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Resilience and Depression in Young Black Men Who Have Sex with Men: A Social-Ecological Model

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Abstract

Although the health of young Black men who have sex with men (YBMSM) is typically discussed in terms of HIV, they are significantly affected by depression. The present study explored protective and risk pathways to depressive symptoms among YBMSM within a social-ecological framework. A cross-sectional sample of 1,817 YBMSM in two large, southern cities in the United States completed a survey of sociodemographic characteristics as well as individual (e.g., resilience, internalized heterosexism) and contextual (e.g., peer social support, experiences of racism) factors. In cross-sectional analyses, structural equation modeling was used to examine whether there were indirect associations between contextual factors and depressive

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symptomology that were mediated by individual factors. Higher peer social support was associated with lower depressive symptoms via greater resilience; there was no direct association between peer social support and depressive symptoms when controlling for this indirect association. Additionally, there were indirect associations between several contextual risk factors and higher depressive symptoms via perceived HIV-related stigma and internalized heterosexism; some direct associations between contextual risk factors and higher depressive symptoms were significant when controlling for these indirect associations. Despite a number of risk factors for depression for YBMSM, resilience is a key protective factor that may play a critical role in the beneficial effects of peer social support. Broadly, findings suggest that public health efforts must continue to build upon and leverage YBMSM's community-based strengths in the service of improving their mental health and, indirectly, their physical health.

Keywords

young Black MSM; social-ecological model; depression; resilience; stigma

Young Black gay, bisexual, and other men who have sex with men (YBMSM) in the United States have many stressors. Beyond dealing with disproportionately high rates of HIV—e.g., HIV prevalence for Black men who have sex with men (BMSM) is estimated to be over 30% (Centers for Disease Control and Prevention, 2019; Crepaz, Hess, Purcell, & Hall, 2019)—they must cope with significant levels of depression (Graham, Aronson, Nichols, Stephens, & Rhodes, 2011; Hussen et al., 2018). In turn, depression adversely affects HIV incidence, engagement in HIV care, and HIV treatment adherence (Gonzalez, Batchelder, Psaros, & Safren, 2011; Horberg et al., 2008). Studies have shown estimates of depression or suicidal ideology that range from approximately one-third in a sample of BMSM (33%, Graham et al., 2011) and a sample of YBMSM (36.6%, Wilton et al., 2018) to as high as nearly half in other samples of YBMSM (47%, Hussen et al., 2018; 45%, Mayer et al., 2014). The role of mental health, particularly depressive symptoms, in physical health and overall well-being has received less focus for YBMSM than for other groups of men who have sex with men (MSM; Latkin et al., 2017). A heavily HIV-centric approach to research and programming for YBMSM misses key opportunities to treat these men in a holistic, ecologically valid manner that (1) recognizes and leverages their strengths and (2) examines the links between their environmental contexts and both their mental and physical health. Social-ecological, strengths-based approaches to mental health for YBMSM are needed, and the present paper is a response to this need.

Sandler (2001) discussed a developmental model of strengths, or protective resources, in the face of adversity, or adverse conditions. This model can be applied to YBMSM. For example, within this model, adverse conditions such as financial hardships and racism have negative consequences on basic human needs, and these basic needs include not only physical safety, but also self-worth, a sense of control over one's circumstances, and feelings of social relatedness (Sandler, 2001). Ultimately, these lead to adverse outcomes, such as diminished mental health (Sandler, 2001). In contrast, protective resources are those characteristics of the environment or the individual, such as social support from valued others, that have positive consequences on basic human needs (Sandler, 2001). Both

adverse conditions and protective resources may be understood at multiple levels, such as the contextual or environmental level or the individual level (Sandler, 2001). Contextual protective and risk factors may affect physical and mental health outcomes (Diaz, Ayala, & Bein, 2004; Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009; Huebner et al., 2014; Taylor, Repetti, & Seeman, 1997) such as depression (Graham et al., 2011; Wilton et al., 2018) at least in part because of their effects on individual-level protective and risk factors. However, extant researchers (Herrick et al., 2011; Latkin et al., 2017; J. L. Peterson, Folkman, & Bakeman, 1996) have noted that studies that address the health and well-being of YBMSM tend to focus on risk factors for poorer mental health outcomes without explicitly investigating protective factors.

With respect to contextual or environmental protective resources for YBMSM, a handful of studies provide some guidance as to the key protective factors that may affect psychosocial outcomes, particularly depression. For example, one study found that greater levels of social support were significantly associated with lower depressive symptoms among BMSM. (Latkin et al., 2017). In a study of BMSM living with HIV, men who received social support from their social networks had reduced odds of having depressive symptoms (Bogart et al., 2011).

Individual resilience may be a key protective factor involved in the link between contextual protective factors, such as social support, and depressive symptoms. Individual resilience can generally be understood as emotional stamina—i.e., the ability to tolerate and persevere through life's stressors—and adaptability in the face of adversity—i.e., adjusting to or thriving in the face of stressors and making meaning of difficult circumstances (Abiola & Udofia, 2011; Rutter, 1985; Wagnild & Young, 1993). More specifically, one may be protected against adverse conditions to the extent that one is able to (1) hold a balanced perspective on one's life and circumstances in a way that allows one to observe and moderate extreme responses to adversity; (2) persevere through challenges; (3) have confidence in oneself and one's abilities so that one feels that one can rely on oneself; (4) find meaning in life so that one has something to live for; and (5) maintain a sense that, although one is connected to and has shared experiences with others, one is also a free, unique individual who must face many issues alone (Wagnild & Young, 1993).

Previous research has examined resilience among YBMSM. For example, in a latent profile analysis of a sample of YBMSM, four resilience profiles emerged based on levels of self-efficacy, hardiness/adaptive coping, and various sources of social support (e.g., peer support). These profiles differentially predicted depressive symptoms (Wilson et al., 2016). Among these profiles, peer social support played a lesser role in predicting distress and mental health than did other resilience-related factors. However, peer support may indirectly influence health outcomes via individual resilience factors. In fact, few studies have incorporated a multilevel lens to assess the intermediary role of individual resources or resilience (e.g., adaptive coping, or adaptability) in the link between contextual resources such as peer support and mental-health outcomes. Within a multilevel conceptualization, contextual protective resources, such as social support, may be understood as developing or supporting individual resources, such as resilience, thus protecting against depressive symptoms.

Another individual protective factor that may play a role in the beneficial effects of protective factors is gay pride, i.e., pride in one's identity even when that identity is socially stigmatized. For example, gay men who are midway through their gay-identity development show less psychosocial well-being than gay men who are later in their gay-identity development (Halpin & Allen, 2004). In contrast to this positive sense of gay identity, the internalizing of negative attitudes toward oneself in ways that that reflect heterosexism—i.e., "negative regard, inferior status, and relative powerlessness that society collectively accords to any non-heterosexual behavior, identity, relationship, or community," (Herek, 2007, pp. 906–907)–was linked to greater depression in a sample of BMSM (Graham et al., 2011). Contextual protective factors, such as peer social support from other YBMSM may protect YBMSM against depressive symptoms at least in part by bolstering positive attitudes toward themselves as MSM.

The present study examined a social-ecological model of depressive symptoms (see Figure 1). The goal was to identify key strengths-based, contextual and individual protective factors and pathways that are associated with lower levels of depressive symptoms in a cross-sectional sample of YBMSM. The present study assessed the following primary hypothesis: a key contextual protective factor (i.e., peer social support) will be associated with greater individual protective factors (i.e., resilience, gay pride) that, in turn, will be associated with reduced depressive symptoms while simultaneously controlling for multiple risk factors and pathways in the same model. Additionally, the present study explored the following secondary hypothesis: contextual risk factors (i.e., experiences of heterosexism or racism, socioeconomic distress, being HIV-positive) will be associated with greater individual risk factors (i.e., internalized heterosexism, perceived HIV stigma) that, in turn, will be associated with increased depressive symptoms while simultaneously holding constant other variables, including protective factors and pathways in same the model. To be clear, these hypotheses were tested simultaneously in the same model using structural equation modeling (SEM). The study measured ecological-level, contextual factors using participants' individual-level perceptions of these factors and their impact. The present analyses were cross-sectional; they tested correlations rather than temporal associations or causation. Ultimately, understanding the potential contextual underpinnings of depressive symptoms among YBMSM will inform interventions to reduce depression and its deleterious effects on other aspects of YBMSM's health.

Method

Participants

A sample of 1,933 YBMSM was recruited as part of a larger, community-level HIV prevention trial of YBMSM in Dallas and Houston, TX in which YBMSM diffused HIV-prevention messages to peers in the community. The present study used survey data from a community-wide sampling of YBMSM beyond those who participated directly in the intervention. Assessments consisted of three independent cross sections surveyed yearly in each community from 2013 to 2015. To be eligible for the original study, participants had to be aged 18–29 years, Black or African American, living in either the Dallas or Houston metropolitan areas, able to complete the survey in English, and a man who had had sex with

another man in the past 12 months. Data are published elsewhere from the first two waves of data collection, years 2009 and 2010 (Huebner et al., 2014; Scott et al., 2014; Vincent et al., 2017), and the last three waves, years 2013 to 2015 (Storholm et al., 2013; Vincent et al., 2019).

Recruitment.—The original study used an established, modified, venue-based, time-location sampling approach adapted from the National HIV Behavioral Surveillance Survey (MacKellar et al., 2007). Venues and sampling periods were first selected to optimize representation and efficiency in sampling YBMSM for four-hour time periods. At least eight YBMSM needed to be present at the beginning of the sampling period in order for data collection to proceed. At least two research staff members were present so that they could recruit enough participants to complete the study. No more than 20 surveys were collected at any venue in a given sampling period in order to prevent venue-oversampling. A variety of venues were eligible, including bars, clubs, retail establishments, restaurants and cafes, adult bookstores, bathhouses, high-traffic street locations, religious organizations, parks, and other local settings. However, most of the recruitment (93%) took place at bars and clubs, and the remainder occurred at the project offices at a major university (7%) and a community agency that provides youth services (0.4%).

Procedures

At each venue, prospective participants were approached consecutively and screened based on eligibility criteria (see Participants subsection above). Of the men who were approached, 92% agreed to be screened. Of the eligible participants, 94% agreed to participate. Upon providing verbal consent, participants completed the survey using hand-held personal digital assistants (PDAs). The PDAs were used to enhance privacy. The use of methods such as PDA-based responding has been shown to improve participants' reporting of ostensibly socially undesirable behaviors (Gorbach et al., 2013), which could include risky sexual behaviors or illicit substance use. Although surveys were completed anonymously, each participant provided several pieces of information (e.g., first letter of mother's first name) that allowed the researchers to create a unique identifier to track repeat responders within and across waves so that multiple surveys by the same person could be deleted. On average, the survey took 24 minutes to complete. Participants were compensated $30 for completing any part of the assessment. All study procedures were approved by the institutional review boards at the University of California at San Francisco and the institution of the data collection subcontractor in each geographic area.

Measures

Measures were abridged so as to limit participant burden while maximizing the number of constructs that could be assessed for a health-disparity population such as YBMSM. Measures needed to be feasible enough for YBMSM to complete them in public settings such as bars and clubs. The following, established guidelines were used when abridging these measures: documenting the validity of the original measure; considering the conceptual model for the underlying construct; preserving content validity and other psychometric properties of the measure, such as reliability; and documenting the reasons for item selection, which were based on the conceptual model of the underlying construct,

the cultural appropriateness of the item for the population studied, content validity, and the effects of item removal or selection on psychometric properties (Coste, Guillemin, Pouchot, & Fermanian, 1997; Goetz et al., 2013). Descriptions of the measures that were included in the present analyses are as follows:

Geographic area.—The metropolitan statistical area in which the participants were recruited, Dallas or Houston, was recorded by the study researchers. For the present analyses, Dallas was coded as zero and Houston was coded as one.

HIV-positive status.—Participants reported their previous HIV diagnosis. For the present analyses, their responses were coded one if diagnosed positive and zero if not.

Socioeconomic distress.—This study used seven independent items as measures, or indicators, of socioeconomic status or distress among YBMSM: (1) not having a high school degree or GED, (2) not currently being employed full time, (3) having a personal annual income of less than $20,000, (4) running out of money in at least one month out of the past 12 months, (5) having to borrow money to meet basic needs during the past year, (6) ever having been incarcerated, and (7) ever having been homeless (Huebner et al., 2014; Kegeles, Hays, & Coates, 1996; Scott et al., 2014; Vincent et al., 2017). Each item was coded zero if it did not apply to the participant and one if it did apply. Items were then summed to create an index score of socioeconomic distress. On average, participants claimed 2.80 (SD = 1.79, range = 0 – 7) of the seven indicators of socioeconomic distress.

Social support from friends.—Participants' perceptions of social support from friends were assessed with a four-item subscale from a 12-item scale of perceived social support (Dahlem, Zimet, & Walker, 1991), which has been validated with urban, African American youth (Canty-Mitchell & Zimet, 2000). The scale was adapted for assessing YBMSM's social support from Black gay/bisexual friends (Huebner et al., 2014; Scott et al., 2014; Vincent et al., 2017). Sample items include, "Being with my African American gay/bi male friend(s) helps me feel good about myself," and "My African American gay/bi male friend(s) is (are) good at helping me solve problems." Response options ranged from 1 ("Disagree strongly") to 6 ("Agree strongly"), with higher scores reflecting greater social support. Cronbach's alpha was 0.88.

Experienced heterosexism.—Participants' experiences of heterosexism enacted by others in the prior 12 months were measured using seven items adapted from an 11-item scale developed by Diaz et al. (2004). Sample items include, "In the past year, how often were you made fun of or called names for being effeminate ("girly") or for being attracted to other men (or gay or bisexual)?" and "In the past year, how often did you hear that gay people are sinners?" Likert-type response options ranged from 1 ("Never") to 5 ("Very often"), with higher scores indicating more frequent experiences of enacted heterosexism. Cronbach's alpha for this measure was 0.85.

Experienced racism.—Participants' experiences of racism enacted by others in the past year was measured using 11 items adapted from Diaz et al.'s (2004) scale for use with YBMSM. Sample items include, "How often have your civil rights been violated (i.e., job or

housing discrimination due to racism, racial discrimination, or racial prejudice)?" and "How often have others reacted to you as if they were afraid of you because of your racial and/or ethnic identity." Response options range from 1 ("Never") to 5 ("Very often"), with higher scores representing more frequent experiences of racism. Cronbach's alpha was 0.91.

Resilience.—We used a 14-item resilience scale (Wagnild & Young, 1993) to assess "the capacity to withstand life stressors, and to thrive and make meaning from challenges" (p. 2) (Abiola & Udofia, 2011). Sample items include, "I usually manage one way or another" and "I usually find something to laugh about." Response options ranged from 1 ("Strongly disagree") to 6 ("Strongly agree"), with higher scores meaning more resilience. Cronbach's alpha for this measure was 0.96.

Gay pride.—We assessed gay pride using three items that were developed by our research group (Kegeles et al., 1996) based on the work of Nungesser (1983). Sample items include, "How happy are you being gay or bisexual?" and "How comfortable are you with your sexual attraction to other men?" Response options ranged from 1 ("Not at all" or "None at all") to 5 ("A great deal"), with higher scores denoting more comfort with being gay. Cronbach's alpha for this measure was 0.84.

Internalized heterosexism.—We used three items that were adapted from the work of Nungesser (1983) in prior studies by our research group (Kegeles et al., 1996). Sample items include, "Does having sex with other men make you dislike yourself?" and "Do you ever wish that you were attracted only to women?" Scores on individual items ranged from 1 ("Not at all") to 5 ("A great deal" or "Extremely"), with higher scores representing more internalized heterosexism. Cronbach's alpha was 0.77.

Perceived HIV stigma.—We used eight items from the HIV Stigma Scale, specifically the subscale that assesses an individual's concern with other people's attitudes toward people living with HIV (Berger, Ferrans, & Lashley, 2001). Sample items include, "Most people are uncomfortable around someone with HIV," and "Most people are rejected when others learn they have HIV." Response options range from 1 ("Disagree strongly") to 6 ("Agree strongly"), with higher scores reflecting greater perceptions of HIV stigma from others. Cronbach's alpha was 0.92.

Depressive symptoms.—We used seven items from the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). These items assessed how often respondents felt or behaved in specific ways indicative of depressive symptoms during the past week. Sample items include, "I felt depressed," and "I felt lonely." Response options ranged from 0 ("Rarely or none of the time [Less than 1 day]") to 3 ("Most or all of the time [5–7 days]"), with higher scores indicating more severe depressive symptomology. Cronbach's alpha was 0.89.

Data Analysis Plan

Structural equation modeling (SEM) performed in M*plus* 7 (Muthén & Muthén, 2015) was used to identify significant direct and indirect associations between (1) contextual, protective

(i.e., peer social support) and risk (i.e., experienced heterosexism, experienced racism, indicators of socioeconomic distress) factors and (2) depressive symptoms via individual, protective (i.e., resilience, gay pride) and risk (i.e., internalized heterosexism, perceived HIV-related stigma) factors. The analyses adjusted for geographic location and HIV-positive status. These analyses were cross-sectional, not longitudinal; as such, they were testing for correlations among the variables rather than temporal associations or causation. Robust maximum likelihood estimation yielded a χ^2 based on the Yuan-Bentler test statistic (YBχ^2) and robust standard errors that account for non-normality (Muthén & Muthén, 2015). Missing data were handled using full-information maximum likelihood assuming data were missing at random. Good model fit was assessed using any two of the following three criteria: a root mean square standard error of approximation (RMSEA) value of 0.06 or less within a 90% confidence intervals (CI$_{90}$), a Tucker-Lewis index (TLI) value of at least 0.95, and a standardized root mean square residual (SRMR) criterion of 0.08 or less (Bentler, 1992; Hu & Bentler, 1999). Latent variables (i.e., depressive symptoms, peer social support, experienced heterosexism, experienced racism, resilience, gay pride, internalized heterosexism, perceived HIV-related stigma) were created to account for measurement error (Fuller, 2009). A measurement model of the latent variables was first tested to determine overall model fit and correlations among latent variables. In the subsequent structural equation model that tested direct and indirect associations, bias-corrected bootstrapping was used to address the asymmetry in the parameter estimates of indirect associations (MacKinnon, Fairchild, & Fritz, 2007).

Bootstrapped, unstandardized regression coefficients (b), their standard errors (SE), 95% confidence intervals (CI$_{95}$), standardized regression coefficients (β), and p-values were reported. "Indirect" regression coefficients ($b_{indirect}$) refer to indirect associations within mediated associations, and "direct" regression coefficients (b_{direct}) refer to direct associations within mediated associations given a statistically significant indirect association(s).

Results

Preliminary Analyses

After excluding 116 duplicate surveys, the final sample consisted of 1,817 YBMSM. Tables 1 and 2 present their demographic characteristics, descriptive statistics, and correlations. Overall, based on the possible range of scores, participants reported high levels of protective factors (see Table 2). Nearly a quarter of the sample, 24.0%, reported the highest level of peer social support, and 30.2% reported the highest level of resilience. For this sample, a quarter, 25.5%, reported the highest level of gay pride.

In addition, based on the possible range of scores, participants reported low levels of some of the risk factors but moderate levels on others (see Table 2). For example, the sample reported low levels of depression, and 29.6% reported having no depressive symptoms. Regarding internalized heterosexism, 32.0% of participants reported the lowest possible level. Furthermore, one-fifth of participants, 19.7%, endorsed no indicators of socioeconomic distress and another fifth, 19.0%, endorsed only one. Out of the seven indicators of socioeconomic distress, most participants, nearly 60%, endorsed no more than

two of these indicators. The indicators that were arguably most severe, specifically history of incarceration and homelessness, were endorsed by a very small minority of participants, less than three percent in total.

In contrast, scores on perceived HIV stigma were more moderate. Although approximately 10% of the sample reported the lowest level of perceived HIV stigma, over seven percent reported the highest levels. The mean score for perceived HIV stigma was in the middle of the possible range of scores. Although the lowest levels of experienced heterosexism and experienced racism were reported by 13.44% and 15.63% of the sample, respectively, the other possible scores for experienced heterosexism and experienced racism were more evenly distributed throughout the sample. The mean scores for experienced heterosexism and racism, respectively, were low-moderate given the possible range of scores.

Primary Analyses

The measurement model fit the data: YB_{χ}^2 (1511) = 7160.89, $p < 0.001$; RMSEA = 0.045 ($CI_{.90}$, 0.044–0.046); TLI = 0.91; SRMR = 0.04. (See Table 2 for correlations among the latent variables.) The structural equation model (Figures 2 and 3) adjusting for covariates also fit the data: YB_{χ}^2 (1658) = 5708.91, $p < 0.001$; RMSEA = 0.037 ($CI_{.90}$, 0.036–0.038); TLI = 0.92; SRMR = 0.04. This model accounted for 25.0% of variance in depressive symptoms ($p < 0.001$) in these analyses, which were cross-sectional. Figure 2 displays the significant and non-significant direct associations in the model, and Figure 3 displays significant and non-significant direct associations in the model when controlling for all indirect, mediated associations in these cross-sectional analyses. With respect to significant, protective pathways for fewer depressive symptoms, peer social support was significantly associated with depressive symptoms indirectly via resilience ($b_{indirect} = -.034$, $SE = .009$, $CI_{.95}$ [−.051, −.018], $\beta = -.063$, p < .001). Within this indirect association, higher scores on peer social support were associated with higher scores on resilience ($b = .419$, $SE = .032$, $CI_{.95}$ [.356, .483], $\beta = .483$, $p < .001$) and, in turn, higher scores on resilience were associated with lower scores on depressive symptoms ($b = -.080$, $SE = .021$, $CI_{.95}$ [−.124, −.041], $\beta = -.130$, $p < .001$). The direct association between peer social support and depressive symptoms was not significant when controlling for the indirect association via resilience ($b_{direct} = .007$, $SE = .017$, $CI_{.95}$ [−.027, .042], $\beta = .014$, $p = .664$).

In addition to the protective peer-support pathway via resilience, there were significant risk pathways that were linked to greater depressive symptoms. For example, there were indirect associations between experienced heterosexism and depressive symptoms via perceived HIV-related stigma ($b_{indirect} = .028$, $SE = .006$, $CI_{.95}$ [.017, .042], $\beta = .037$, $p < .001$) and internalized heterosexism ($b_{indirect} = .063$, $SE = .020$, $CI_{.95}$ [.027, .105], $\beta = .083$, $p = .001$), respectively. Within these indirect associations, higher scores on experienced heterosexism were associated with higher scores on perceived HIV stigma ($b = .422$, $SE = .061$, $CI_{.95}$ [.302, .540], $\beta = .265$, $p < .001$), and, in turn, higher scores on perceived HIV stigma were associated with higher scores on depressive symptoms ($b = .066$, $SE = .013$, $CI_{.95}$ [.042, .092], $\beta = .139$, $p < .001$). Further, higher scores on experienced heterosexism were associated with higher scores on internalized heterosexism ($b = .557$, $SE = .053$, $CI_{.95}$ [.457, .664], $\beta = .473$, $p < .001$), and, in turn, higher scores on internalized heterosexism were associated with higher

scores on depressive symptoms (b=.113, SE=.034, CI$_{.95}$ [.048, .182], β=.176, p=.001). The direct association between experienced heterosexism and depressive symptoms was not significant when controlling for the indirect associations via perceived HIV-related stigma and internalized heterosexism (b_{direct}=.057, SE=.032, CI$_{.95}$ [−.009, .119], β=.075, p=.077).

There was an indirect association between experienced racism and depressive symptoms via internalized heterosexism ($b_{indirect}$=.042, SE=.014, CI$_{.95}$ [.018, .074], β=.050, p=.003). Within this indirect association, higher scores on experienced racism were associated with higher scores on internalized heterosexism (b=.370, SE=.052, CI$_{.95}$ [.271, .475], β=.285, p<.001), and, as noted previously, higher scores on internalized heterosexism were associated with higher scores on depressive symptoms. The direct association between experienced racism and depressive symptoms was significant despite the significant indirect association via internalized heterosexism (b_{direct}=.154, SE=.032, CI$_{.95}$ [.093, .219], β=.184, p<.001).

Finally, although there was no indirect association between socioeconomic distress and depressive symptoms via individual risk factors, there was a risk-based direct association between indicators of socioeconomic distress and depressive symptoms such that participants who reported more socioeconomic distress also scored higher on depressive symptoms (b_{direct}=.032, SE=.010, CI$_{.95}$ [.012, .051], β=.082, p=.001). Also, there was a risk-based, indirect association between HIV-positive status and more depressive symptoms via perceived HIV stigma ($b_{indirect}$=.016, SE=.007, CI$_{.95}$ [.004, .031], β=.008, p=0.020). Within this indirect association, having been diagnosed as HIV-positive was linked to higher scores on perceived HIV stigma (b=.236, SE=.031, CI$_{.95}$ [.052, .416], β=.061, p=.010), and, as previously noted, higher scores of perceived stigma were associated with higher scores on depressive symptoms. The direct association between HIV-positive status and greater depressive symptoms was significant despite the indirect association via perceived HIV stigma (b_{direct}=.194, SE=.049, CI$_{.95}$ [.099, .287], β=.105, p<.001).

Discussion

The present findings indicate that resilience plays a significant role in the correlation between peer social support and depressive symptoms. Resilience was central to the protective, beneficial link between peer support and less depressive symptoms. Resilience has received inadequate attention in the literature for its role in reduced depressive symptoms (Herrick et al., 2011). In addition, the association between peer support and resilience was the second most robust association in the model, the first being the association between experienced heterosexism and internalized heterosexism. The present findings suggest that peer social support may be leveraged to improve YBMSM's resilience such that men who have more support from their peers are able to use adaptive coping strategies and build the inner strength to push forward in their lives even when confronted with significant challenges. These findings also support the need for more research that examines social-ecological conceptualizations of mental health that are at least partly informed by multilevel frameworks such as Sandler's (2001). Such frameworks address both adversity and resilience.

Further research is needed to conclude a causal association or to determine directionality or bi-directionally of the findings. For example, providing a peer support intervention may improve resilience and thus reduce depressive symptoms; alternatively, an improvement in resilience may also contribute to YBMSM seeking out and using social support. Additionally, although prior studies typically discuss depression or depressive symptoms as an outcome variable (e.g., Adams, Sanders, & Auth, 2004; Avila, Lucchetti, & Lucchetti, 2017; Bruce, Harper, & Bauermeister, 2015; Eisman, Stoddard, Heinze, Caldwell, & Zimmerman, 2015; George, Blazer, Hughes, & Fowler, 1989; Paykel, 1994; Rueger, Malecki, Pyun, Aycock, & Coyle, 2016; Southwick & Charney, 2012), depressive symptoms (e.g., low self-worth, negative affect, social withdrawal; American Psychiatric Association DSM-5 Task Force, 2013; Beck & Steer, 1984) could (1) diminish one's resilience or ability to engage or use social support, (2) increase one's attention or vulnerability to negative experiences (e.g., stigma and prejudice from other people), (3) facilitate the internalization of negative beliefs about oneself or one's social identity (e.g., internalized heterosexism), and so on.

Nonetheless, results for resilience-based associations in the present paper were generally consistent with both longitudinal and cross-sectional studies that have assessed whether protective factors such as peer social support or resilience predict depressive symptomology in other populations. For example, a cross-sectional study of older Chinese adults in Singapore found that psychological, individual-level resilience mediated an association between social support from family and friends and geriatric depression (Li, Theng, & Foo, 2015). Other cross-sectional studies have found that social support and resilience, respectively, were associated with depressive symptomology in the following populations: alternative education students in New Zealand facing a variety of risk factors (e.g., lack of household capital, having moved homes, being bullied; Denny, Clark, Fleming, & Wall, 2004), adolescents living in a rural community in the U.S. (Herman-Stahl & Petersen, 1996), adults over the age of 65 years in the U.S. (Fuller-Iglesias, Sellars, & Antonucci, 2008), and adolescents in Norway (Hjemdal, Vogel, Solem, Hagen, & Stiles, 2011). A longitudinal study of adolescents from blue-collar and immigrant families in Canada found that social support was directly and indirectly associated with depressive symptoms (McFarlane, Bellissimo, & Norman, 1995). A review of the literature on the link between social support and psychological health concluded that social support is related to positive psychological health because it affects both genetic and environmental vulnerabilities via key physiological pathways (i.e., the hypothalamic-pituitary-adrenal axis, the noradrenergic system, oxytocin in the central nervous system); thus, social support confers an individual with resilience to stress that protects against psychosocial distress (e.g., depressive symptoms; Ozbay et al., 2007).

As expected, contextual risk factors and depressive symptoms were indirectly associated via individual risk factors. For example, a higher frequency of experiences of heterosexism was associated with greater depressive symptoms indirectly via perceived HIV stigma and internalized heterosexism. As found in prior studies, perceived HIV stigma and internalized heterosexism are associated with social and societal stigma toward sexual minorities (Parker & Aggleton, 2003; Storholm et al., 2013). This stigma affects individual health outcomes (Hatzenbuehler et al., 2009). A higher frequency of experiences of racism was associated

with greater depressive symptoms indirectly via only one individual risk factor in the model: internalized heterosexism. This finding is consistent with the approach of intersectionality, which asserts that people have multiple identities that are intricately linked—even if those respective identities are differentially subject to various forms of social oppression (Bowleg, 2013). For example, experiencing oppression based on one aspect of YBMSM's identity (e.g., race) may affect their beliefs about other aspects of their identity that are subject to social oppression (e.g., sexual identity or behavior).

HIV-positive status was associated with increased depressive symptoms both directly and indirectly via perceived HIV stigma. This is consistent with existing literature noting that there are significant psychological sequelae of known HIV infection for a patient (O'Cleirigh, Magidson, Skeer, Mayer, & Safren, 2015; Sikkema et al., 2010) and that perceived HIV stigma and psychosocial outcomes are linked (Parker & Aggleton, 2003). HIV diagnosis appears to have a robust link to psychological distress in the form of depression, and the experience of HIV stigma may fuel depressive symptoms for HIV-positive YBMSM.

Moreover, the prevalence of HIV reported in the present sample for YBMSM, 14.4%, is lower than the prevalence of HIV for BMSM across ages reported nationally (i.e., >30%Centers for Disease Control and Prevention, 2019; Crepaz et al., 2019). It is possible that the present sample of YBMSM has a lower-risk profile compared to samples of BMSM from which previous estimates of national HIV prevalence were derived. However, HIV prevalence in the current sample was equivalent to or even higher than other samples and subsamples of YBMSM under 30 years of age, specifically (e.g., 16.5%; Balaji et al., 2013). For example, one study of Black and White MSM used chain referral methods in which participants recruited their sex partners—the newly recruited sex partners then recruited their own sex partners, and so on (Hernández-Romieu et al., 2015). Although HIV prevalence was estimated to be 63–80% in the sexual networks of HIV-positive YBMSM aged 18–29 years, HIV prevalence was only 9% in the sexual networks of HIV-negative YBMSM aged 18–24 years and 3% in those aged 25–29 years (Hernández-Romieu et al., 2015).

Participants in the present sample scored, on average, lower on multiple risk factors, including socioeconomic distress, and higher on protective factors than in previous, similar samples (Huebner et al., 2014; Scott et al., 2014). Although the levels of psychosocial and socioeconomic risk reported by the present sample may have been relatively low, they were by no means negligible; the associations among the variables make conceptual sense and are nonetheless instructive.

This study has some limitations. First, the cross-sectional design of this study precludes causal interpretations, especially of indirect, or mediated, effects. In addition, although the sample was quite large, nearly 2,000 men, the sampling strategy in this study does not produce representative, probability samples. Finally, the majority of participants, over 90%, was recruited at bars and clubs; this may have introduced sampling or response bias. The study may have missed some YBMSM who infrequently or never attend bars or nightclubs. These YBMSM might have different profiles of depressive symptoms compared to some of the participants who were recruited from bars and nightclubs. Although the

Cronbach's alpha coefficient for the internalized heterosexism measure, 0.77, indicated acceptable reliability based on established norms (R. A. Peterson, 1994), it is possible that the coefficient would have been more robust if all items from the original measure were used.

The present findings have several implications. For example, researchers should account for protective factors as potential mechanisms of action of health-promoting or preventive interventions in their studies with BMSM and, in particular, YBMSM. In addition, more efforts should focus on how the differences between individual and contextual, or community-based, resilience (Meyer 2015) may impact mental and physical health. Whereas individual resilience refers to an individual's capability to cope with stress and triumph over adversity, community resilience may refer to a community's capacity to empower marginalized members through tangible and intangible resources that promote success in coping with stress. Intangible resources may include norms and values that empower BMSM within the Black community, and tangible resources may include physical spaces and community events within the Black community and Black family that address the social, mental, and physical health needs of BMSM in a positive and identity-affirming manner. Community resilience could substantially facilitate the individual resilience that BMSM have shown in their strategies to negotiate stigmatized identities in coping with racial and sexual stigma in their communities (Hunter, 2010; Miller e al., 2018). Following from these implications, future directions for the present study include intervention development that continues a focus on community-building for YBMSM with an eye toward building supportive relationships and assessing the intervention's impact on individual resilience for YBMSM. In the context of helping to build community and supportive relationships, it will be important to help establish or encourage norms of low HIV-related stigma. In addition, formative research will be conducted to identify ways of reducing HIV-related stigma and internalized negative attitudes about one's social identity or sexual behavior among YBMSM.

In sum, despite a number of significant risk factors and pathways for depressive symptoms among YBMSM, resilience was a key psychosocial protective factor occurring within the individual that may play a significant role in the beneficial effects of peer social support for YBMSM. In the face of multiple barriers, there is a need for building and leveraging YBMSM's strengths in the service of improving their mental health and, indirectly, their physical health.

Acknowledgments

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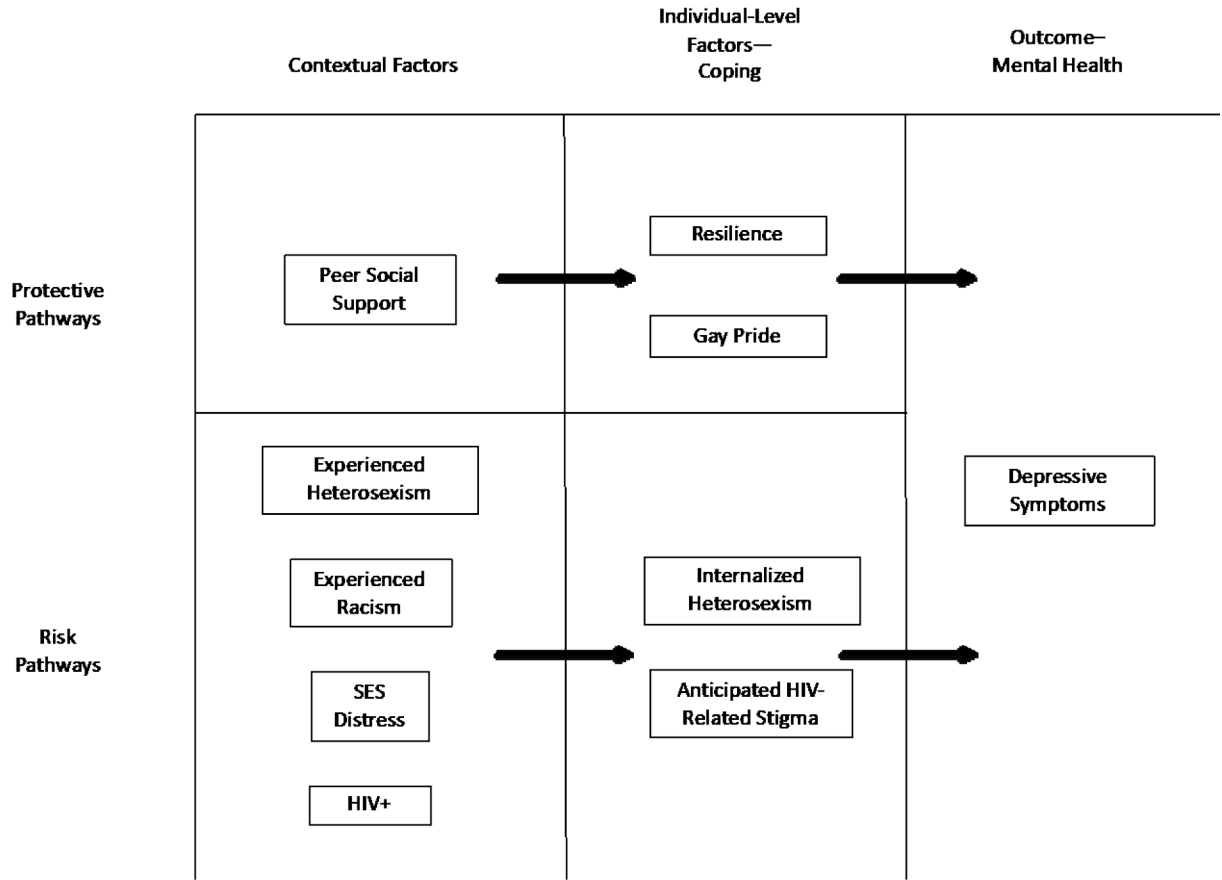**Social-Ecological Framework for Understanding Mental Health Among YBMSM**

Figure 1.
A social-ecological model of protective and risk pathways of depressive symptoms for young Black men who have sex with men.
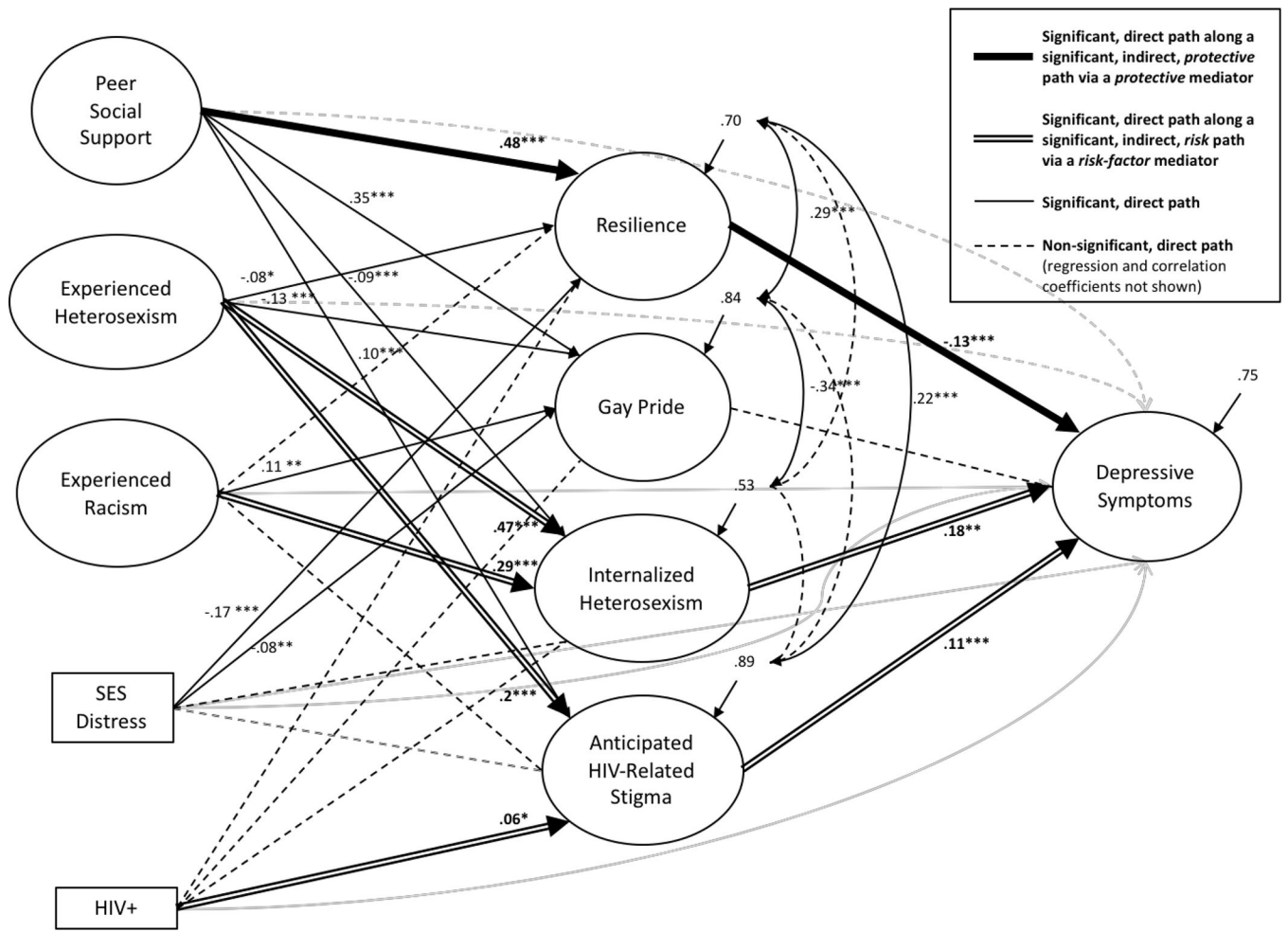
Figure 2.
* p < .05; ** p < .01; *** p < .001. *N*=1,817. Circles represent latent variables. Rectangles represent manifest variables. Coefficients are standardized. SES Distress reflects an index of seven indicators of low socioeconomic status or distress (e.g., income under $20,000; running out of money). Intermediary and outcome variables were adjusted for city (Dallas = 0, Houston = 1).

Figure 3.
* p < .05; ** p < .01; *** p < .001. *N*=1,817. Circles represent latent variables. Rectangles represent manifest variables. Coefficients are standardized. SES Distress reflects an index of seven indicators of low socioeconomic status or distress (e.g., income under $20,000; running out of money). Intermediary and outcome variables were adjusted for city (Dallas = 0, Houston = 1).
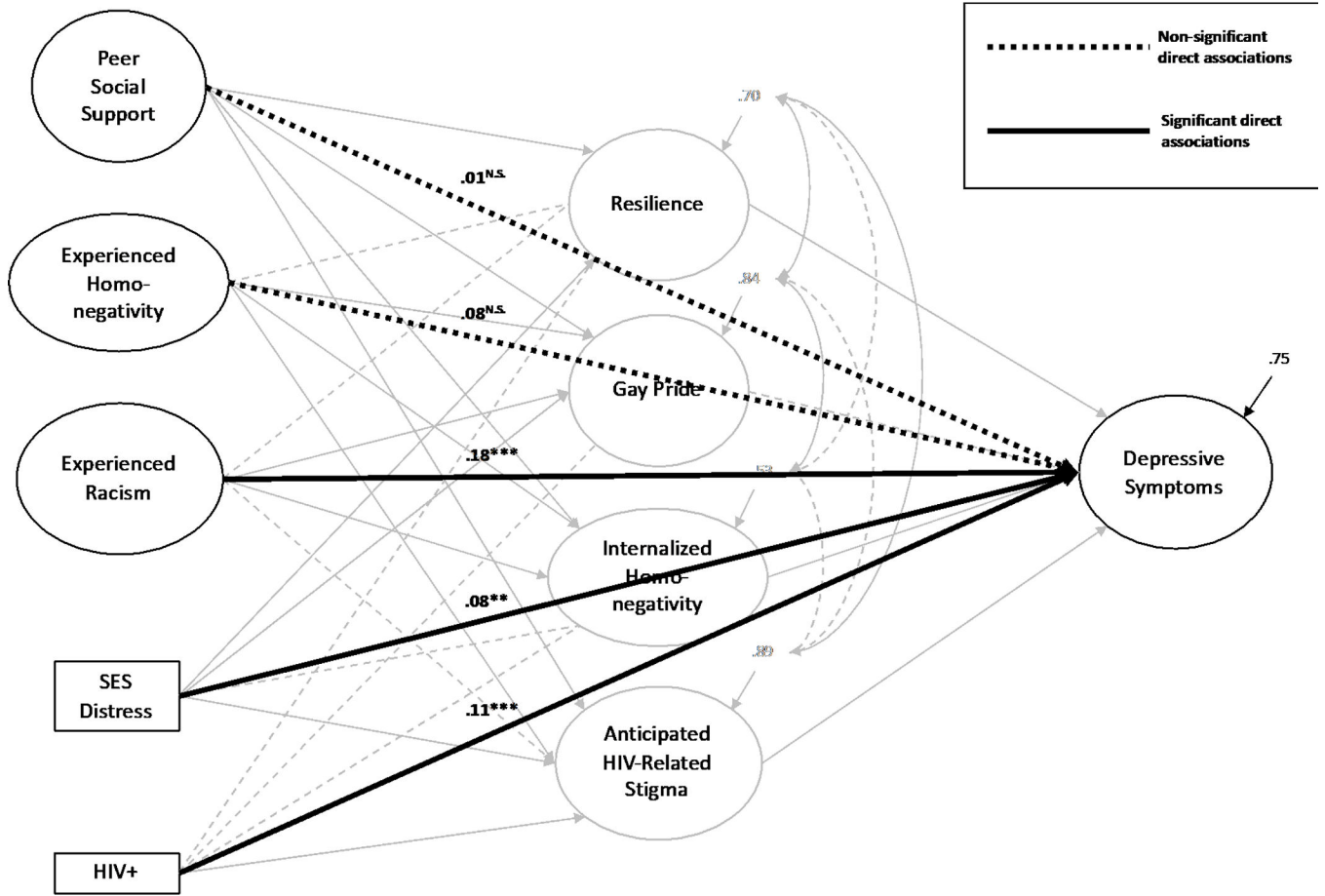
Table 1

Participant Characteristics (N=1,817) and Descriptive Statistics

Variable	Descriptive Statistics
Geographic area (%)	
Dallas/Houston	50.3/49.8
Mean age in years (SD)	24.86 (2.85)
Education (%)	
Less than high school diploma or GED	14.5
High School Diploma or GED	23.6
Some college	41.1
College degree or more	20.9
Annual income (%)	
Less than $10,000	23.6
$10,000 – $19,999	18.5
$20,000 – $39,999	31.3
$40,000 – $59,999	15.0
$60,000 or more	11.6
Not currently employed full-time (%)	21.1
Running out of money at least once in the past year (%)	13.4
Borrowed money to meet basic needs during the past year (%)	7.0
Ever been incarcerated (%)	2.6
Ever been homeless (%)	0.2
Tested positive for HIV (%)	14.4

Table 2

Correlations Among Latent Variables and Univariate Statistics of Observed Variables for Continuous Study Variables (N=1,817)

| | Latent Variable: Correlations | | | | | | | Observed Variables: Univariate Statistics | |
	1	2	3	4	5	6	7	Mean (SD)	Range
1. Depression	1.000							4.63 (5.02)	0 – 21
2. Resilience	−0.100[a]	1.000						73.53 (15.29)	14 – 84
3. Gay pride	−0.158[a]	0.436[a]	1.000					11.41 (3.43)	3 – 15
4. Perceived HIV stigma	0.224[a]	0.053[c]	0.193[a]	1.000				29.81 (12.44)	8 – 48
5. Internalized heterosexism	0.385[a]	−0.302[a]	−0.147[a]	0.196[a]	1.000			5.99 (3.23)	3 – 15
6. Peer social support	−0.073[a]	0.353[a]	0.502[a]	0.090[a]	−0.109[a]	1.000		18.37 (5.35)	4 – 24
7. Experienced heterosexism	0.357[a]	−0.094[b]	−0.096[a]	0.297[a]	0.632[a]	−0.017	1.000	15.64 (6.68)	7 – 34
8. Experienced racism	0.375[a]	0.013	−0.050[c]	0.200[a]	0.546[a]	−0.041	0.536[a]	23.25 (10.36)	11 – 55

Note.

[a] $p < 0.001$

[b] $p < 0.01$

[c] $p < 0.05$