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Perceived Stigma, Internalized Stigma, and Mental Health of Young Chinese Men Who Have Sex With Men Living With HIV/AIDS: Intersection and the Importance of “Undetectable = Untransmittable” Status

Zurong Liang¹ and Yu-Te Huang²

¹ Department of Sociology, Zhejiang University

² Department of Social Work and Social Administration, The University of Hong Kong

Stigma is closely linked to mental health issues among men who have sex with men (MSM) living with HIV/AIDS. The “Undetectable = Untransmittable” (U = U) concept has been instrumental in reducing HIV/AIDS-related stigma and improving treatment adherence among people living with HIV/AIDS. However, the effect of U = U status on internalized stigma related to both HIV/AIDS and homosexual identity remains unclear. This study explores how U = U status influences stigma internalization and mental health among young Chinese MSM living with HIV/AIDS, focusing on the intersectional stigma associated with HIV/AIDS status and sexual orientation. A purposeful sampling approach was used to recruit young Chinese MSM living with HIV/AIDS ($n = 1,185$). Structural equation model, stratified by U = U status, examined the relationships between perceived stigma, internalized stigma, and mental health in the two subgroups. Respondents without U = U reported higher internalized HIV/AIDS stigma and mental health issues but lower perceived homosexual stigma. For this group, perceived HIV/AIDS stigma contributed to the internalization of stigma, with only internalized HIV/AIDS stigma significantly affecting mental health. Among those with U = U, perceived homosexual stigma and internalized HIV/AIDS stigma both negatively impacted mental health. Perceived stigma related to both identities was significantly associated with internalized homosexual stigma. U = U status significantly shapes the identity experiences and mental health of young Chinese MSM with HIV/AIDS. Tailored interventions addressing both HIV/AIDS and MSM-related stigma are needed, with an intersectional approach to reduce stigma and foster supportive environments.

Public Policy Relevance Statement

This study highlights the need for policies to address stigma and mental health risks among men who have sex with men living with HIV. The findings of this study suggest that the notion of “undetectable = untransmittable (U = U)” status may be involved in the reduction of internalized HIV/AIDS stigma and improving mental health. Public health policies and initiatives should prioritize stigma reduction and mental health support for men who have sex with men living with HIV, considering the impact of U = U status on both identity and well-being.

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Yu-Te Huang  <https://orcid.org/0000-0002-6861-8144>

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Correspondence concerning this article should be addressed to Yu-Te Huang, Department of Social Work and Social Administration, The University of Hong Kong, Rm515, Jockey Club Tower, Centennial Campus, Hong Kong, China. Email: yuhuang@hku.hk

Men who have sex with men (MSM) remain disproportionately affected by HIV/AIDS both globally and in China (Liang & Huang, 2023; Ma et al., 2021). Among newly diagnosed cases in China, the proportion of HIV/AIDS infections linked to male–male sexual contact has risen sharply, from nearly zero in 2005 to 25.6% by 2022 (Han, 2023). This dramatic increase highlights the urgent need for targeted prevention and intervention strategies for MSM. Young MSM, in particular, may be

at even greater risk due to a lack of comprehensive sexual health education (Dong et al., 2019; Zou et al., 2018).

This study examines young Chinese MSM living with HIV/AIDS, a group marked by multiple intersecting stigmatized identities and subjected to interlocking social and institutional oppression. The intersectionality framework, originating from Black feminist thoughts, challenges the conventional models that view inequalities as unitary or additive. Instead, it views inequalities as fluid, interconnected, and mutually reinforcing (Crenshaw, 1991; Walby et al., 2012). Applying this lens is crucial for understanding the complex lived experiences of MSM living with HIV/AIDS. As Berger (2010, p. 4) notes, intersectional stigma refers to the “synchronistic influence of various forms of oppression which combine and overlap to form a distinct positionality.” For MSM living with HIV/AIDS, this stigma manifests as a combination of HIV/AIDS-related discrimination and the social rejection associated with same-sex behavior (Rodriguez-Hart et al., 2022).

In China, homosexuality is often viewed through a moral lens, with MSM commonly perceived as leading chaotic or immoral lives (Kong, 2016; Whyke, 2023). This cultural framework, rooted in filial piety and social conformity, contributes to the stigma that MSM, particularly those living with HIV/AIDS, are more likely to engage in risky behaviors and more susceptible to infection of HIV/AIDS and other sexually transmitted diseases. The negative association between MSM and HIV/AIDS reinforces the belief that they are both morally flawed and a public health threat (Sun & Yang, 2024). Additionally, cultural pressure to meet family expectations, such as continuing the paternal line, forces some MSM into performative heterosexual marriages, deepening internalized homonegativity (Choi & Luo, 2016). In this sociocultural context, MSM living with HIV/AIDS in China experience social exclusion and discrimination across health care, employment, and education sectors, exacerbating their marginalization (Yin, 2020; Yu et al., 2021). Research shows that intersectional stigma intensifies negative self-perceptions and restricts social support, leading to heightened psychological distress and worse health outcomes (Friedman et al., 2022; Goodin et al., 2018; Logie et al., 2019).

Several empirical studies have explored the complexities of intersectional stigma and the varied experiences of internalized stigma among people living with HIV/AIDS (PLWHA), including both MSM living with HIV/AIDS (Liang & Huang, 2023) and women living with HIV/AIDS (Rice et al., 2018). While the harmful effects of intersectional stigma are well documented (e.g., Hook et al., 2023; Logie et al., 2019), less is known about how stigma perceptions and internalization evolve as individuals progress through different stages of antiretroviral therapy (ART). Understanding how multiple stigmatized identities interact with the therapeutic process is essential for better addressing the unique challenges faced by MSM living with HIV/AIDS. This study therefore focuses on the intersectional stigma experienced by young Chinese MSM living with HIV/AIDS, specifically exploring its impact on mental health and how this impact may vary across the different stages of ART.

Mental Health Implications of Stigma and Intersectional Stigma

A growing body of evidence highlights the detrimental effects of both perceived and internalized stigma on the mental health of sexual minorities, particularly among those living with HIV/AIDS

(Armoon et al., 2022; Yu et al., 2021). Stigma manifests not only externally through societal discrimination but also internally, as individuals come to perceive, accept, and internalize negative beliefs about themselves. Internalized stigma occurs when a person recognizes the public stigma directed at them and subsequently adopts these negative attitudes, emotions, and behaviors toward themselves (Corrigan & Watson, 2002). Corrigan’s model (Corrigan et al., 2011) further explains how internalized stigma disrupts an individual’s self-schema, leading to self-devaluation and contributing to significant psychological distress.

The minority stress model (Meyer, 2003) explains how internalized stigma adversely impacts an individual’s self-schema, ultimately leading to devaluation of the self and contributing to significant psychological distress. Expanding on this model, Hatzenbuehler’s (2009) psychological mediation framework proposed pathways through which minority stress can lead to cognitive, emotional, and behavioral problems that compromise mental health outcomes. Empirical evidence has consistently demonstrated that internalized stigma is a key mechanism in bridging stigma-related stress and negative mental health outcomes for sexual minorities (Huang, Luo, et al., 2020; Liang & Huang, 2022). This robust relationship between stigma and mental health is evident through both distal mechanisms (e.g., societal discrimination) and proximal mechanisms (e.g., internalized stigma).

While understanding the mental health implications of stigma is crucial, it is equally important to examine the compounded nature of stigma for individuals living with multiple marginalized identities. By integrating the stigma framework with intersectionality—which examines how overlapping social identities generate different forms of privilege and discrimination—intersectional stigma offers insights into the unique experiences of individuals who face multiple forms of oppression (Logie et al., 2011; Turan et al., 2019). Research on intersectional stigma has revealed how these multiple stigmatized identities interplay with structural inequalities to shape the complex experiences of marginalized groups (Sievwright et al., 2022). Intersectional HIV/AIDS stigma research often focuses on how people experience stigma based on the combined impact of their HIV status and other marginalized identities, such as gender, race, or substance use (Jackson-Best & Edwards, 2018; L. R. Smith et al., 2022). Empirical studies have explored intersectional stigma against various groups, including women living with HIV/AIDS (Logie et al., 2019; Rice et al., 2018), HIV-positive people who inject drugs (Hook et al., 2023; Vetrova et al., 2021), and Black youth living with HIV (Chenneville et al., 2023). The present study focused on the intersectional stigma experienced by young Chinese MSM living with HIV/AIDS, characterizing their perceptions and internalization of stigma related to both HIV/AIDS and MSM identities.

To understand how intersectional stigma affects mental health, it is essential to consider the concepts of identity centrality and salience. Researchers have observed that individuals may assign distinct meaning and weight to their various identities, and these identities vary in terms of centrality and salience. Centrality refers to the degree to which an identity is central and important to a person’s self-definition, while salience concerns how frequently an individual thinks about an identity and the cognitive burden associated with thinking about a hidden identity (Quinn & Earnshaw, 2011). For example, an individual might consider their stigmatized identity less central to their self-definition (i.e., low centrality) but

still experience significant cognitive distress due to the frequency of thoughts about that identity (i.e., high salience). This distinction provides insight into how multiple stigmatized identities can differently impact individuals' mental health.

Empirical studies have supported the variability in identity centrality and salience, demonstrating that greater centrality and salience of stigmatized identities are associated with lower levels of mental health (Gerlach et al., 2021; Quinn & Chaudoir, 2015; Quinn et al., 2014). For young Chinese MSM living with HIV/AIDS, understanding how they perceive and internalize their HIV and MSM identities is crucial to characterizing the impact of intersectional stigma on their mental health. A qualitative study conducted in China described various patterns in which Chinese MSM living with HIV/AIDS perceived and responded to their MSM and HIV/AIDS identities, illustrating the complex ways in which identity salience and centrality influence mental health outcomes (Liang & Huang, 2023).

ART Status and Stigma Research

In recent years, the concept of "Undetectable = Untransmittable" (U = U) has emerged as a transformative framework for understanding outcomes. The U = U principle asserts that PLWHA who receive ART and maintain an undetectable viral load—defined as fewer than 200 copies/mL—for at least 6 months cannot sexually transmit the virus to others (Cohen et al., 2016; Eisinger et al., 2019). This concept, supported by robust scientific evidence, has significantly shaped global HIV treatment and prevention strategies (Bavinton et al., 2018; Rodger et al., 2019; Phanuphak et al., 2020). By demonstrating that ART can effectively eliminate transmission risk, U = U encourages PLWHA to seek, initiate, and adhere to ART, thereby improving health outcomes and contributing to the control and eventual end of the HIV/AIDS pandemic (Fauci et al., 2019; P. Smith et al., 2021).

The U = U framework also plays a crucial role in addressing stigma. By reframing HIV from a transmissible and dangerous condition to one that is effectively controlled with treatment, U = U helps to mitigate public fear and reduce rejection of PLWHA (Eisinger et al., 2019; Ford et al., 2022). Studies have shown that PLWHA who are aware of the U = U concept report lower levels of anticipated stigma in both dating and sexual contexts (Rivera et al., 2021). Similarly, members of the public with higher awareness of U = U hold less stigmatizing attitudes toward PLWHA (Coyne et al., 2022). In addition, the awareness of U = U has been linked to improved health-related quality of life among PLWHA (Castro et al., 2019; Okoli et al., 2021). Despite this promise, the relationship between U = U awareness and the complex, intersectional stigma experienced by PLWHA remains underexplored. Specifically, there is a need to understand how achieving U = U status intersects with HIV/AIDS-related stigma and MSM-related stigma, and how these factors collectively influence mental health outcomes.

The Present Study

Despite growing recognition of intersectional stigma, there is no clear consensus on how to best quantitatively measure and analyze it (Bowlleg, 2008; Harari & Lee, 2021). Structural equation model (SEM) is commonly used to explore the effects of intersectional stigma by integrating multiple stigma measures (Karver et al., 2022).

For instance, Logie et al. (2019) used SEM to examine how a latent intersectional stigma construct, combining internalized HIV stigma, racial discrimination, and gender discrimination, affected HIV outcomes such as ART adherence, CD4 (white blood cells that are an essential part of the human immune system), count, and viral load, mediated by factors like social support and depression. Building on this approach, the present study develops stigma constructs for the two stigmatized identities of MSM and HIV/AIDS and examines their interactions within the stigma process. Specifically, it explores how these intersecting identities influence mental health outcomes among young Chinese MSM living with HIV/AIDS, with a focus on how achieving undetectable status affects perceived and internalized stigma through the U = U framework.

The specific objectives of this study are to (a) compare levels of perceived stigma, internalized stigma, and mental health among young Chinese MSM living with HIV/AIDS, distinguishing between those who have achieved U = U status and those who have not; (b) examine the associations between perceived stigma, internalized stigma, and mental health indicators—including depression and anxiety; and (c) conduct a subgroup analysis to assess the differential impact of intersectional stigma based on U = U status. By addressing these objectives, the study aims to provide a comprehensive understanding of how intersectional stigma affects the mental health of young Chinese MSM, particularly within the context of U = U.

The following research hypotheses were developed based on the study's objectives:

Hypothesis 1: There will be significant differences in the levels of perceived stigma, internalized stigma, and mental health outcomes (i.e., depression and anxiety) between young Chinese MSM living with HIV/AIDS who have achieved U = U status and those who have not.

Hypothesis 2: Higher levels of perceived stigma will lead to increased internalized stigma. These two types of stigma—related to both HIV/AIDS identity and MSM identity—will intersect and be associated with adverse mental health outcomes.

Hypothesis 3: The impact of intersectional stigma on mental health outcomes will differ between those who have achieved U = U status and those who have not, with the U = U subgroup experiencing distinct effects of stigma on mental health outcomes.

Method

Sampling and Procedures

Data for this study were collected from MSM living with HIV/AIDS in China, aged 18-30. Respondents were recruited using a purposeful sampling method through HIV/AIDS-related WeChat Official Accounts, such as "China's CDC" and "UNAIDS2030," between July 26 and September 30, 2020. This recruitment strategy has been demonstrated to be both effective and appropriate for social surveys in China (Ma et al., 2021; Zhou & Guo, 2021). Eligible respondents were: (a) aged between 18 and 30 years; (b) self-identified as homosexual, bisexual, or otherwise nonheterosexual male; (c) living with HIV/AIDS; and (d) residents of China. Potential respondents who visited the link shown in the advertisement were directed to an online survey platform to read about the

study and provide written consent. To ensure data quality, several checks were implemented to identify and exclude bots, repetitive respondents, and fraudulent responses. These included screening for duplicate IP addresses, unusually fast survey completion times, inconsistent responses to key items, and verification through attention check questions. Any responses that failed these checks were removed from the final data set. An honorarium valued at RMB ¥20 was provided. A total of 1,353 individuals participated in the survey. After excluding 168 responses that did not meet the inclusion criteria, the final sample consisted of 1,185 respondents. Respondents' sociodemographic characteristics are detailed in Table 1.

Measures

HIV Suppression Status. Respondents were provided with the definition of U = U, which refers to receiving ART and maintaining an undetectable viral load (below 200 copies/mL) for at least 6 months. They were then asked to report their current ART status. Respondents who met the U = U criteria were classified as “achieving U = U,” while those who did not were categorized as “not achieving U = U.”

Perceived Homosexual Stigma. Respondents' perceptions of public homosexual stigma were measured by the 10-item Public Homosexual Stigma subscale of the HIV and Homosexuality Related Stigma Scales Chinese Version (H. Liu et al., 2009). Sample questions include “many people unwillingly accept gay individuals,” “gay individuals are not welcome in public gatherings, for example, party, night club or meeting,” and “many families would be disappointed to have a gay son.” Responses are measured on a 4-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*). A higher sum score indicates a stronger perception of public homosexual stigma. In this study, Cronbach's α of this subscale was .87.

Perceived HIV/AIDS Stigma. The seven-item Public HIV Stigma subscale from the HIV and Homosexuality Related Stigma Scales Chinese Version was used to measure respondents' perception of public HIV/AIDS stigma (H. Liu et al., 2009). Sample questions are “HIV infected people should be ostracized by their spouse and family members” and “HIV infected people's family would not care for them.” Respondents indicate their agreement with these items on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). A higher sum score represents a heightened perception of public HIV stigma. In this study, Cronbach's α of this subscale was .88.

Internalized Homosexual Stigma. The subscale of internalized heteronormativity of the Chinese Internalized Homophobia Scale (Ren & Hood, 2018) was used to assess respondents' internalized homosexual stigma. This subscale contains three items to assess respondents' attitudes toward their own nonheterosexual identity. The statements include “If possible, I would prefer to be a heterosexual,” “If I were a heterosexual, I would be happier,” and “Although there are some ways to change my sexual orientation, I am reluctant to try.” The final item was reverse-coded for analysis. Responses are rated on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). In the original study, the Cronbach's α

of this subscale was .72 and .69 in the present study. The scale's reliability was also demonstrated as marginal in Huang, Chan, and Cui's study (Cronbach's α = .64; Huang, Chan, & Cui, 2020).

Internalized HIV/AIDS Stigma. The Internalized AIDS-Related Stigma Scale (Kalichman et al., 2009) was used to assess respondents' internalized beliefs about their HIV/AIDS status. The scale was translated into Chinese by the first author and reviewed by the second author, both of whom are proficient in English and Mandarin. The scale has been applied to measure the internalized HIV/AIDS stigma of PLWHA in China (Liang & Huang, 2022). The six items (e.g., “it is difficult to tell people about HIV infection”) are rated on a 4-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*). A higher sum score indicates a higher level of internalized HIV/AIDS stigma. In this study, Cronbach's α of this subscale was .83.

Depression. The respondents' level of depression was assessed by the Chinese version of the Patient Health Questionnaire with nine items (Wang et al., 2014). Respondents were asked to answer a series of items regarding depression-related feelings they had experienced over the preceding 2 weeks on a 4-point scale ranging from 0 (*not at all sure*) to 3 (*nearly every day*). Cronbach's α of this scale was .91 in this study. The Patient Health Questionnaire with nine items has a sensitivity of 86% and a specificity of 86% for the diagnosis of depression at the cutoff score of 7 (Wu et al., 2018).

Anxiety. The Chinese version of the Generalized Anxiety Disorder seven-item scale (Tong et al., 2016) was used in this study to measure the level of respondents' anxiety symptoms over the past 2 weeks. Responses were made on a 4-point scale ranging from 0 (*not at all sure*) to 3 (*nearly every day*). In this study, the scale showed high internal reliability (Cronbach's α = .95). A cutoff score of 8 or above indicates a potential presence of generalized anxiety disorder. The Generalized Anxiety Disorder seven-item scale has a sensitivity of 94% and a specificity of 91.4% for the diagnosis of generalized anxiety disorder using the cutoff point of 6 (Tong et al., 2016).

Data Analyses

Descriptive statistics were used to characterize the demographics and key variables for the full sample, as well as for each group stratified by HIV suppression status. Chi-squared tests and independent-sample *t* tests were conducted to examine differences between groups based on HIV suppression status. Bivariate analyses, including independent *t* tests or analysis of variance, were further conducted to assess sociodemographic differences within key variables across the two subsamples (i.e., undetectable and not undetectable). Additionally, Pearson's correlation coefficients were calculated to examine the associations between study variables within each subsample.

After adjusting for sociodemographic variables, we employed an SEM to explore the relationships between perceived stigma, internalized stigma related to both homosexual and HIV/AIDS identities, and mental health outcomes in two subsamples. First, we tested the measurement model using confirmatory factor analysis to evaluate how well the items represented the latent constructs. Next, the structural model was estimated to examine the relationships

Table 1
Respondents' Sociodemographics

Variable	Analytical sample (n = 1,185)		Subsample not achieving U = U (n = 504)		Subsample achieving U = U (n = 681)		Group difference χ^2/t -value
	M (SD)/n (%)	M (SD)/n (%)	M (SD)/n (%)	M (SD)/n (%)			
Age (18–30 years)	25.56 (3.19)	24.21 (0.15)	26.56 (0.10)		-13.44*** 2.82		
Sexual orientation							
Gay	205 (17.30%)	406 (41.43%)	574 (58.57%)				
Bisexual	980 (82.70%)	98 (47.80%)	107 (52.20%)		0.98		
Educational level							
Secondary or below	253 (21.35%)	103 (40.71%)	150 (59.29%)				
Postsecondary	819 (69.11%)	356 (43.47%)	463 (56.53%)				
Bachelor's degree or above	113 (9.54%)	45 (39.82%)	68 (60.18%)				
Employment status							
Not in employment/study	188 (15.86%)	78 (41.49%)	110 (58.51%)				
Full-/part-time employment	797 (67.26%)	290 (36.39%)	507 (63.61%)				
Full-/part-time study	200 (16.88%)	136 (68.00%)	64 (32.00%)				
Length of HIV infection diagnosis							
0–1 year	446 (37.64%)	444 (99.55%)	2 (0.45%)				
2–5 years	581 (49.03%)	53 (9.12%)	528 (90.88%)				
More than 5 years	158 (13.33%)	7 (4.43%)	151 (95.57%)				
Perceived stigma							
Perceived homosexual stigma (1–4)	2.73 (0.54)	2.67 (0.02)	2.77 (0.02)		-3.20**		
Perceived HIV/AIDS stigma (1–4)	2.52 (0.68)	2.50 (0.03)	2.53 (0.03)		-0.74		
Internalized stigma							
Internalized homosexual stigma (1–4)	2.56 (0.75)	2.58 (0.03)	2.54 (0.03)		0.91		
Internalized HIV/AIDS stigma (1–4)	2.92 (0.67)	3.00 (0.03)	2.86 (0.03)		3.55***		
Mental health							
Depression (0–27)	10.43 (6.56)	10.95 (0.30)	10.05 (0.24)		2.35*		
Anxiety (0–21)	7.85 (5.69)	8.46 (0.27)	7.39 (0.21)		3.20**		

Note. U = U = undetectable = untransmittable.
* $p < .05$. ** $p < .01$. *** $p < .001$.

between these latent constructs. Model fit was assessed using several indices, including chi-squared statistics, the comparative fit index (CFI), the Tucker–Lewis index (TLI), the root-mean-square error of approximation (RMSEA), and the root-mean-squared residual (SRMR; Hu & Bentler, 1999). Acceptable model fit was indicated by CFI and TLI values of 0.90 or higher and RMSEA and SRMR values of 0.06 or lower (Kline, 2016). To estimate the indirect effects of perceived stigma on mental health, we conducted a bootstrap analysis with 1,000 samples, calculating 95% biased-corrected confidence intervals (CIs). An effect was considered significant at the 0.05 level if the 95% CI did not include zero (Preacher & Hayes, 2008).

We also conducted a multigroup SEM analysis to examine measurement invariance and compare structural pathways between the “not achieving $U = U$ /not undetectable” group and the “achieving $U = U$ /undetectable” group. Three models were tested: (1) an unconstrained model (M1), (2) a model with factor loadings constrained to be equal across groups (M2), and (3) a model with both factor loadings and structural paths constrained to be equivalent across groups (M3). To assess the significance of the differences between these models, we performed a chi-squared difference test. This test compared the fit of the nested models, determining whether the imposition of additional constraints (factor loadings and/or structural paths) significantly undermined the model fit. A significant chi-squared difference ($p < .05$) indicated that the parameters under consideration were not invariant across groups, meaning that the associations between variables vary by $U = U$ status.

Results

Sociodemographics of Respondents and Correlation of Variables

As Table 1 shows, significant differences were observed in age, employment status, and length of HIV infection diagnosis between two subsamples. Those who had not yet reached $U = U$ were relatively younger students and within a year of being diagnosed with HIV. Respondents who had achieved $U = U$ also reported a significantly higher level of perceived homosexual stigma but lower levels of internalized HIV/AIDS stigma, depression, and anxiety. Hypothesis 1 was partly supported.

Table 2 presents demographic differences in key variables between the “undetectable” and “not undetectable” subsamples. In both groups, age was negatively correlated with anxiety symptoms. However, for the “not undetectable” group, age was positively correlated with internalized homosexual stigma. Bisexual individuals reported higher levels of internalized homosexual stigma than gay individuals. Those with secondary education or lower, and who were neither employed nor in school, had the highest levels of mental health problems. Among those who achieved $U = U$, individuals with secondary education or below had the lowest levels of perceived homosexual stigma and internalized HIV/AIDS stigma. Furthermore, among those diagnosed with HIV for less than 1 year who had achieved $U = U$, internalized homosexual and HIV/AIDS stigma were lower compared to those diagnosed for over a year.

Table 3 presents the correlation coefficients among the study variables. In both subsamples, those who reported greater perceived

stigmas also reported greater internalized stigmas, depression, and anxiety. Respondents’ internalized stigmas were also positively associated with depression and anxiety in the two subsamples.

The Structural Equation Model

The measurement model showed a good model fit to the data in both the subsample without achieving $U = U$, $\chi^2(797) = 1747.41$, $p < .001$, CFI = 0.93, TLI = 0.92, RMSEA = 0.05, SRMR = 0.05, and the subsample achieving $U = U$, $\chi^2(797) = 2267.72$, $p < .001$, CFI = 0.91, TLI = 0.90, RMSEA = 0.05, SRMR = 0.05. All standardized factor loadings of the measured variables were statistically significant in both subsamples ($p < .001$), suggesting that all latent constructs were adequately measured by their respective items. Upon confirmation of the latent factor structure, the structural model was performed to examine the hypothesized relationships of the proposed model. The results showed that the hypothesized model fit the data well in the subsample without achieving $U = U$, $\chi^2(1101) = 2098.06$, $p < .001$, CFI = 0.92, TLI = 0.92, RMSEA = 0.04, SRMR = 0.05, and the subsample achieving $U = U$, $\chi^2(1101) = 2699.59$, $p < .001$, CFI = 0.90, TLI = 0.90, RMSEA = 0.05, SRMR = 0.05.

Figure 1 shows the standardized path coefficients for the hypothesized model in the subsample without achieving $U = U$. Perceived HIV/AIDS stigma was positively related to both internalized homosexual stigma ($\beta = 0.19$, $p < .01$) and internalized HIV/AIDS stigma ($\beta = 0.51$, $p < .001$). Internalized HIV/AIDS stigma was associated with higher levels of depression ($\beta = 0.35$, $p < .001$) and anxiety ($\beta = 0.33$, $p < .001$). Figure 2 presents the standardized path coefficients for the hypothesized model in the subsample achieving $U = U$. Similarly, perceived HIV/AIDS stigma was positively linked to both internalized homosexual stigma ($\beta = 0.23$, $p < .01$) and internalized HIV/AIDS stigma ($\beta = 0.53$, $p < .001$). Internalized HIV/AIDS stigma was also positively related to depression ($\beta = 0.46$, $p < .001$) and anxiety ($\beta = 0.34$, $p < .01$). Moreover, perceived homosexual stigma was associated with higher levels of internalized homosexual stigma ($\beta = 0.15$, $p < .05$), depression ($\beta = 0.26$, $p < .001$), and anxiety ($\beta = 0.26$, $p < .001$). Table 4 presents the unstandardized and standardized path coefficients for the hypothesized model in the two subsamples.

Bootstrapping analysis indicated that for both subsamples, perceived HIV/AIDS stigma had significantly positive indirect effects on depression (subsample without achieving $U = U$, $\beta = 0.24$, 95% CI [0.11, 0.45]; subsample achieving $U = U$, $\beta = 0.30$, 95% CI [0.16, 0.55]) and anxiety (subsample without achieving $U = U$, $\beta = 0.25$, 95% CI [0.11, 0.45]; subsample achieving $U = U$, $\beta = 0.23$, 95% CI [0.10, 0.44]) through internalized HIV/AIDS stigma. In contrast, the paths from perceived homosexual stigma to internalized homosexual stigma, depression, and anxiety were significant only in the subsample without achieving $U = U$. Hypotheses 2 and 3 were partly supported.

The results of the multigroup SEM analysis indicated no significant difference between the two groups. Specifically, the chi-squared difference test between M1 and M2 was not statistically significant ($\Delta\chi^2 = 39.42$; $\Delta df = 36$; $p = .320$), suggesting that factor loadings were invariant across groups. Building on this measurement invariance, structural path differences were assessed by comparing M2 and M3. The chi-squared difference test between M2 and M3 also showed no significant difference ($\Delta\chi^2 = 33.61$;

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Table 2
Sociodemographic Differences Within Key Variables (Subsample Not Achieving U = U/Subsample Achieving U = U)

Variable	Perceived homosexual stigma		Perceived HIV/AIDS stigma		Internalized homosexual stigma		Internalized HIV/AIDS stigma		Depression		Anxiety	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Age (18–30 years)	<i>r</i> = 0.01/ <i>r</i> = -0.01		<i>r</i> = -0.03/ <i>r</i> = 0.02		<i>r</i> = 0.11 */ <i>r</i> = -0.01		<i>r</i> = -0.05/ <i>r</i> = -0.04		<i>r</i> = -0.06/ <i>r</i> = -0.09*		<i>r</i> = -0.12**/ <i>r</i> = -0.11**	
Sexual orientation	2.67 (0.52)/2.76 (0.55)		2.50 (0.69)/2.54 (0.69)		2.50 (0.78)/2.50 (0.73)		3.06 (0.65)/2.86 (0.69)		10.99 (6.98)/10.04 (6.41)		8.53 (6.13)/7.45 (5.44)	
Gay	2.67 (0.56)/2.84 (0.52)		2.51 (0.70)/2.48 (0.59)		2.92 (0.65)/2.78 (0.70)		2.99 (0.63)/2.90 (0.68)		10.80 (6.19)/10.09 (5.92)		8.14 (5.565)/7.10 (5.14)	
Bisexual	<i>t</i> = -0.15/ <i>t</i> = 1.45		<i>t</i> = 0.12/ <i>t</i> = -0.88		<i>t</i> = 4.91 ***/ <i>t</i> = 3.62***		<i>t</i> = 0.98/ <i>t</i> = 0.56		<i>t</i> = -0.26/ <i>t</i> = 0.08		<i>t</i> = -0.58/ <i>t</i> = -0.60	
Differences												
Educational level	2.66 (0.57)/2.65 (0.64)		2.49 (0.70)/2.46 (0.67)		2.58 (0.76)/2.52 (0.67)		2.94 (0.64)/2.73 (0.77)		12.11 (6.96)/10.74 (6.83)		9.06 (5.89)/7.74 (6.10)	
Secondary or below	2.66 (0.51)/2.80 (0.52)		2.48 (0.68)/2.54 (0.68)		2.59 (0.78)/2.54 (0.74)		3.03 (0.64)/2.91 (0.66)		10.99 (6.78)/10.21 (6.23)		8.54 (6.03)/7.56 (5.20)	
Postsecondary	2.76 (2.54)/2.89 (0.50)		2.65 (0.77)/2.57 (0.64)		2.58 (0.82)/2.58 (0.79)		2.94 (0.75)/2.85 (0.66)		8.00 (6.19)/7.43 (5.26)		6.47 (6.02)/5.49 (4.65)	
Bachelor's degree or above	<i>F</i> = 0.61/ <i>F</i> = 6.17 **		<i>F</i> = 1.21/ <i>F</i> = 1.11		<i>F</i> = 0.00/ <i>F</i> = 0.17		<i>F</i> = 0.98/ <i>F</i> = 4.15 *		<i>F</i> = 5.79 **/ <i>F</i> = 6.99 ***		<i>F</i> = 3.03 */ <i>F</i> = 4.85 **	
Differences												
Employment status	2.71 (0.54)/2.81 (0.57)		2.61 (0.69)/2.62 (0.72)		2.56 (0.72)/2.48 (0.74)		2.98 (0.60)/2.89 (0.69)		14.41 (7.99)/12.68 (7.54)		11.06 (6.88)/9.35 (6.55)	
Not in employment/study	2.65 (0.53)/2.76 (0.55)		2.46 (0.70)/2.52 (0.66)		2.62 (0.80)/2.55 (0.72)		2.97 (0.66)/2.86 (0.69)		10.09 (6.32)/9.54 (5.92)		7.49 (5.56)/6.99 (5.04)	
Full-/part-time employment	2.71 (0.51)/2.82 (0.47)		2.51 (0.68)/2.47 (0.70)		2.52 (0.71)/2.57 (0.77)		3.10 (0.64)/2.89 (0.69)		10.82 (6.59)/9.55 (6.22)		9.04 (5.97)/7.19 (5.18)	
Full-/part-time study	<i>F</i> = 0.80/ <i>F</i> = 0.63		<i>F</i> = 1.42/ <i>F</i> = 1.40		<i>F</i> = 0.72/ <i>F</i> = 0.45		<i>F</i> = 2.10/ <i>F</i> = 0.17		<i>F</i> = 12.93 ***/ <i>F</i> = 11.69 ***		<i>F</i> = 12.23 ***/ <i>F</i> = 8.94 ***	
Differences												
Length of HIV infection diagnosis	2.67 (0.53)/2.50 (0.14)		2.51 (0.69)/1.79 (0.30)		2.60 (0.77)/2.17 (0.24)		3.01 (0.65)/2.33 (0.94)		11.10 (6.81)/3.50 (3.54)		8.67 (6.04)/5.00 (2.83)	
0–1 year	2.69 (0.48)/2.79 (0.54)		2.44 (0.70)/2.52 (0.67)		2.51 (0.84)/2.59 (0.72)		2.98 (0.59)/2.90 (0.68)		10.09 (6.95)/10.17 (6.36)		6.91 (5.59)/7.48 (5.37)	
2–5 years	2.70 (0.50)/2.72 (0.57)		2.27 (0.76)/2.58 (0.70)		2.29 (0.73)/2.38 (0.74)		2.71 (0.57)/2.75 (0.71)		8.00 (6.95)/9.70 (6.25)		6.86 (6.79)/7.10 (5.48)	
More than 5 years	<i>F</i> = 0.06/ <i>F</i> = 1.15		<i>F</i> = 0.67/ <i>F</i> = 1.81		<i>F</i> = 0.83/ <i>F</i> = 5.33 **		<i>F</i> = 0.78/ <i>F</i> = 3.17 *		<i>F</i> = 1.18/ <i>F</i> = 1.40		<i>F</i> = 2.29/ <i>F</i> = 0.50	
Differences												

Note. Bold formatting is used to highlight key results and significant findings. U = U = undetectable = untransmittable. * *p* < .05. ** *p* < .01. *** *p* < .001.

Table 3*Intercorrelations of the Key Variables (Subsample Not Achieving U = U/Subsample Achieving U = U)*

Variable	1	2	3	4	5	6
1. Perceived homosexual stigma	—					
2. Perceived HIV/AIDS stigma	.49***/.53***	—				
3. Internalized homosexual stigma	.18***/.20***	.19***/.18***	—			
4. Internalized HIV/AIDS stigma	.30***/.34***	.42***/.41***	.28***/.39***	—		
5. Depression	.24***/.31***	.35***/.25***	.16***/.20***	.37***/.39***	—	
6. Anxiety	.25***/.31***	.33***/.25***	.16***/.19***	.35***/.34***	.85***/.83***	—
α	.87	.88	.69	.83	.91	.95

Note. α = Cronbach's α . U = U = undetectable = untransmittable.

*** $p < .001$.

$\Delta df = 44$; $p = .872$), indicating that there were no significant differences in the structural paths across groups.

Discussion

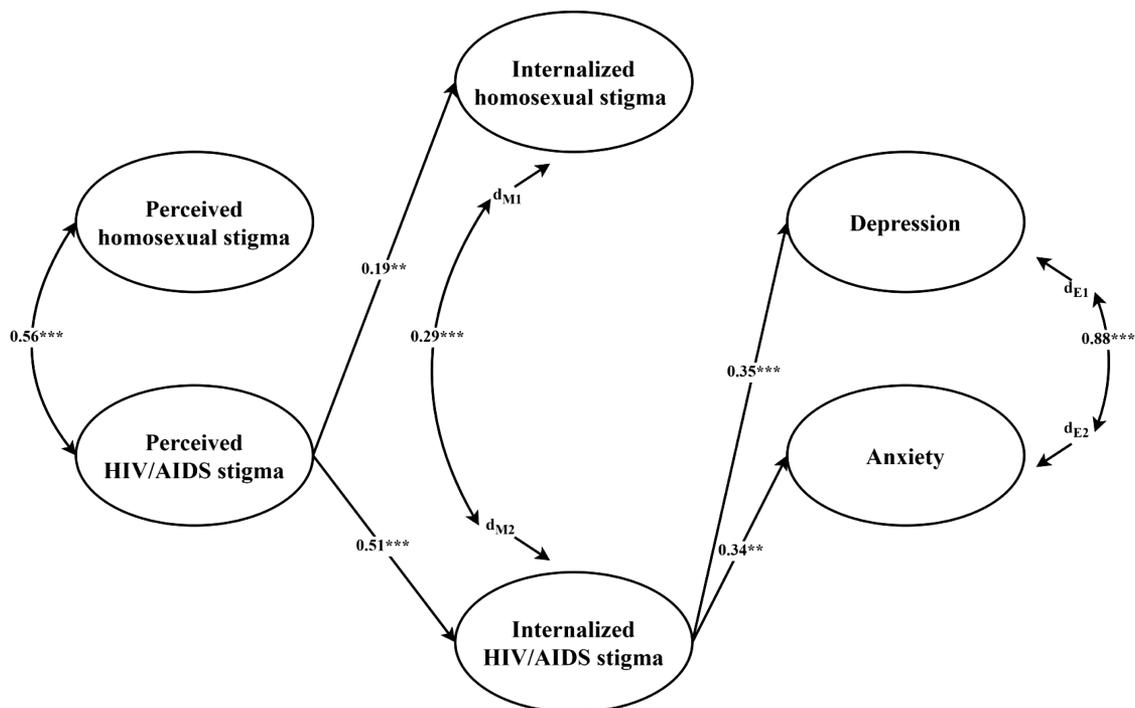
The present study is among a limited number of investigations to examine the relationships between U = U status, HIV/AIDS-related stigma, and mental health among PLWHA (Okoli et al., 2021; Rivera et al., 2021). Our findings indicate that respondents who had not yet achieved U = U status were more likely to be younger, recently diagnosed (within the past year), and still in school. This may reflect the relatively short duration of their diagnosis and the

psychosocial complexities of their young age. Notably, adherence to ART remains a critical concern for this group. Previous studies have shown that adolescents and young adults living with HIV/AIDS are at the highest risk for nonadherence and related health complications due to a range of psychosocial challenges, such as stigma and discrimination (Enane et al., 2018; Pantelic et al., 2020). This highlights the importance of targeted interventions designed to improve engagement with HIV care and ART adherence among young PLWHA (Casale et al., 2019; Okonji et al., 2020).

Sociodemographic differences within key variables in two subgroups reveal several noteworthy findings. Among young men living with HIV/AIDS (ages 18–30), anxiety was lower with

Figure 1

Model for Perceived Stigma, Internalized Stigma, and Mental Health of Young Chinese MSM Living With HIV/AIDS Who Have Not yet Achieved U = U

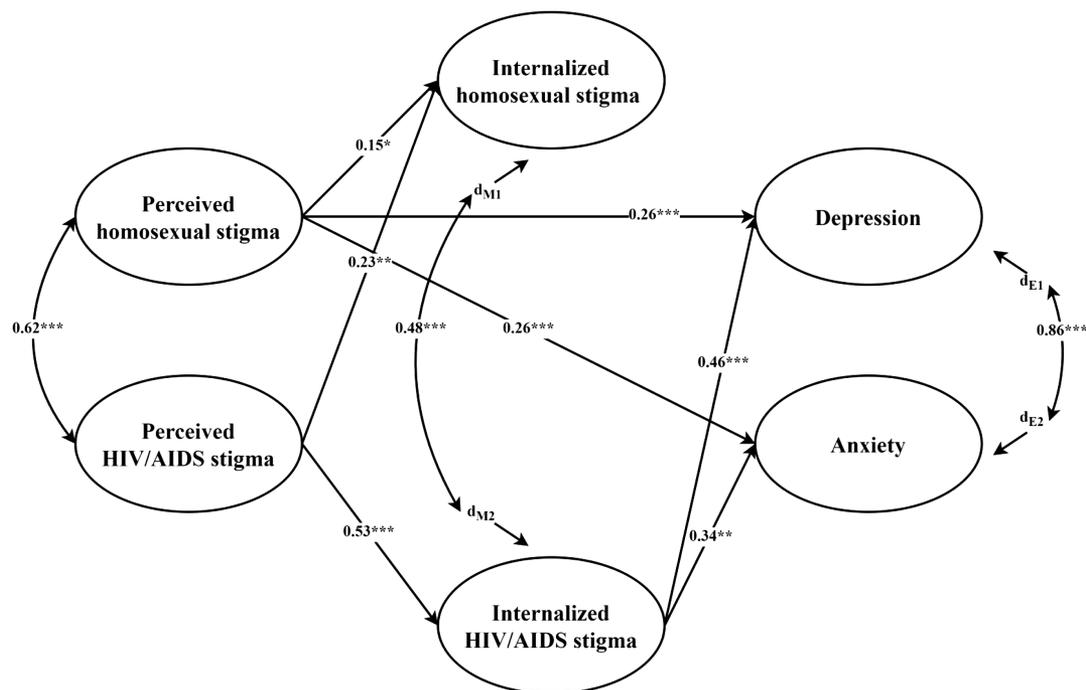


Note. Controlling for age, sexual orientation, educational level, employment status, and length of HIV infection diagnosis. MSM = men who have sex with men; U = U = undetectable = untransmittable.

** $p < .01$. *** $p < .001$.

Figure 2

Model for Perceived Stigma, Internalized Stigma, and Mental Health of Young Chinese MSM Living With HIV/AIDS Who Have Achieved $U = U$



Note. Controlling for age, sexual orientation, educational level, employment status, and length of HIV infection diagnosis.

MSM = men who have sex with men; $U = U$ = undetectable = untransmittable.

* $p < .05$. ** $p < .01$. *** $p < .001$.

increasing age, likely due to greater social resources that help them manage HIV/AIDS-related stress and maintain stable mental health (SoleimanvandiAzar et al., 2021). However, older individuals who did not achieve $U = U$ status reported higher levels of internalized homophobia, which may be more influenced by traditional Chinese cultural values, such as filial piety, and negative attitudes toward same-sex behavior (e.g., filial piety) and showed a negative attitude toward same-sex sexual behavior (Lin, 2023). Consistent with previous studies, bisexual individuals exhibited higher levels of internalized homosexual stigma than their gay peers (Paine et al., 2021). Additionally, the study revealed a dual effect of education that warrants further investigation. Individuals with lower educational attainment were less susceptible to stigma (e.g., F. Liu et al., 2021), while they also experienced more severe mental health problems.

The study's findings highlight the intersectionality of stigma, showing how the dual stigma of HIV/AIDS and sexual minority status overlap to shape both external perceptions and internalized feelings. This aligns with previous research indicating that MSM living with HIV/AIDS often link their HIV status to their sexual orientation, resulting in heightened internalized stigma about their homosexuality (Liang & Huang, 2022; Mak et al., 2007). In the Chinese cultural context, where traditional values emphasize family honor and social conformity, this intersectional stigma is amplified. MSM may view their HIV/AIDS status as inseparable from their

sexual minority identity, reinforcing feelings of shame and distress about their sexuality. This can lead to the internalization of negative attitudes toward homosexuality, making it even more difficult for MSM to accept their sexual identity. The societal pressure to conform to heteronormative ideals further exacerbates this internalized stigma, creating a vicious cycle of shame and rejection.

Our study sheds new light on the significance of achieving $U = U$ status for reducing HIV/AIDS stigma and its mental health implications. Consistent with previous studies (Ahmed et al., 2021; Castro et al., 2019; Rivera et al., 2021), we found that respondents who had achieved $U = U$ status reported significantly lower levels of anxiety, depressive symptoms, and internalized HIV/AIDS stigma compared to those who had not. However, this subgroup reported higher levels of perceived homosexual stigma than their counterparts who had not achieved $U = U$. This intriguing finding suggests two potential scenarios. First, after achieving $U = U$ status, MSM living with HIV/AIDS may become more sensitive to stigma related to their MSM identity, possibly because the removal of HIV/AIDS-related stigma as a dominant stressor allows greater awareness of other forms of stigma. Past research has shown that MSM living with HIV/AIDS often perceive a causal link between their sexual orientation and HIV infection, leading to greater internalized stigma about their MSM identity (Liang & Huang, 2023). Meanwhile, MSM who have not achieved $U = U$ may be more preoccupied with the stigma related to their HIV status, as the frequent medical visits

Table 4*Path Model Parameter Estimates Among Young Chinese MSM Living With HIV/AIDS*

Parameter estimate	Subsample not achieving U = U (n = 504)		Subsample achieving U = U (n = 681)	
	B (SE)	β	B (SE)	β
Direct effects				
Perceived homosexual stigma → Internalized homosexual stigma	0.20 (0.12)	0.13	0.25* (0.12)	0.15*
Perceived homosexual stigma → Internalized HIV/AIDS stigma	0.02 (0.05)	0.04	0.05 (0.06)	0.07
Perceived homosexual stigma → Depression	0.12 (0.09)	0.09	0.36*** (0.09)	0.26***
Perceived homosexual stigma → Anxiety	0.14 (0.10)	0.09	0.38*** (0.10)	0.26***
Perceived HIV/AIDS stigma → Internalized homosexual stigma	0.29** (0.11)	0.19**	0.34** (0.11)	0.23**
Perceived HIV/AIDS stigma → Internalized HIV/AIDS stigma	0.33*** (0.09)	0.51***	0.37*** (0.07)	0.53***
Perceived HIV/AIDS stigma → Depression	0.18 (0.11)	0.13	-0.19 (0.12)	-0.16
Perceived HIV/AIDS stigma → Anxiety	0.15 (0.12)	0.10	-0.12 (0.11)	-0.09
Internalized homosexual stigma → Depression	0.01 (0.06)	0.01	0.02 (0.07)	0.03
Internalized homosexual stigma → Anxiety	0.01 (0.06)	0.01	0.04 (0.06)	0.04
Internalized HIV/AIDS stigma → Depression	0.73*** (0.19)	0.35***	0.81*** (0.23)	0.46***
Internalized HIV/AIDS stigma → Anxiety	0.75*** (0.21)	0.33***	0.63** (0.22)	0.34**
Perceived homosexual stigma ↔ Perceived HIV/AIDS stigma	0.17*** (0.02)	0.56***	0.17*** (0.02)	0.62***
Internalized homosexual stigma ↔ Internalized HIV/AIDS stigma	0.07*** (0.02)	0.29***	0.11*** (0.02)	0.48***
Depression ↔ Anxiety	0.39*** (0.03)	0.88***	0.29*** (0.03)	0.86***
Indirect effects				
Perceived homosexual stigma → Internalized homosexual stigma → Depression	0.001	[-0.03, 0.03]	0.01	[-0.04, 0.04]
Perceived homosexual stigma → Internalized HIV/AIDS stigma → Depression	0.02	[-0.06, 0.11]	0.04	[-0.06, 0.16]
Perceived homosexual stigma → Internalized homosexual stigma → Anxiety	0.003	[-0.03, 0.03]	0.01	[-0.03, 0.05]
Perceived homosexual stigma → Internalized HIV/AIDS stigma → Anxiety	0.02	[-0.06, 0.10]	0.03	[-0.04, 0.13]
Perceived HIV/AIDS stigma → Internalized homosexual stigma → Depression	0.002	[-0.04, 0.04]	0.01	[-0.05, 0.05]
Perceived HIV/AIDS stigma → Internalized HIV/AIDS stigma → Depression	0.24**	[0.11, 0.45]	0.30**	[0.16, 0.55]
Perceived HIV/AIDS stigma → Internalized homosexual stigma → Anxiety	0.004	[-0.03, 0.04]	0.01	[-0.03, 0.06]
Perceived HIV/AIDS stigma → Internalized HIV/AIDS stigma → Anxiety	0.25**	[0.11, 0.45]	0.23**	[0.10, 0.44]

Note. B = unstandardized coefficient; β = standardized coefficient; SE = standard error; MSM = men who have sex with men; U = U = undetectable = untransmittable; CI = confidence interval.

* $p < .05$. ** $p < .01$. *** $p < .001$.

and psychoeducation related to ART provide them with a framework for understanding their HIV/AIDS status, rather than associating it exclusively with their MSM identity.

Another striking difference between the subsamples lies in the level and impact of internalized HIV/AIDS stigma. Specifically, the mental health of MSM living with HIV/AIDS who had not yet achieved U = U status was strongly compromised by their internalization of HIV/AIDS stigma. This internalized stigma mediated the relationships between perceived HIV/AIDS stigma and both depression and anxiety. Previous research has highlighted that different stigmatized identities can vary in their centrality and salience (Quinn & Earnshaw, 2011). In line with this, the respondents in our study, stratified by U = U status, reported distinct attachment to and experiences with their MSM and HIV/AIDS identities. Those newly diagnosed with HIV/AIDS who had not yet achieved U = U were still adjusting to their new status (Courtenay-Quirk et al., 2010; Wu et al., 2018). In this vein, this subgroup of

MSM living with HIV/AIDS, on the one hand, were seeking to navigate the meaning and consequence of an HIV/AIDS identity; on the other hand, they might feel that the HIV/AIDS identity took over their thoughts and became a prominent issue in their lives. In this case, the HIV/AIDS status occupied a central and prominent place in their self-identification and significantly impacted their mental health. As a result, the effects of intersectional stigma may not take hold at this stage because having HIV in the body and becoming an HIV-infected person is currently the scariest scenario. The sheer salience of the HIV/AIDS identity rendered respondents susceptible to the prejudice and discrimination related to HIV/AIDS and internalizing the stigma, thereby further undermining their mental health.

Among those who had achieved U = U, our data suggest different profiles of stigma perception and internalization. For this group, perceived homosexual stigma was not only higher than in their counterparts but also contributed significantly to internalized

homosexual stigma, depression, and anxiety. Viewed through Meyer's (2003) minority stress model, the mental health of those who had achieved U = U was mainly influenced by the proximal stressor of their HIV/AIDS identity (i.e., internalized HIV/AIDS stigma) and the distal stressor of their MSM identity (i.e., perceived homosexual stigma). In other words, even when MSM living with HIV/AIDS achieved U = U and maintained relatively stable health, MSM identity and HIV/AIDS identity became equally important and salient to them, and thus they were susceptible to the concurrent stigma related to their dual stigmatized identities. As previous studies had indicated (H. Liu et al., 2009), homosexual stigma usually encompasses the misconception that all MSM will contract HIV and die of AIDS. This result indicated that when the viral load of MSM living with HIV/AIDS had been durably suppressed, they were otherwise introduced to the pervasive framework of intersectional stigma surrounding the causal link between MSM and HIV/AIDS infection, thereby falling into the self-degradation risk of being both HIV-positive and MSM. Nevertheless, this speculation warrants further investigation.

Theoretical Implications

The present study provides several theoretical contributions. First, we extended Corrigan et al.'s (2011) progressive model of internalized stigma to those living with multiple stigmatized identities. The significant relationship between perceived HIV/AIDS stigma and internalized homosexual stigma demonstrates that the progression from stigma perception to internalization can occur across different stigmatized identities. Second, this study expanded Meyer's (2003) minority stress model and Hatzenbuehler's (2009) psychological mediation framework by illuminating the presence and operation of intersectional stigma related to MSM identity and HIV/AIDS identity. While our initial hypothesis posited that perceived and internalized stigma across the two identities would intertwine to affect mental health, our findings revealed that internalized HIV/AIDS stigma specifically mediated the relationship between perceived HIV/AIDS stigma and mental health, emphasizing the unique role of HIV/AIDS-related stigma. Third, while a growing body of research has focused on intersectional HIV/AIDS stigma, this line of research tends to treat different stigmas as equally important and examines their intersection, thereby ignoring the differences between them and the possibility of variation. The application of the concepts of centrality and salience in this study allowed us to better understand how MSM living with HIV/AIDS respond differently to the stigma associated with their MSM and HIV/AIDS identities. Our findings revealed differential centrality and salience of the dual stigmatized identities between the subsamples achieving and not achieving U = U status.

Implications for Practice

The findings of this study have several important implications for behavioral health practitioners, program developers, organizational leaders, and policymakers. One of the key contributions of this study is the understanding of how MSM living with HIV/AIDS experience the centrality and salience of their stigmatized identities differently based on their U = U status. The study found that individuals who have not yet achieved U = U status often experience their HIV/AIDS identity as central and prominent, affecting their mental health in profound ways. In contrast, those who have achieved U = U are

more likely to experience heightened stigma related to their sexual orientation. Practitioners should develop stage-specific interventions, focusing on reducing the centrality of HIV/AIDS stigma for newly diagnosed individuals while addressing ongoing homosexual stigma for those who have achieved viral suppression. Program developers can use these insights to create targeted mental health programs tailored to each stage of ART.

This study underscores the importance of integrating an intersectional perspective into clinical interventions, as emphasized by Bowleg (2021) in her call to translate intersectionality from an analytic lens to actionable strategies. The intersection of HIV/AIDS and MSM identities, as revealed by our findings, illustrates the compound stigma experienced by MSM living with HIV/AIDS. This multilayer stigma requires health care practitioners to adopt a holistic, intersectional approach to care that addresses the unique challenges faced by individuals with multiple marginalized identities. For instance, clinical teams must consider how HIV/AIDS-related stigma and homosexual stigma interact and influence each other, tailoring interventions to address both aspects concurrently. Furthermore, intersectionality should be a core element of health care training, allowing practitioners to recognize the complexities of stigma and provide empathetic, culturally competent care. Program developers can use these insights to design mental health and support programs that incorporate intersectionality, especially for vulnerable populations, ensuring that interventions are both comprehensive and responsive to the lived realities of those affected.

The findings also suggest that increased awareness of the U = U concept has the potential to reduce HIV/AIDS stigma and improve mental health outcomes. However, despite achieving viral suppression, MSM living with HIV/AIDS may still experience significant homosexual stigma. Practitioners should integrate U = U education into counseling sessions and ART adherence programs to help individuals internalize the message that they are no longer a risk to others, thereby reducing internalized HIV/AIDS stigma. At the same time, ongoing support should be provided to address the persistent homosexual stigma that individuals may face, even after achieving U = U. Policymakers and community leaders play a crucial role in fostering a stigma-free environment by supporting public awareness campaigns that emphasize U = U and dispel misconceptions about MSM and HIV/AIDS. Such initiatives can create a more inclusive and supportive environment, thereby reducing societal stigma and improving the overall well-being of MSM living with HIV/AIDS.

In addition, the study findings point to the need for broader systemic interventions aimed at eradicating stigma at the structural and societal levels. The relationship between stigma and mental health outcomes reiterates the necessity of creating supportive environments for MSM living with HIV/AIDS. Policymakers should advocate for antidiscrimination policies that protect the rights of sexual minorities and ensure equitable access to health care services. Organizational leaders should promote inclusive practices within health care settings, emphasizing the importance of nondiscriminatory care and creating safe spaces for MSM living with HIV/AIDS. Community-based interventions are also essential to combat the misconceptions and stereotypes that contribute to stigma.

Limitations

The limitations of the study should be noted, along with their potential implications for the findings. First, the data were collected

in 2020, which may affect the generalizability of the results. As global awareness of U = U has grown significantly in recent years, the levels of internalized stigma and related constructs are likely to have changed over time. The dynamic nature of the U = U framework suggests that some of the findings, particularly those related to internalized stigma and awareness of U = U, may now be different in light of increased public awareness. This limitation implies that current interventions and stigma-reduction strategies should be adaptive and reflect ongoing changes in public health messaging and the evolving understanding of U = U. Future research should consider examining these changes in more recent contexts to ensure that interventions remain relevant.

Second, the generalizability of the findings is limited due to the use of nonprobability sampling. Since the sample may not be representative of all MSM living with HIV/AIDS in China, it is possible that the results reflect the experiences of a specific subset of this population. For instance, the study's findings on the differential impact of U = U status on stigma may be influenced by the demographics or socioeconomic status of the respondents, limiting the applicability of these findings to broader contexts. Practitioners and policymakers should be cautious in generalizing the results to all MSM populations and instead tailor interventions to specific subgroups. Future research should aim for a more diverse sample to ensure that findings can be generalized to a wider population of MSM living with HIV/AIDS.

Third, the reliance on self-reported data introduces the potential for response biases, such as social desirability bias (van de Mortel, 2008). Respondents may have underreported experiences of stigma or overestimated their adherence to ART due to perceived social expectations. This may have influenced the findings, particularly in terms of the reported levels of stigma and mental health outcomes. The practical implication of this limitation is that practitioners and program developers should be mindful that self-reported measures may not fully capture the extent of stigma or mental health concerns among MSM living with HIV/AIDS. Future studies could incorporate more objective measures, such as biomarkers or clinician assessments, to validate self-reported data.

Last, the study focused only on the perceived and internalized stigma of MSM living with HIV/AIDS and did not collect information on public attitudes toward homosexuality and HIV/AIDS. As a result, the findings do not fully account for the broader social context in which MSM experience stigma. This limitation means that the study's conclusions about the sources and impacts of stigma are incomplete, as public attitudes likely play a significant role in shaping both perceived and internalized stigma. Practitioners and policymakers should consider integrating public education campaigns as part of stigma-reduction strategies, given that societal attitudes significantly influence the lived experiences of MSM. Future studies should aim to include measures of public attitudes and examine their interplay with individual experiences of stigma to develop more comprehensive interventions.

Conclusions

Young Chinese MSM living with HIV/AIDS in this study were stratified by whether their viral load was durably suppressed; that is, if they have achieved U = U status. The study examined the disparities between these two subgroups in perceived stigma, internalized stigma, and mental health and conducted subgroup analysis

to explore their relationships in these two subgroups, respectively. The study results indicated that respondents showed distinct perceptions and internalization toward their dual stigmatized identities according to their U = U status. This finding highlights the prominence of U = U status in PLWHA's mental health and identities and informs clinical practice in providing services for people with multiple stigmatized identities.

Keywords: men who have sex with men, HIV/AIDS, undetectable = untransmittable, intersectional stigma, China

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