



HIV Stigma and Its Relation to Mental, Physical and Social Health Among Black Women Living with HIV/AIDS

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Abstract

Black women living with HIV/AIDS (LWHA) are a subgroup with the highest growing rates of HIV infection in the United States. Stigma and co-occurring mental and physical health problems have been reported among Black women LWHA, and research on the benefits of social and religious support, often major protective factors among Black women, has been met with mixed findings. The current study examined the relation between anticipated HIV stigma and mental and physical health symptoms and risk and protective factors (discrimination, coping, social support) among Black women LWHA ($N = 220$). Results showed that greater anticipated stigma was significantly related to poorer mental health status, greater discrimination, and greater use of negative coping strategies. Stigma was not related to physical health, perceived social support or use of positive coping strategies. This study lends support to the need for psychosocial interventions that reduce anticipated stigma among individuals LWHA, particularly Black women LWHA.

Keywords HIV/AIDS · Black/African American women · Anticipated stigma · Mental health · Coping

Introduction

Human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) have affected millions of people across the United States since the mid-to-late 1970s. Advancements have been made in the prevention and treatment of HIV/AIDS; with proper medical care, HIV can be controlled, but not cured [1]. Though HIV affects individuals across all sociodemographic categories, certain groups such as Black women are disproportionately affected [2]. Black individuals account for the highest prevalence rates of HIV/AIDS; while they make up 12% of the US population, they account for 44% of people living with HIV/AIDS (PLWHA) [2].

Women account for 20% of PLWHA, yet about 62% of women LWHA identify as Black/African American [1]. Black women are diagnosed with HIV at 15 times the rate of White women, and three times the rate of Hispanic/Latina women [1]. Research has pointed to several factors contributing to the elevated rates of HIV among Black women, including: individual factors, such as increased injection drug use, non-monogamous sexual relationships, exchanging sex for drugs, money, or other goods, and history of incarceration; partner behavior, including increased likelihood of a male partner having sex with other men, non-monogamy, and incarceration; and social and contextual factors, including lower socioeconomic status, poverty, and higher rates of HIV/AIDS in general in the Black/African American community [3–5]. Literature on social determinants of health highlight the role that inequalities related to gender, race and class, in addition to the role of HIV-related stigma, play on the physical, mental, and social well-being of Black women LWHA [6–10].

Mental and Physical Health among PLWHA

Co-occurring mental and physical health disorders can complicate the course and treatment of HIV/AIDS. PLWHA are three times more likely to have a co-occurring

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mood disorder, five times more likely to have a substance use disorder, and eight times more likely to have a serious mental illness (e.g., schizophrenia, bipolar disorder) compared to the general public [11]. PLWHA also experience a greater number of traumatic experiences and have higher prevalence rates of post-traumatic stress disorder (PTSD) relative to the general public (20–45% vs. 6.8%, respectively) [12–15]. In addition to mental health concerns, PLWHA have reported greater physical health concerns and higher use of emergent and crisis medical care [16, 17]. PLWHA that also have co-occurring physical and/or mental health concerns—especially PTSD—also demonstrate poorer HIV treatment adherence [18, 19].

Pathways delineating the relation between HIV and co-occurring mental and/or physical health conditions can be complex. Mental health concerns are sometimes present prior to HIV infection, whereas other times the onset may occur after an HIV diagnosis. Individuals with substance use disorders or serious mental illness may engage in behaviors (e.g., injection drug use, sex/drug-linked behavior, and recklessness or impulsivity) or be exposed to heightened risks (e.g., vulnerability and increased likelihood of victimization) that may increase their risk of contracting HIV [11]. PLWHA are more likely to be the victims of abuse, assault, and other violent crimes in childhood and adulthood relative to seronegative individuals [15]. Specific traumatic events such as sexual assault or individual factors such as exchanging sex for drugs or money may increase risk of contracting HIV [5, 12]. Additionally, PLWHA often experience trauma-related symptoms and may develop PTSD related to their HIV diagnosis [20]. Regarding physical health concerns, HIV/AIDS can put individuals at increased risk for other health problems that may be related to the virus or to HIV treatments, including chronic pain and conditions related to impaired immune system functioning (e.g., cancer, pneumonia) [1].

HIV Stigma

A major factor impacting the health and social well-being of PLWHA is stigma. There are several different types of stigma that can affect the mental, physical, and social well-being of PLWHA. Internalized or self-stigma considers the extent to which an individual internalizes negative beliefs about a personal characteristic or experience—in this case, HIV/AIDS. Stigma from the general public, such as negative attitudes or beliefs about PLWHA and discriminatory behavior (e.g., social avoidance, lack of access to housing, jobs, and health care), are experienced and potentially internalized by PLWHA [21]. For example, an individual living with HIV/AIDS may perceive themselves as having

moral or character weaknesses or being a failure (negative attitudes or beliefs) because of messages they hear from family, friends, members of their community, and the media. This could then lead to reduced self-esteem and self-efficacy and increased hopelessness [21]. Internalized stigma can lead to impairment in social and occupational functioning (e.g., social isolation, failure to seek employment), and can impact treatment engagement (e.g., reluctance to get tested, seek treatment, and/or remain in care). These along with other examples could have lasting, negative physical and psychological effects on PLWHA.

Based on public and internalized beliefs about HIV/AIDS, PLWHA may change their behavior based on how they will anticipate being treated by others because of their HIV status. PLWHA are often subject to negative attitudes and discrimination because of their HIV status [22]. Over time, PLWHA may begin to anticipate future prejudicial and discriminatory experiences. This anticipated stigma can lead to worsened mental and physical health, social isolation, fear or reluctance to disclose their HIV status to others, internalized stigma, and reluctance to engage in HIV treatment [23].

A dominant theory explaining the development and persistence of HIV stigma is the Social Cognitive Model [24, 25]. The Social Cognitive Model posits that an individual may first become aware of negative beliefs about PLWHA early in life through societal messages about HIV/AIDS well before they may have contracted HIV. Over time, an individual's personal cognitive coping style may lead them to accept negative beliefs about PLWHA as true or valid, and these accepted beliefs can become more salient when the individual LWHA sees herself as belonging to the stigmatized group [24, 25]. The Social Cognitive Model incorporates aspects of the Minority Stress Model, noting that individuals within a minority status in society experience both distal (e.g., discrimination and rejection) and proximal (e.g., anxiety, self-doubt, and other byproducts of distal factors) sources of stress that can have a significant impact on mental and physical health and functioning [22]. For Black women, the internalized and anticipated negative beliefs about HIV status can also be compounded by negative beliefs about being a racial and gender minority in the United States [6].

Research has demonstrated the negative impact of anticipated stigma and discrimination on the overall health and well-being of individuals with mental health concerns and PLWHA. Specifically, internalized stigma has been linked to greater symptom severity and poorer treatment engagement among these individuals [19, 21, 23]. Studies have demonstrated that anticipated and internalized stigma can impact the number and severity of mental health symptoms (especially depression and PTSD) and HIV-related symptoms in PLWHA [26–28].

Stigma also plays a role in the physical, mental, and social health of PLWHA. Public stigma and discrimination toward

PLWHA have been linked to increased psychological and social distress and increased fear of discrimination when disclosing one's HIV status to others [21, 28, 29]. Internalized and anticipated stigma have been found to be related to less perceived social support across different areas, including family, friends, co-workers, and members of religious groups [26].

Social and religious support often help individuals cope with HIV and illness-related stressors. Social support has been found to be a major buffer in coping with HIV/AIDS-related stressors and stigma [30], and is also associated with lower depression symptoms [31, 32] and slower illness progression from HIV to AIDS [16]. The role of religious support has been studied among PLWHA with mixed findings. While church groups and religious organizations are often at the forefront of supporting efforts to reduce HIV transmission [33, 34], religion can also be a source of negative messages toward PLWHA [35]. As a result, PLWHA may have conflicting relationships with religion and their church community, fearing punishment and discrimination from their higher power and their church community while also relying on their faith to cope with their illness [34, 36].

Black Women LWHA

Women LWHA report higher levels of stigma, greater psychiatric concerns (most notably trauma experiences and symptoms), increased difficulty coping with their positive HIV status, and less perceived social support than men LWHA [20, 26–28]. These differences are even more pronounced among Black women [37–39]. As previously addressed, Black women have intersecting individual, relational, and contextual risk factors that elevate their risk of contracting HIV [5]. Women LWHA—most notably Black women LWHA—are disproportionately affected by trauma experiences and PTSD relative to men LWHA and the general population [20, 37]. Additionally, added responsibilities and potential burdens of caring for children and other family members can significantly impact Black women's ability to cope with and adjust to an HIV diagnosis [6, 39].

Examining of the role of both religious and social support is important when considering the well-being of Black women LWHA. Research has demonstrated the importance and positive impact of social support and religion and spirituality among Black women [31, 40, 41]. Positive social support can help improve HIV medication adherence among Black women LWHA [37]. However, studies have found that Black women LWHA feel less supported by others compared to seronegative Black women [39]. Religion and spirituality can be a major source of strength, coping, and support for Black women LWHA managing physical and/or mental health concerns [42]. However, it could also lead to greater stigma; a recent study found that Black women LWHA who

reported greater religiosity experienced greater internalized and anticipated stigma, especially as it relates to religious beliefs (e.g., seeing their HIV-positive diagnosis as a punishment from God) [43].

Current Study

The focus of this study was to gain a better understanding of the relation between anticipated stigma and mental, physical, and social health factors among Black women LWHA. These three aspects of health and well-being have not been studied concurrently among this population, and growing rates of HIV/AIDS among Black women indicate a need to better understand risk and protective factors within this group. First, the study sought to consider the degree to which anticipated HIV stigma was related to physical and mental health symptoms and functioning among Black women LWHA. Second, the relations between HIV stigma and risk and protective factors (e.g., coping, discrimination, and social support) were examined. We hypothesized that individuals with higher anticipated HIV stigma would report greater mental and physical health symptom severity, less perceived social support, and less positive coping strategies than individuals with lower anticipated HIV stigma.

Methods

Participants and Setting

Data from baseline measures were collected as part of a study funded by the Substance Abuse and Mental Health Administration (SAMHSA), Center for Mental Health Services (CMHS). The focus of the study was to evaluate a trauma-informed intensive community support program (ICSP) that provides mental healthcare and access to other services for women with co-occurring mental health and HIV diagnoses. All participants ($N = 220$) were recruited between 2007 and 2011 and were eligible for the study if they: (1) were receiving mental health services at the ICSP; (2) identified as female and Black/African American; and (3) were living with HIV/AIDS. Any client in the ICSP program who met these criteria was eligible to participate in the study. Participants were recruited through posted flyers and announcements made within the ICSP. Participants that consented to study procedures were interviewed by trained research staff and were paid \$20 for their participation.

Procedures

Data were collected through questionnaires completed in an interview format in one-on-one settings between participants and study staff. Study procedures were approved by

the Institutional Review Board of University of Maryland, Baltimore.

Measures

Sociodemographic characteristics, including, age (in years), education (less than high school versus high school and greater), and employment (employed versus unemployed) were assessed. Participants were also asked to report the length of time they have known about their HIV status (in years) and most recent viral load and CD4 counts (self-reported values). Participants also responded to Yes/No questions regarding their current engagement in HIV treatment and use of HIV medications. Given the ICSP was a trauma-informed program, data on types of trauma experiences (categorical) were also gathered for each participant.

Stigma

HIV-related stigma and discrimination were measured using the 12-item Experiences with Discrimination and Fear of Discovery scale [44]. Respondents rated the extent to which they experienced anticipated stigma (6 items; e.g., “How often do you ask others to keep your HIV/AIDS status a secret?”) or discrimination (6 items; e.g., “How often do others avoid you after they learn of your HIV/AIDS status?”) since they were diagnosed with HIV. Items were rated using a 4-point Likert-type scale (1 = never to 4 = often), and mean subscale scores were calculated; higher means indicate greater levels of stigma and discrimination. Disclosure of HIV status was measured through six items, each of which included different categories of individuals (e.g., immediate family, close friends, people at work). Respondents rated how many people within each category they disclosed their status based on a 3-point Likert-type scale (1 = told none of them to 3 = told all of them). Internal consistency for this study was good for the anticipated stigma ($\alpha = .83$), discrimination ($\alpha = .88$), and disclosure ($\alpha = .84$) subscales.

Traumatic Events and Symptoms

Traumatic events and PTSD symptoms were measured with a brief survey created by study researchers (the District of Columbia Trauma Collaboration Study team) [45] and the PTSD symptom scale (PSS) [46, 47]. The traumatic events survey contains eight “Yes/No” questions pertaining to experiencing/witnessing traumatic events (e.g., physical violence, sexual violence, threats) in their lifetime (lifetime trauma index), and, if yes, a follow-up question about whether the event occurred within the past 6 months (recent trauma index). The sum of “yes” responses (ranging from 1 to 8) provides an estimate of lifetime and recent trauma burden, with 8 being the highest burden. Individuals also responded

to items asking about the age at which their earliest trauma experience occurred and if they were concerned about being revictimized in the future.

The PSS is a 17-item scale requiring respondents to rate the frequency they experienced PTSD symptoms (1 = not at all or one time to 3 = five or more times a week or almost always). Responses were summed to create an overall measure of symptom severity ranging from 0 to 51, with higher scores indicating greater frequency of symptoms; the cut-off score for possible presence of PTSD is 21. The PSS has demonstrated excellent internal consistency ($\alpha = .91$), good test–retest reliability (.74), good concurrent validity when compared to measures of depression (Beck Depression Inventory, $r = .80$), anxiety (State-Trait Anxiety Inventory, $r = .52$), and trauma (Rape Aftermath Symptom Test, $r = .81$), and convergent validity with diagnostic criteria for PTSD as measured by the Structured Clinical Interview for DSM (SCID, 86% correct identification, 62% sensitivity, 100% specificity) [48]. Internal consistency for this study was good ($\alpha = .94$).

Mental and Physical Health

Mental health symptoms and symptom severity were measured using the Brief Symptom Inventory (BSI) [49]. The BSI includes 53 items across 10 subscales: somatization, obsessive–compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobias, paranoid ideation, psychoticism, and miscellaneous (appetite, sleep, thoughts of death, and guilt). Each item was rated on a 5-point Likert-type scale (0 = no distress to 4 = extreme distress). A Global Distress Severity Index (GDSI) score was created by taking the average of all subscale scores, with higher scores indicating greater distress. Additionally, a Positive Symptom Total (PST) score was calculated by summing the number of items with a positive (greater than 0) response. The BSI has good internal consistency, ranging from $\alpha = .71$ to $\alpha = .85$ for each subscale, and good test–retest reliability ranging from $r = .68$ to $r = .91$ for each subscale, $r = .87$ for the PST score and $r = .90$ for the GDSI [50, 51]. High convergent validity was found between the BSI and the Minnesota Multiphasic Personality Inventory [49]. Internal consistency for this study for the GDSI was good ($\alpha = .94$).

Additional mental and physical health symptoms were measured with the SF-12 Health Survey [52], a self-report questionnaire containing 12 items assessing an individual’s physical and mental health functioning in the past month. Items are rated using both “Yes/No” and Likert scale formats. Questions were scaled and summed to create summary scores for both physical and mental health functioning (0 = lowest level of health to 100 = highest level of health). Internal consistency was good among general population surveys in the US for both the physical ($\alpha = .89$) and mental

($\alpha = .76$) summary scores [53]. The SF-12 has been validated against the longer SF-36 Health Survey (parent scale) [53, 54], and each summary score was shown to differentially identify functional impairment due to physical and mental health concerns [52]. Internal consistency for this study was good for both the physical ($\alpha = .83$) and mental ($\alpha = .84$) summary scores.

Risk and Protective Factors

Perceived social support was assessed using the Provision of Social Relations Scale (PSRS) [55], a 15-item questionnaire measuring how much the respondent feels supported by others in general, including specific statements about family and friend support. Participants rated each item on a Likert-type scale (1 = not at all like me to 5 = very much like me). Mean PSRS scores were calculated, with higher scores indicating greater perceived social support. Internal consistency from previous studies of HIV and general samples range from $\alpha = .67$ to $\alpha = .89$ [56, 57]. Validity studies found utility of this scale with White and Black Americans LWHA [58]. Internal consistency for this study was good ($\alpha = .85$).

The Brief COPE [59] is a 28-item measure that groups items into adaptive (e.g., use of emotional support, acceptance, religion) and dysfunctional coping (e.g., denial, substance use, self-blame). Respondents rated how much they used specific coping strategies based on a 4-point Likert-type scale (1 = I haven't been doing this at all to 4 = I've been doing this a lot). Mean subscale scores were calculated; higher scores indicate greater use of a particular coping strategy. Internal consistency is good, ranging from $\alpha = .50$ to $\alpha = .90$ for each subscale [59, 60]. Estimates of test–retest reliability range from $r = .58$ to $r = .72$ [60]. Internal consistency for this study was good for both the adaptive ($\alpha = .77$) and dysfunctional ($\alpha = .71$) coping subscales.

The 14-item Brief RCOPE [61] was used to examine participants' use of positive (e.g., “Looked for a stronger connection with God”) and negative (e.g., “Wondered what I did for God to punish me”) religious coping strategies. Respondents rated how much they used a specific coping strategy using a 4-point Likert-type scale (0 = not at all to 3 = a great deal). Mean subscale scores were calculated; higher scores indicated greater use of a particular coping strategy. Research on several populations (e.g., trauma victims, elderly, college students) found good internal consistency for both the positive ($\alpha = .92$, average) and negative ($\alpha = .81$, average) subscales and validation for this two-factor structure [62]. Internal consistency for this study was good for both the positive ($\alpha = .89$) and negative ($\alpha = .86$) subscales.

Statistical Analysis

All data were deidentified and stored and analyzed in SPSS version 22. Descriptive statistics and bivariate correlation analyses were first conducted to better understand the study sample and basic relations among variables. Pearson Correlations tested hypotheses about the relation between stigma and health-related factors (mental health, physical health, and risk and protective factors). Correlations between stigma and demographic factors and HIV status (e.g., age, education, HIV status) were reviewed to determine whether subsequent regression analyses would be needed to control for possible covariates. Any covariates that were significantly correlated with stigma at the $p < .05$ -level were then also correlated with health-related factors to consider possible examination of covariates as moderating variables on the relation between stigma and health factors. When significant relations were found, specificity analyses were conducting using stepwise regression: step one included any covariates significantly related to outcome variables (PSS, BSI, PSR, Brief COPE, RCOPE); step two added stigma (predictor variable); and step three added the interaction between possible covariates and stigma.

Results

Participant Characteristics

The participants, 220 Black women LWHA, were predominantly Not Hispanic/Latina (99.5%), single/unmarried (91.5%), and had an average age of 43.4 years ($SD = 8.9$, range: 20–64 years). Most had at least a high school degree (55.3%) and were currently unemployed (90.0%). On average, participants were enrolled in the ICSP a little over one year when they completed baseline measures ($M = 1.22$ years, $SD = 2.44$, range: 0–20 years). In regards to HIV status, self-report measures revealed that, on average, the women had been diagnosed with HIV for about 11 years ($M = 11.20$, $SD = 7.70$, range: 0.28–41.42 years), and 63% reported currently taking HIV medication. Participants reported a wide range of current CD4 counts ($M = 507.13$, $SD = 464.22$, range: 6–4400), with 42.0% reporting ever having CD4 counts below 200 (AIDS diagnosis). The vast majority of women (92.1%) reported a history of trauma. Childhood abuse was common among this sample, with 43.3% reporting a history of childhood physical abuse and 64.3% reporting a history of childhood sexual abuse. Additionally, 56.7% reported a history of physical assault and 44.8% reported a history of sexual assault in adulthood.

The average anticipated stigma score in this sample of Black women LWHA was 2.33 ($SD = 0.89$, range: 0–4). Both age and years living with HIV diagnosis were negatively significantly related to anticipated stigma. Younger participants reported greater stigma ($r = -.15$, $p < .05$), as did individuals who reported fewer years living with HIV ($r = -.18$, $p < .01$). No other demographic variables were significantly correlated with level of anticipated stigma. Given that age and years living with HIV diagnosis were also positively significantly correlated (older individuals were living with HIV longer than younger individuals, $r = .30$, $p < .001$), it was decided that only one of these variables, years living with HIV diagnosis, would be used as a covariate in additional regression analyses.

Mental and Physical Health Symptoms

Descriptive statistics for stigma and mental health concerns, as well as Pearson Correlation statistics between stigma and

mental health concerns are included in Table 1. Individuals with higher anticipated stigma ratings reported greater number of lifetime and recent trauma experiences as well as increased concern for continued risk for revictimization ($p < .05$). Stigma ratings were not significantly related to the age of first trauma experience ($M = 12.06$, $SD = 7.57$). Overall, anticipated stigma was shown to be positively significantly correlated with all mental health symptoms and functioning as measured on the PSS, BSI, and SF-12. Individuals with higher anticipated stigma were more likely to experience a greater number of PTSD and other mental health symptoms (PSS, $p < .001$; BSI symptom subscales, $p < .01 - p < .001$), reported greater mental health symptom severity (BSI Global Severity Index, $p < .001$), and more functional impairment related to mental health concerns (SF-12 mental summary score, $p < .001$). Anticipated stigma was not significantly related to physical health-related functioning (SF-12 physical summary score, $p = .61$).

Table 1 Mental and physical health symptoms and their relation to anticipated HIV stigma

Variable	<i>N</i>	<i>M</i> (<i>SD</i>)	Range	Correlation with Stigma <i>r</i>
Stigma	220	2.33 (0.89)	0–4	–
<i>Trauma</i>				
Lifetime traumas	214	4.49 (2.43)	0–8	.16*
Recent traumas	214	.55 (1.17)	0–7	.16*
Age of first trauma	192	12.06 (7.57)	1–47	–.04
Perceived risk of revictimization	215	1.80 (1.12)	1–6	.16*
PSS—otal trauma symptoms ^a	216	18.23 (12.66)	0–51	.32***
<i>Mental & physical health</i>				
BSI ^b —Global Severity Index	220	1.25 (0.81)	0–3	.41***
BSI—positive symptom total	220	31.20 (13.30)	1–52	.37***
BSI—somatization	220	1.18 (0.88)	0–4	.25***
BSI—obsessive—compulsive	220	1.50 (1.01)	0–4	.38***
BSI—interpersonal sensitivity	220	1.30 (1.03)	0–4	.36***
BSI—depression	220	1.21 (0.93)	0–4	.42***
BSI—anxiety	220	1.20 (0.94)	0–4	.35***
BSI—hostility	220	1.06 (0.88)	0–4	.32***
BSI—phobias	220	.94 (1.00)	0–4	.26***
BSI—paranoid ideation	220	1.69 (1.16)	0–4	.38***
BSI—psychoticism	220	1.17 (0.91)	0–4	.37***
BSI—appetite	220	1.19 (1.36)	0–4	.22***
BSI—sleeplessness	220	1.93 (1.50)	0–4	.25***
BSI—thoughts of death	219	.91 (1.20)	0–4	.21**
BSI—guilt	220	1.54 (1.46)	0–4	.41***
SF-12—physical summary	213	41.04 (11.46)	16–63	–.03
SF-12—mental summary	213	40.37 (11.94)	12–69	–.31***

^aPSS = PTSD symptom scale

^bBSI = brief symptom inventory

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

Risk and Protective Factors

Descriptive statistics for risk and protective factors, as well as Pearson correlations between stigma and these variables are included in Table 2. Results revealed a positive, significant correlation between stigma and discrimination, such that individuals reporting higher anticipated stigma also report greater discrimination ($p < .001$). Additionally, stigma was negatively significantly correlated with disclosure; individuals reporting higher stigma reported less disclosure of their positive HIV status ($p < .001$) across all social groups (family, friends, neighbors, co-workers). Interestingly, anticipated stigma was not significantly related to perceived social support from family ($p = .56$) or friends ($p = .62$) as measured by the PSRS.

Anticipated stigma was found to be unrelated to use of positive coping strategies, both in regards to general adaptive strategies on the Brief COPE (e.g., active planning, positive reframes, and use of emotional support; $p = .83$) and positive religious strategies on the Brief RCOPE (e.g., sought love and strength from God; $p = .76$). Women in this study were equally likely to use positive coping strategies, regardless of level of anticipated stigma. There were significant positive correlations between anticipated stigma and dysfunctional or negative coping strategies. Individuals with higher HIV stigma reported using more dysfunctional coping strategies (Brief COPE; e.g., denial, substance use, self-blame, $p < .001$) and more negative religious strategies (Brief RCOPE; e.g., felt punished by God, questioned God's love, $p < .001$).

Table 2 Risk and protective factors and their relation to anticipated HIV stigma

Variable	<i>N</i>	<i>M</i> (<i>SD</i>)	Range	Correlation with Stigma <i>r</i>
Discrimination	220	1.84 (0.82)	1–4	.36***
Disclosure	216	1.75 (0.76)	1–3	–.39***
PSR—family ^a	212	15.18 (6.83)	6–30	.04
PSR—friend	134	20.88 (6.91)	9–38	.13
Brief COPE—adaptive	218	2.88 (0.51)	1.33–4.00	.02
Brief COPE—dysfunctional	219	2.16 (0.66)	1.00–3.80	.37***
Brief RCOPE—positive	220	3.31 (0.67)	1–4	–.02
Brief RCOPE—negative	220	1.75 (0.76)	1–4	.25***

^aPSR = provision of social relations scale

*** $p < .001$

Moderating Analyses

As previously indicated, the years living with an HIV diagnosis variable was negatively and significantly related to level of anticipated HIV stigma. Additional bivariate correlations found that years living with an HIV diagnosis was significantly and negatively related to seven health-related factors: experience of recent trauma ($r = -.17$, $p < .05$); the interpersonal subscale of the BSI ($r = -.15$, $p < .05$); the hostility subscale of the BSI ($r = -.16$, $p < .01$); the guilt items of the BSI ($r = -.17$, $p < .05$); the SF-12 physical summary score ($r = -.20$, $p < .01$); level of disclosure ($r = .17$, $p < .05$), and negative religious coping (Brief RCOPE, $r = -.15$, $p < .05$). Individuals who have been living longer with their HIV diagnosis reported fewer and less severe mental health symptoms, less functional impairment, were more likely to disclose their HIV status to others, and were less likely to use negative or dysfunctional religious coping strategies.

Table 3 includes data from the regression analyses. Stepwise regression analyses were conducted with these seven factors as outcome variables. For the BSI subscales, disclosure, and negative religious coping, any unique effect of years living with an HIV diagnosis was cancelled out by the inclusion of stigma as a predictor. As stigma was not significantly related to the SF-12 physical composite scale, it did not have a unique effect when included as a predictor in the regression analysis. There were no significant interaction effects between anticipated stigma and years living with HIV diagnosis for any of the models ($p > .05$).

Discussion

The goal of this study was to examine the relation between anticipated HIV stigma and physical, mental, and social health factors among a sample of Black women LWHA. Correlational analyses revealed that individuals with higher levels of anticipated HIV stigma reported greater mental health symptoms, use of negative coping strategies, and discrimination due to HIV diagnosis, and less disclosure of their status to others. Physical functioning, perceived social support from friends and family, and use of positive coping strategies were unrelated to degree of anticipated HIV stigma experienced.

Consistent with previous research [19, 26, 63], Black women LWHA with higher anticipated stigma reported greater frequency and severity of mental health symptoms. Individuals with higher stigma ratings reported greater symptoms and symptom severity across many psychodiagnostic categories, including depression, anxiety, and PTSD. Coupled with greater number of trauma-related symptoms, women with higher stigma reported a greater number of

Table 3 Results of regression analyses using years diagnosed with HIV as a covariate

Variable	Model 1 ^a				Model 2 ^b				Model 3 ^c			
	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>
<i>Recent trauma</i>												
Years diagnosed	-.02	.01	-.13	-1.87	-.02	.01	-.11	-1.49	-.02	.03	-.3	-0.65
Stigma					.20	.10	.14	2.01*	.19	.17	.14	1.12
Years*Stigma									.001	.01	.02	0.10
<i>R</i> ²		.02				.04				.04		
<i>F</i> for ΔR^2		3.50				4.05*				0.01		
<i>BSI^d-interpersonal</i>												
Years diagnosed	-.02	.01	-.15	-2.18*	-.01	.01	-.09	-1.80	-.04	.02	-.31	-1.75
Stigma					.34	.08	.33	4.85***	.25	.14	.21	1.80
Years*Stigma									.01	.01	.25	1.33
<i>R</i> ²		.02				.13				.13		
<i>F</i> for ΔR^2		4.77*				23.56***				1.77		
<i>BSI-hostility</i>												
Years diagnosed	-.02	.01	-.16	-2.27*	-.01	.01	-.11	-1.62	-.01	.02	-.07	-.40
Stigma					.26	.07	.26	3.78***	.28	.12	.28	2.41*
Years*Stigma									-.00	.01	-.04	-.23
<i>R</i> ²		.03				.09				.09		
<i>F</i> for ΔR^2		5.16*				14.30***				.05		
<i>BSI-Guilt</i>												
Years diagnosed	-.03	.01	-.17	-2.44*	-.02	.01	-.10	-1.55	-.02	.03	-.11	-.64
Stigma					.62	.11	.37	5.66***	.61	.19	.37	3.28***
Years*Stigma									.00	.01	.01	.07
<i>R</i> ²		.03				.16				.16		
<i>F</i> for ΔR^2		5.97*				31.78***				.01		
<i>SF-12^e Physical</i>												
Years diagnosed	-.30	.10	-.20	-2.90**	-.31	.10	-.21	-2.97**	-.35	.28	-.24	-1.26
Stigma					-.58	.92	-.05	-.63	-.78	1.55	-.06	-.50
Years*Stigma									.02	.12	.03	.16
<i>R</i> ²		.04				.04				.04		
<i>F</i> for ΔR^2		8.43**				.40				.03		
<i>Disclosure</i>												
Years diagnosed	.01	.01	.17	2.44*	.01	.00	.09	1.40	.01	.01	.12	.71
Stigma					-.27	.04	-.44	-6.88***	-.26	.07	-.43	-3.93***
Years*Stigma									-.00	.01	-.04	-.20
<i>R</i> ²		.03				.22				.22		
<i>F</i> for ΔR^2		5.94*				47.38				.04		
<i>RCOPE^f negative</i>												
Years diagnosed	-.02	.01	-.15	-2.12*	-.011	.01	-.11	-1.56	-.01	.02	-.07	-.36
Stigma					.19	.06	.22	3.12**	.211	.10	.24	2.03*
Years*Stigma									-.00	.01	-.05	-.24
<i>R</i> ²		.02				.07				.07		
<i>F</i> for ΔR^2		4.49*				9.71**				.06		

Models created only for variables significantly correlated with years diagnosed

^aModel 1: predictor variable = years diagnosed

^bModel 2: predictor variables = main effects only (years diagnosed, stigma)

^cModel three: predictor variables = main effects (years diagnosed, stigma) and interaction (years diagnosed \times stigma)

^dBSI = brief symptom inventory

^eSF-12 = SF-12 health survey

^fRCOPE = religious coping

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

lifetime and recent trauma events and increased perceived risk of future revictimization. Taking this into account, perhaps some individuals are at increased risk (e.g., genetic vulnerability, increased environmental stressors) for emotional distress, which may lead to a more negative view of self and increased stigma. Differences in trauma and other mental health symptoms may also be related to coping strategies; individuals with greater anticipated stigma were more likely to engage in negative coping strategies that often tend to worsen rather than alleviate long-term psychological distress. This relation between trauma, stigma, and coping resources is consistent with research focused on more general populations of individuals LWHA [64, 65].

One area that has been widely studied is stigma's relation to social health. This study's findings were consistent with prior research regarding the relation between stigma, discrimination, and disclosure [20, 26–28, 66]. However, despite notable relations between stigma and discrimination and disclosure, most women in this study reported feeling well-supported by friends and family, regardless of level of stigma. Participants with higher stigma ratings were less likely to disclose their HIV status. One explanation for these findings is they could have felt well-supported by those with whom they feel comfortable sharing their HIV-positive status. An alternative consideration is that, because they were less forthcoming about their status, they were less likely to experience discrimination due to their HIV diagnosis.

Interestingly, participants who were older in age or who had been living with an HIV diagnosis for a longer amount of time reported less anticipated HIV stigma. It may be the case that individuals who have been living with and trying to manage their diagnosis and related health concerns for a longer time have developed strategies to better cope with negative public reactions to their HIV diagnosis. Alternatively, they could have become less concerned, sensitive to, or fearful of public stigma over the course of their diagnosis. The relation between stigma and years living with an HIV diagnosis was revealed in this study, as was the relation between years living with HIV and other health-related factors. However, mediational analyses revealed that health-related factors were more strongly related to anticipated stigma rather than length of time living with HIV/AIDS.

Limitations

As this was a cross-sectional study, temporality could not be determined and it is therefore not possible to make causal inferences about the relation between HIV stigma and measured aspects of health and well-being. All data were gathered through self-report questionnaires, so there may have been inaccuracies in reporting HIV-related information (e.g., years diagnosed, viral load, current CD4 count). Thus,

caution should be taken when considering relation of HIV status to other variables presented in this manuscript. Additionally, this study was a secondary analysis of data included in a larger program evaluation study. Thus, hypotheses and subsequent findings were limited to measures chosen by the grant-funded researchers and available data gathered. While the stigma and discrimination measure was focused on HIV, the other measures assessing protective factors (social support and coping) were general in nature; it is unclear, then, whether responses would remain the same had participants been asked to rate coping behaviors based solely on how they managed their positive HIV status.

Additionally, there were limitations related to the study-created questionnaire about lifetime and recent traumatic events. The participants could identify the type of traumatic events experienced, including childhood sexual abuse, childhood physical abuse, and sexual and physical assault in adulthood. However, there were no data available on the number of discrete traumatic events within each category (i.e., the number of times a participant was sexually abused or assaulted), and data were not all-inclusive to consider events such as threats or witnessing of events versus being a victim of a violent act. Additionally, many of the women in this study reported multiple traumatic events, so the unique experience of a specific type of traumatic event on an individual's reported degree of anticipated stigma or other health variables could not be determined.

Some caution should be taken when considering the generalizability of this study's findings. The participants included Black women from one major metropolitan area in the United States who were actively engaged in a program that provided trauma-informed care for HIV, physical health, and mental health concerns. The majority of these women were also engaged in the program for at least one year when baseline data were collected. Therefore, findings could differ dramatically if participants were from different regions in the United States, were not engaged in such a program, or were newly engaged in care.

Conclusion and Future Directions

This study examined the general relation between anticipated HIV stigma and physical, mental, and social health factors among a sample of Black women LWHA. Results suggest a relation between anticipated stigma, greater psychological and social concerns, and use of more negative coping strategies. This line of research can be continued in several ways. First, this manuscript only reviews baseline data taken from a larger program evaluation study. Future manuscripts can examine follow-up data (collected at six- and 12-months after baseline) to examine any changes in stigma and health functioning as a result of continued engagement in this trauma-informed program. Second, a

similar study protocol can be completed with a larger, more generalizable sample. For example, it would be important to examine similar study variables in a sample of Black women LWHA in other regions of the country or women who are not yet engaged in or newly admitted to HIV care.

Finally, knowing the role of HIV stigma on health and well-being is critical to implementing integrated treatment. Programs that target anticipated HIV stigma and related mental health concerns can be helpful in reducing the negative effects of HIV stigma on health and well-being. Results from this study point to a need to focus not just on the PLWHA, but also on family, friends, and other members of their support network who may be relaying stigmatizing messages to PLWHA. There is a need to address the larger public to help reduce stigma toward PLWHA in addition to providing support to individuals affected by these messages. Creating programs that provide education and support to family and friends can be helpful in reducing negative messages received by PLWHA, and can help those LWHA feel more supported and more likely to engage in life-saving health care.

Intensive case management programs, such as the one from which participants were recruited, can be one effective way to engage and retain individuals in care. Since stigma has been shown to affect engagement in HIV care [19], developing and using integrated case management programs can be a helpful way to improve engagement and retention. These programs not only focus on HIV care, but they also help PLWHA manage other co-occurring disorders and psychosocial concerns. A second component of this case management program is the focus on delivering trauma-informed services. Given the high rates of PTSD and other mental health concerns among Black women LWHA [20], programs that work within a recovery and trauma-informed framework are likely to better address the unique needs and concerns of this group of individuals. Third, programs that address specific needs of subgroups of the population particularly affected by HIV/AIDS (i.e., Black women) can better target the unique needs and challenges of the group and provide a safe space for the individuals to seek appropriate care.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants involved in this study.

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