) | Cis LGB+ | M | **-0.08 (-0.16, -0.01)** | 0.16 (0.13, 0.19) | 0.15 (0.12, 0.18) | 2928 |
| 321 | Hispanic (any race) | Cis LGB+ | F | -0.04 (-0.09, 0.01) | 0.21 (0.18, 0.24) | 0.2 (0.17, 0.24) | 4037 |
| 330 | Hispanic (any race) | Trans | M | **0.21 (0.12, 0.31)** | 0.19 (0.16, 0.23) | 0.24 (0.2, 0.29) | 823 |
| 331 | Hispanic (any race) | Trans | F | -0.07 (-0.19, 0.06) | 0.25 (0.21, 0.3) | 0.24 (0.2, 0.3) | 590 |
| 410 | Another or Mixed race (NH) | Cishet | M | -0.05 (-0.11, 0.02) | 0.1 (0.08, 0.11) | 0.09 (0.08, 0.11) | 7949 |
| 411 | Another or Mixed race (NH) | Cishet | F | **0.14 (0.1, 0.18)** | 0.13 (0.11, 0.15) | 0.15 (0.13, 0.18) | 12696 |
| 420 | Another or Mixed race (NH) | Cis LGB+ | M | -0.05 (-0.15, 0.06) | 0.18 (0.15, 0.22) | 0.17 (0.14, 0.21) | 1126 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 421 | Another or Mixed race (NH) | Cis LGB+ | F | -0.01 (-0.07, 0.05) | 0.24 (0.21, 0.29) | 0.24 (0.2, 0.29) | 2066 |
| 430 | Another or Mixed race (NH) | Trans | M | **0.18 (0.06, 0.29)** | 0.22 (0.19, 0.27) | 0.27 (0.22, 0.33) | 455 |
| 431 | Another or Mixed race (NH) | Trans | F | **-0.2 (-0.36, -0.05)** | 0.29 (0.25, 0.35) | 0.24 (0.19, 0.3) | 299 |
| 510 | White (NH) | Cishet | M | **-0.21 (-0.22, -0.19)** | 0.08 (0.07, 0.09) | 0.07 (0.06, 0.07) | 196906 |
| 511 | White (NH) | Cishet | F | **0.1 (0.09, 0.11)** | 0.11 (0.09, 0.12) | 0.12 (0.1, 0.14) | 278933 |
| 520 | White (NH) | Cis LGB+ | M | **-0.05 (-0.08, -0.02)** | 0.15 (0.13, 0.18) | 0.15 (0.13, 0.17) | 18118 |
| 521 | White (NH) | Cis LGB+ | F | **0.08 (0.06, 0.1)** | 0.2 (0.18, 0.23) | 0.22 (0.19, 0.25) | 25883 |
| 530 | White (NH) | Trans | M | **0.26 (0.22, 0.31)** | 0.19 (0.16, 0.21) | 0.24 (0.21, 0.28) | 3828 |
| 531 | White (NH) | Trans | F | **-0.18 (-0.25, -0.12)** | 0.25 (0.21, 0.28) | 0.2 (0.17, 0.24) | 2473 |

Bold indicates values that are significant at p<.05

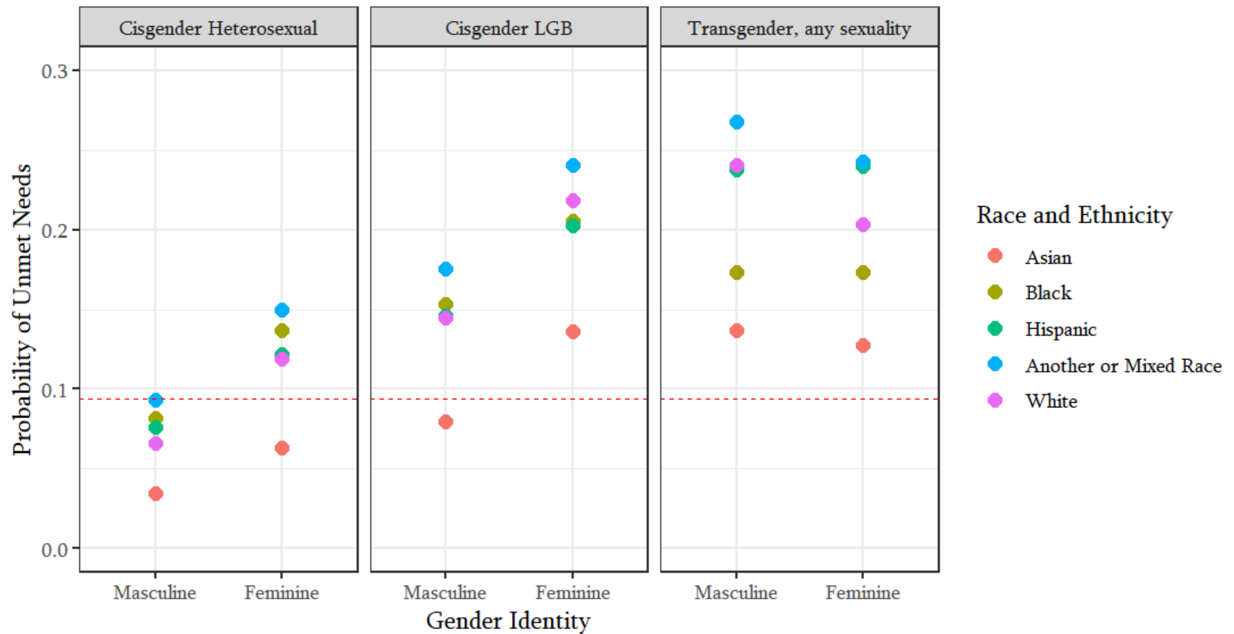
[a]Expected probabilities account only for main effects, whereas predicted probabilities incorporate intersectional effects. Both expected and predicted probabilities are adjusted for age, and assume the median age of 50-60 years old.

*Figure 1*




The chart shows random effects graphed by strata, adjusted for age. Cisgender women and transmasculine people generally have the most positive random intercepts, and cisgender men and transfeminine people generally have the most negative intercepts.

*Figure 2*




The chart shows probability of unmet mental health need graphed by strata, for participants of the median age (50 to 59 years old). The red dashed line represents the population-level prevalence. Transmasculine people generally have the highest prevalences, and cisgender men generally have the lowest prevalences.

## Bibliography

1. Feldman JL, Luhur WE, Herman JL, Poteat T, Meyer IH. Health and health care access in the US

transgender population health (TransPop) survey. *Andrology*. 2021;9(6):1707-1718. doi:10.1111/andr.13052
2. Seelman KL, Colón-Diaz MJP, LeCroix RH, Xavier-Brier M, Kattari L. Transgender Noninclusive Healthcare and Delaying Care Because of Fear: Connections to General Health and Mental Health Among Transgender Adults. *Transgender Health*. 2017;2(1):17-28. doi:10.1089/trgh.2016.0024
3. Kcomt L, Gorey KM, Barrett BJ, McCabe SE. Healthcare avoidance due to anticipated discrimination among transgender people: A call to create trans-affirmative environments. *SSM - Popul Health*. 2020;11:100608. doi:10.1016/j.ssmph.2020.100608
4. Tami A, Ferguson T, Bauer GR, Scheim AI. Avoidance of primary healthcare among transgender and non-binary people in Canada during the COVID-19 pandemic. *Prev Med Rep*. 2022;27:101789. doi:10.1016/j.pmedr.2022.101789
5. James SE, Herman JL, Rankin S, Keisling M, Mottet L, Anafi M. *The Report of the 2015 U.S. Transgender Survey*. National Center for Transgender Equality; 2016. Accessed April 4, 2023. https://www.ustranssurvey.org/reports
6. Koma W, Ramaswamy A. Demographics, Insurance Coverage, and Access to Care Among Transgender Adults. KFF. Published 2020. Accessed September 13, 2023. https://www.kff.org/health-reform/issue-brief/demographics-insurance-coverage-and-access-to-care-among-transgender-adults/
7. Johnson AH. Rejecting, reframing, and reintroducing: trans people’s strategic engagement with the medicalisation of gender dysphoria. *Sociol Health Illn*. 2019;41(3):517-532. doi:10.1111/1467-9566.12829
8. Johnson K. (In)validating Transgender Identities: Progress and Trouble in the DSM-5. National LGBTQ Task Force. Published December 13, 2012. Accessed September 13, 2023. https://www.thetaskforce.org/news/invalidating-transgender-identities-progress-and-trouble-in-the-dsm-5/
9. Riggs DW, Pearce R, Pfeffer CA, Hines S, White F, Ruspini E. Transnormativity in the psy disciplines: Constructing pathology in the Diagnostic and Statistical Manual of Mental Disorders and Standards of Care. *Am Psychol*. 2019;74(8):912. doi:10.1037/amp0000545
10. Suess A, Espineira K, Walters PC. Depathologization. *TSQ Transgender Stud Q*. 2014;1(1-2):73-77. doi:10.1215/23289252-2399650
11. Suess Schwend A. Trans health care from a depathologization and human rights perspective. *Public Health Rev*. 2020;41(1):3. doi:10.1186/s40985-020-0118-y
12. Transexual Menace. *Get Your Diagnoses Off Our Bodies and Off Our Kids! Flyer*. Accessed September 13, 2023. https://www.digitaltransgenderarchive.net/files/1r66j116v
13. Transexual Menace. *Hey APA! Get Your Diagnoses Off Our Bodies & Off Our Kids! Flyer - Digital Transgender Archive*. Accessed September 13, 2023. https://www.digitaltransgenderarchive.net/files/vq27zn431
14. Transexual Menace. *Picket the American Psychiatric Assocation With Us! Flyer - Digital Transgender Archive*.; 1996. Accessed September 13, 2023. https://www.digitaltransgenderarchive.net/files/bz60cw251
15. Transgender Europe. Calling for complete depathologisation of trans and gender-diverse identities. TGEU. Published October 20, 2022. Accessed September 13, 2023. https://tgeu.org/calling-for-complete-depathologisation-of-trans-and-gender-diverse-identities/
16. Turban JL, Beckwith N, Reisner SL, Keuroghlian AS. Association Between Recalled Exposure to Gender Identity Conversion Efforts and Psychological Distress and Suicide Attempts Among Transgender Adults. *JAMA Psychiatry*. 2020;77(1):68-76. doi:10.1001/jamapsychiatry.2019.2285
17. Crockett MA, Martínez V, Caviedes P. Barriers and Facilitators to Mental Health Help-Seeking and Experiences with Service Use among LGBT+ University Students in Chile. *Int J Environ Res Public Health*. 2022;19(24):16520. doi:10.3390/ijerph192416520
18. Bakko M, Kattari SK. Transgender-Related Insurance Denials as Barriers to Transgender Healthcare: Differences in Experience by Insurance Type. *J Gen Intern Med*. 2020;35(6):1693-1700. doi:10.1007/s11606-020-05724-2
19. Chong LSH, Kerklaan J, Clarke S, et al. Experiences and Perspectives of Transgender Youths in Accessing Health Care: A Systematic Review. *JAMA Pediatr*. 2021;175(11):1159-1173. doi:10.1001/jamapediatrics.2021.2061
20. Goldenberg T, Jadwin-Cakmak L, Popoff E, Reisner SL, Campbell BA, Harper GW. Stigma, Gender

Affirmation, and Primary Healthcare Use Among Black Transgender Youth. *J Adolesc Health Off Publ Soc Adolesc Med*. 2019;65(4):483-490. doi:10.1016/j.jadohealth.2019.04.029
21. Kachen A, Pharr JR. Health Care Access and Utilization by Transgender Populations: A United States Transgender Survey Study. *Transgender Health*. 2020;5(3):141-148. doi:10.1089/trgh.2020.0017
22. Kattari SK, Bakko M, Langenderfer-Magruder L, Holloway BT. Transgender and Nonbinary Experiences of Victimization in Health care. *J Interpers Violence*. 2021;36(23-24):NP13054-NP13076. doi:10.1177/0886260520905091
23. Kattari SK, Walls NE, Whitfield DL, Langenderfer-Magruder L. Racial and Ethnic Differences in Experiences of Discrimination in Accessing Health Services Among Transgender People in the United States. *Int J Transgenderism*. 2015;16(2):68-79. doi:10.1080/15532739.2015.1064336
24. Lacombe-Duncan A. An Intersectional Perspective on Access to HIV-Related Healthcare for Transgender Women. *Transgender Health*. 2016;1(1):137-141. doi:10.1089/trgh.2016.0018
25. Safer JD, Coleman E, Feldman J, et al. Barriers to healthcare for transgender individuals. *Curr Opin Endocrinol Diabetes Obes*. 2016;23(2):168-171. doi:10.1097/MED.0000000000000227
26. Thomas SD, King R, Murphy M, Dempsey M. Demographic factors associated with healthcare avoidance and delay in the transgender population: Findings from a systematic review. *Dialogues Health*. 2023;3:100159. doi:10.1016/j.dialog.2023.100159
27. Ashley F. “Trans” Is My Gender Modality: A Modest Terminological Proposal. In: Erickson-Schroth L, ed. *Trans Bodies, Trans Selves: A Resource by and for Transgender Communities*. 2nd ed. Oxford University Press; 2022.
28. Crenshaw K. Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. *Stanford Law Rev*. 1991;43(6):1241-1299. doi:10.2307/1229039
29. Crenshaw K. Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics. *Univ Chic Leg Forum*. 2015;1989(1). https://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8
30. Green KM, Bey M. Where Black Feminist Thought and Trans* Feminism Meet: A Conversation. *Souls*. 2017;19(4):438-454. doi:10.1080/10999949.2018.1434365
31. Dutta A, Roy R. Decolonizing Transgender in India: Some Reflections. *TSQ Transgender Stud Q*. 2014;1(3):320-337. doi:10.1215/23289252-2685615
32. de Vries KM. Transgender people of color at the center: Conceptualizing a new intersectional model. *Ethnicities*. 2015;15(1):3-27. doi:10.1177/1468796814547058
33. Serano J. *Whipping Girl: A Transsexual Woman on Sexism and the Scapegoating of Femininity*. Second edition. Seal Press; 2016.
34. Bailey M. *Misogynoir Transformed: Black Women’s Digital Resistance*. New York University Press; 2021. doi:10.18574/nyu/9781479803392.001.0001
35. Sherman ADF, Balthazar MS, Daniel G, et al. Barriers to accessing and engaging in healthcare as potential modifiers in the association between polyvictimization and mental health among Black transgender women. *PLoS ONE*. 2022;17(6):e0269776. doi:10.1371/journal.pone.0269776
36. Jefferson K, Neilands TB, Sevelius J. Transgender women of color: discrimination and depression symptoms. *Ethn Inequalities Health Soc Care*. 2013;6(4):121-136. doi:10.1108/EIHSC-08-2013-0013
37. Smart BD, Mann-Jackson L, Alonzo J, et al. Transgender women of color in the U.S. South: A qualitative study of social determinants of health and healthcare perspectives. *Int J Transgender Health*. 23(1-2):164-177. doi:10.1080/26895269.2020.1848691
38. Carter SP, Cowan T, Snow A, Cerel J, Tucker R. Health Insurance and Mental Health Care Utilization Among Adults Who Identify as Transgender and Gender Diverse. *Psychiatr Serv*. 2020;71(2):151-157. doi:10.1176/appi.ps.201900289
39. Chen S, Wang Y, She R, Qin P, Ming WK. Disparities in the unmet mental health needs between LGBTQ+ and non-LGBTQ+ populations during COVID-19 in the United States from 21 July 2021 to 9 May 2022. *Front Med*. 2022;9:995466. doi:10.3389/fmed.2022.995466
40. Lett E, Abrams MP, Gold A, Fullerton FA, Everhart A. Ethnoracial inequities in access to gender-affirming mental health care and psychological distress among transgender adults. *Soc Psychiatry Psychiatr Epidemiol*. 2022;57(5):963-971. doi:10.1007/s00127-022-02246-6
41. US Census Bureau. Measuring Household Experiences during the Coronavirus Pandemic. Census.gov. Published August 23, 2023. Accessed November 8, 2023. https://www.census.gov/householdpulsedata

42. File T, Lee JH. Phase 3.2 of Census Bureau Survey Questions Now Include SOGI, Child Tax Credit, COVID Vaccination of Children. Census.gov. Published August 5, 2021. Accessed November 8, 2023. https://www.census.gov/library/stories/2021/08/household-pulse-survey-updates-sex-question-now-asks-sexual-orientation-and-gender-identity.html
43. Evans CR, Williams DR, Onnela JP, Subramanian SV. A multilevel approach to modeling health inequalities at the intersection of multiple social identities. *Soc Sci Med 1982*. 2018;203:64-73. doi:10.1016/j.socscimed.2017.11.011
44. Merlo J. Multilevel analysis of individual heterogeneity and discriminatory accuracy (MAIHDA) within an intersectional framework. *Soc Sci Med 1982*. 2018;203:74-80. doi:10.1016/j.socscimed.2017.12.026
45. Merlo J, Chaix B, Ohlsson H, et al. A brief conceptual tutorial of multilevel analysis in social epidemiology: using measures of clustering in multilevel logistic regression to investigate contextual phenomena. *J Epidemiol Community Health*. 2006;60(4):290-297. doi:10.1136/jech.2004.029454
46. Chen E, Miller GE. Socioeconomic Status and Health: Mediating and Moderating Factors. *Annu Rev Clin Psychol*. 2013;9(Volume 9, 2013):723-749. doi:10.1146/annurev-clinpsy-050212-185634
47. Richardson LD, Norris M. Access to health and health care: how race and ethnicity matter. *Mt Sinai J Med N Y*. 2010;77(2):166-177. doi:10.1002/msj.20174
48. Dean KE, Long ACJ, Trinh NH, McClendon J, Buckner JD. Treatment Seeking for Anxiety and Depression Among Black Adults: A Multilevel and Empirically Informed Psycho-Sociocultural Model. *Behav Ther*. 2022;53(6):1077-1091. doi:10.1016/j.beth.2022.04.005
49. Kwok J. Factors that influence the diagnoses of Asian Americans in mental health: an exploration. *Perspect Psychiatr Care*. 2013;49(4):288-292. doi:10.1111/ppc.12017
50. Pederson AB. Management of Depression in Black People: Effects of Cultural Issues. *Psychiatr Ann*. 2023;53(3):122-125. doi:10.3928/00485713-20230215-01
51. Wingfield AH. Racializing the Glass Escalator: Reconsidering Men’s Experiences with Women’s Work. *Gend Soc*. 2009;23(1):5-26. doi:10.1177/0891243208323054
52. Washington A, Randall J. “We’re Not Taken Seriously”: Describing the Experiences of Perceived Discrimination in Medical Settings for Black Women. *J Racial Ethn Health Disparities*. 2023;10(2):883-891. doi:10.1007/s40615-022-01276-9