

# Discrimination, Medical Distrust, Stigma, Depressive Symptoms, Antiretroviral Medication Adherence, Engagement in Care, and Quality of Life Among Women Living With HIV in North Carolina: A Mediated Structural Equation Model

Michael V. Relf, PhD, RN, FAAN,<sup>a,b</sup> Wei Pan, PhD,<sup>a</sup> Andrew Edmonds, PhD, MSPH,<sup>c</sup> Catalina Ramirez, MPH, CCRP,<sup>d</sup> Sathya Amarasekara, MS,<sup>a</sup> and Adaora A. Adimora, MD, MPH<sup>c,e</sup>

**Background:** Women represent 23% of all Americans living with HIV. By 2020, more than 70% of Americans living with HIV are expected to be 50 years and older.

**Setting:** This study was conducted in the Southern United States—a geographic region with the highest number of new HIV infections and deaths.

**Objective:** To explore the moderating effect of age on everyday discrimination (EVD); group-based medical (GBM) distrust; enacted, anticipated, internalized HIV stigma; depressive symptoms; HIV disclosure; engagement in care; antiretroviral medication adherence; and quality of life (QOL) among women living with HIV.

**Methods:** We used multigroup structural equation modeling to analyze baseline data from 123 participants enrolled at the University of North Carolina at Chapel Hill site of the Women's Interagency HIV Study during October 2013–May 2015.

**Results:** Although age did not moderate the pathways hypothesized, age had a direct effect on internalized stigma and QOL. EVD had a direct effect on anticipated stigma and depressive symptoms. GBM distrust had a direct effect on depressive symptoms and a mediated effect through internalized stigma. Internalized stigma was the only form of stigma directly related to disclosure. Depressive symptoms were a significant mediator between GBM, EVD, and internalized stigma reducing antiretroviral therapy medication adherence, engagement in care, and QOL.

**Conclusions:** EVD, GBM, and internalized stigma adversely affect depressive symptoms, antiretroviral therapy medication adherence, and engagement in care, which collectively influence the QOL of women living with HIV.

**Key Words:** women living with HIV, discrimination, stigma, medical distrust, adherence, quality of life, depression

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From the <sup>a</sup>School of Nursing, Duke University, Durham, NC; <sup>b</sup>Duke Global Health Institute, Duke University, Durham, NC; <sup>c</sup>Department of Epidemiology, Gillings School of Global Public Health, The University of North Carolina at Chapel Hill, Chapel Hill, NC; <sup>d</sup>Women's Interagency HIV Study, The University of North Carolina at Chapel Hill, Chapel Hill, NC; and <sup>e</sup>School of Medicine, The University of North Carolina at Chapel Hill, Chapel Hill, NC.

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Correspondence to: Michael V. Relf, PhD, RN, FAAN, Duke University School of Nursing, DUMC 3322, 307 Trent Drive, Durham, NC 27710 (e-mail: michael.relf@duke.edu).

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HIV stigma and fear as well as denying equal opportunities, inequities in life, and health outcomes are significant.<sup>4</sup>

Because of antiretroviral therapy (ART) and other scientific advances, persons living with HIV (PLWH) now have a longer life expectancy and will age with HIV as a comorbid condition.<sup>5</sup> Older persons, defined age 50 and older, comprise an estimated 45% of currently diagnosed PLWH in the United States.<sup>6</sup> By 2020, more than 70% of Americans living with HIV are expected to be 50 and older.<sup>7</sup> The quality of life (QOL) of aging PLWH may be diminished due to loneliness and isolation associated with illness and/or previous loss of family and friends; comorbidities and medical complications; polypharmacy; poorer mental health; and stigma and discrimination from health care providers and society.<sup>5–8</sup>

Once considered unidimensional, HIV stigma is now recognized as a multidimensional construct with multiple mechanisms of action. In the HIV Stigma Framework by Earnshaw and Chaudoir,<sup>9</sup> the mechanisms of HIV stigma include enacted, anticipated, and internalized forms. Turan et al<sup>10</sup> conceptualized 4 forms of HIV stigma—enacted, anticipated, community (perceived), and internalized—that are layered upon structural and intersectional stigmas (race, class, gender, and sexuality), which in turn influence engagement in care.

PLWH directly experience enacted HIV stigma through discrimination, stereotyping, and/or prejudice by others because of their HIV status.<sup>11</sup> Anticipated HIV stigma is reflected in the person's concerns about discrimination or adverse events that might happen should one's HIV status become known by others—whether a consequence of intentional or planned disclosure, or inadvertent disclosure through breaches in confidentiality.<sup>12</sup> Perceived or community stigma relates to how much a PLWH believes that the public stigmatizes someone with HIV.<sup>13</sup> Internalized HIV stigma, also referred to as self-stigma, occurs when the negative attitudes, beliefs, and feelings associated with HIV become integrated into self-threatening self-concept and self-esteem.<sup>14–16</sup> The mechanisms of action associated with HIV stigma are a barrier to prevention, treatment, disclosure, engagement in care, and adherence among PLWH.<sup>17</sup>

WLWH tend to experience more negative effects of HIV stigma than men.<sup>18,19</sup> Among women, those reporting higher levels of HIV stigma frequently have higher levels of stress and depressive symptoms,<sup>20,21</sup> are less likely to receive medical care for HIV<sup>21,22</sup> and adhere to ART,<sup>23,24</sup> and frequently<sup>21,25</sup> report a lower QOL. However, little is known about how older PLWH, especially WLWH, experience the various forms of HIV stigma compared with their younger counterparts.<sup>26</sup> In a meta-analysis of 24 studies conducted in PLWH in North America, Logie and Gadalla<sup>27</sup> found a negative relationship between age and stigma. This study was limited by the substantial variability in how HIV stigma was measured, the small number of WLWH in the samples, and data collection periods of more than a decade ago (2000–2007). In recent work by Emler et al,<sup>26</sup> PLWH 55 and older had significantly lower overall and internalized stigma compared with PLWH younger than 40 years, even with controlling for gender, sexual orientation, income, time

since diagnosis, depression, maladaptive coping, and social support. When controlling for demographic and psychosocial variables, this study found that age did not predict enacted or anticipated stigma. However, there was a significant interaction between depression and age suggesting that stigma declines with age among those who are depressed but increases to age 50 and then decreases in older age groups among those without depression.

In a random US national sample, Kessler et al<sup>28</sup> documented that 60.9% of participants reported day-to-day exposure to discrimination. The construct of everyday discrimination (EVD) describes aspects of interpersonal discrimination that are sometimes relatively minor, can be chronic or episodic, but are common.<sup>29</sup> These frequent instances of unfair treatment adversely impact the health of individuals being discriminated against—both physically and mentally.<sup>29</sup> Likely related to previous discrimination in the health care setting, group-based medical (GBM) distrust—the tendency not to trust the medical system and its personnel—is also associated with negative health outcomes.<sup>30</sup> In the United States, GBM distrust, especially related to race and/or ethnicity, is a significant mediator of ART medication adherence among PLWH<sup>31,32</sup> and is associated with sub-optimal HIV health care utilization among WLWH.<sup>33</sup> When medical trust is high, PLWH are more engaged in self-care.<sup>34</sup> Consequently, experiences of discrimination and medical distrust impair patient–provider relationships, negatively influencing engagement in care,<sup>13</sup> and adherence to ART.<sup>31,32</sup>

In PLWH older than the age of 50, especially WLWH, there has been minimal exploration of the moderating effect of age on the multidimensional mechanisms associated with HIV stigma and its interaction with depressive symptoms and health outcomes, ART medication adherence, and engagement in care.<sup>3,26</sup> Furthermore, research exploring the intersection of experiences with EVD, GBM distrust, and the mechanisms of action of HIV stigma among WLWH in the Southern United States is limited.<sup>3</sup> Thus, a theoretical understanding of the relationships among these phenomena will facilitate development of effective interventions to help WLWH successfully age, engage in care, and adhere to ART while optimizing QOL.

Guided by empirical evidence and presented in graphic form, theory synthesis allows for representation of factors preceded or influenced by a particular factor or set of factors, represents the effects that occur after an event, and puts discrete scientific data into a more theoretically organized representation.<sup>35</sup> Therefore, building upon the theoretical work of Earnshaw and Chaudoir<sup>9</sup> and Turan et al,<sup>10</sup> this study aimed to explore the theoretical pathways, and the moderating effect of age, among GBM distrust, experiences with EVD, HIV stigma [enacted (ENA), anticipated (ANT), and internalized (INT)], depressive symptoms (DEP), HIV disclosure (DIS), engagement in care (ENG), ART medication adherence (ADH), and quality of life (QOL) among WLWH.

In the proposed theoretical model (Fig. 1), we hypothesized that EVD and GBM, as independent exogenous variables, had a nondirectional association. EVD was hypothesized to be directly associated with DEP while GBM was

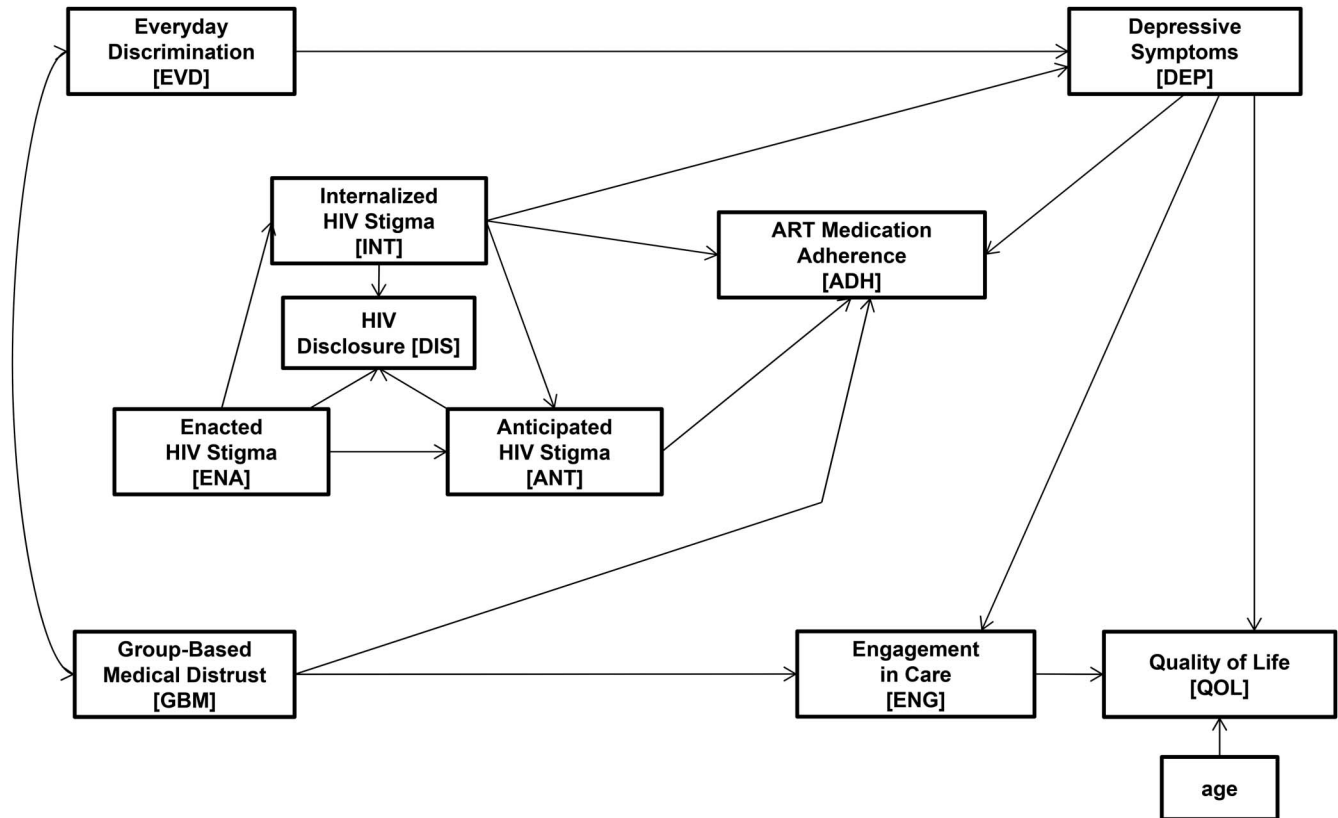


FIGURE 1. The hypothesized structural equation model.

hypothesized to be directly associated with both ADH and ENG. Treating HIV stigma as a multidimensional construct, we hypothesized that ENA would directly influence INT and ANT. In turn, INT would directly influence DEP while INT and ANT would directly influence ADH. INT, ENA, and ANT were hypothesized to have a direct effect on DIS. DEP, preceded by INTL and EVD, was hypothesized to decrease ENG, ADH, and QOL. Similarly, ENG, preceded by GBM and DEP, was hypothesized to negatively influence QOL. The goal of the analysis was to explore these theoretical relationships and identify the most parsimonious model which yielded robust fit indices.

**METHODOLOGY**

We analyzed screening and baseline data from WLWH who enrolled at the University of North Carolina at Chapel Hill (UNC) site of the Women’s Interagency HIV Study (WIHS) between October 2013 and May 2015. The WIHS is a multicenter, prospective, observational study of women who are either living with HIV or at risk for HIV acquisition; the first enrollment wave occurred in 1994.<sup>36</sup> Reflecting the significant HIV disease burden in the Southern United States, 4 new sites—including UNC—were added during the most recent WIHS participant expansion in 2013. WLWH were eligible to enroll in the WIHS if they were between the ages of 25–60 years, consented to participate in the study, complete the interview in English or Spanish, travel to the

research site for an interview and physical examination every 6 months, and have blood drawn for laboratory testing.<sup>36,37</sup>

Human subjects’ approval for the WIHS was obtained from the UNC Office of Human Research Ethics; in addition, this study was approved by the Duke University Institutional Review Board. The constructs associated with the specific aim of this study were measured using psychometrically reliable and valid instruments and are described in Table 1.<sup>29,30,38–42</sup>

Analytically, the moderating effects of age were tested for invariance of the pathways (Fig. 1) across the 2 age groups (WLWH ≥50 years vs. <50 years) using multigroup structural equation modeling (MG-SEM).<sup>43</sup> In MG-SEM, equality constraints were imposed on the pathways, and the data for both groups were analyzed simultaneously to obtain efficient estimates.<sup>44</sup> In the unconstrained model, the pathways were allowed to vary across the 2 age groups. The nested  $\chi^2$  test statistic was used to compare the fit between these 2 models. If a better model fit was obtained from the unconstrained model, it would suggest that the pathways are moderated by age; in other words, the strength of the pathways among the variables in the model was different across the 2 age groups. Bootstrapping was implemented to address the issue of unstable standard error estimation resulting from the small sample.<sup>45</sup> The effect sizes, instead of P values, were reported as the standardized regression coefficients of the pathways that assess the strengths of relationships as hypothesized in the structural equation model tested in this study (Fig. 1).

**Table 1.** Variable Descriptions and Pearson Correlation Coefficients Among the Variables in the Final Model (N = 123 Women)

| Variable (abbreviation); Measurement Instrument (psychometric properties); Range; psychometric properties                           | EVD   | GBM    | ENA    | INT     | ANT     | DEP     | ENG     | ADH     | DIS    | QOL     | Women < 50 Years of Age (n = 90) |       |
|---|-------|--------|--------|---------|---------|---------|---------|---------|--------|---------|----------------------------------|-------|
|   |       |        |        |         |         |         |         |         |        |         | M                                | SD    |
| Everyday Discrimination (EVD); Everyday Discrimination Scale <sup>29</sup> (α = 0.88); Range: 10 (high)–40 (low)                    |       | 0.40** | 0.17   | 0.06    | 0.30**  | 0.45**  | -0.21*  | -0.14   | 0.08   | -0.43** | 16.08                            | 6.44  |
| Group Based Medical Distrust (GBM); Group-Based Medical Distrust Scale <sup>30</sup> (α = 0.88); Range: 12 (high)–60 (low)          | 0.29  |        | 0.06   | 0.08    | 0.10    | 0.33**  | -0.41** | -0.12   | -0.08  | -0.24*  | 27.06                            | 7.80  |
| HIV Stigma—Enacted (ENA); HIV-Related Enacted Stigma Scale <sup>38</sup> (α = 0.95); Range: 11 (low)–44 (high)                      | 0.29  | 0.33   |        | 0.44**  | 0.43**  | 0.31**  | -0.08   | -0.13   | -0.04  | -0.17   | 23.43                            | 6.85  |
| HIV Stigma—Internalized (INT); HIV-Related Internalized Stigma Scale <sup>38</sup> (α = 0.88); Range: 7 (low)–28 (high)             | 0.21  | 0.71** | 0.58** |         | 0.35**  | 0.27*   | -0.20   | -0.25*  | -0.21* | -0.26*  | 16.44                            | 4.33  |
| HIV Stigma—Anticipated (ANT); HIV-Related Anticipated Stigma Scale <sup>38</sup> (α = 0.86); Range: 6 (low)–24 (high)               | 0.28  | 0.16   | 0.44*  | 0.46**  |         | 0.19    | 0.03    | -0.10   | -0.07  | -0.12   | 17.30                            | 3.95  |
| Depressive Symptoms (DEP); Center for Epidemiologic Studies Depression Scale <sup>39</sup> (α = 0.85–.90); Range: 0 (low)–60 (high) | 0.21  | 0.47** | 0.11   | 0.60**  | 0.34    |         | -0.32** | -0.33** | -0.07  | -0.65** | 15.23                            | 11.22 |
| Engagement in Care (ENG); Healthcare Utilization Scale <sup>41</sup> (α = 0.71); Range: 0 (poor/inappropriate)–4 (high/appropriate) | -0.19 | -0.23  | 0.05   | -0.39*  | -0.12   | -0.42*  |         | 0.12    | 0.14   | 0.40**  | 2.98                             | 1.07  |
| Medication Adherence (ADH); Medication Adherence Self-Report for HIV Care <sup>40</sup> (α=0.80); Range: 0%–100% adherence/30 days  | 0.01  | -0.12  | -0.11  | -0.05   | 0.05    | -0.31   | -0.03   |         | 0.03   | 0.20    | 90.56                            | 8.94  |
| HIV Disclosure (DIS); HIV Disclosure Scale <sup>41</sup> ; Range: 0 (no disclosure)–8 (high level)                                  | -0.13 | -0.33  | -0.37* | -0.54** | -0.55** | -0.31   | 0.12    | 0.04    |        | 0.05    | 3.36                             | 1.57  |
| Quality of Life (QOL); Brief Health Status Assessment Instrument <sup>42</sup> (α=0.78–0.85); Range: 1 (low)–100 (high)             | -0.18 | -0.22  | -0.12  | -0.45** | -0.21   | -0.77** | 0.50**  | 0.15    | 0.06   |         | 68.27                            | 20.73 |
| Women ≥ 50 Years of Age (n = 33)  | M     | 14.64  | 26.48  | 22.66   | 14.63   | 15.93   | 14.06   | 3.09    | 92.93  | 3.36    | 65.43                            |       |
|   | SD    | 5.78   | 6.87   | 7.79    | 5.51    | 3.45    | 10.94   | 1.13    | 13.56  | 1.32    | 23.42                            |       |

Values to the right of the black boxes, shaded in gray, are the correlation coefficients for women age <50 years of age, and values to the left of the black boxes are the correlation coefficients for women ≥50 years of age. M = mean.  
\*P < 0.05; \*\*P < 0.01.

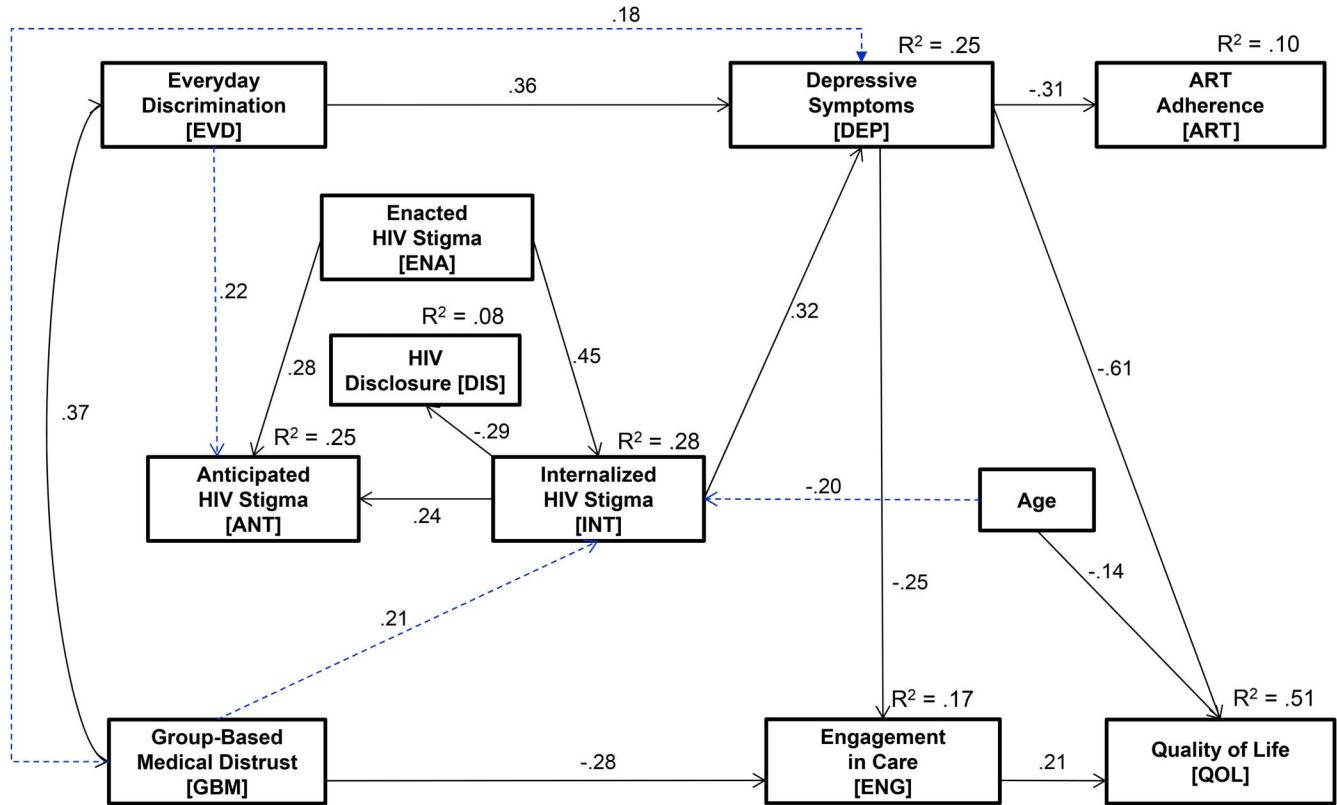
**RESULTS**

A total of 123 WLWH enrolled in the UNC WIHS site. The mean age of the women was 43.29 years (SD = 9.24) with 26.8% (n = 33) of the women being aged 50 years or older. Most of the women were non-white (75.6% were African American, 8.9% Hispanic/Latina, and 2.4% Native American/Alaskan Native). Approximately 35% of the women had less than a high school (HS) education, and another 35% had completed HS or earned a HS equivalent; the remaining 30% had some college education or possessed an undergraduate or higher degree. Less than half of women were legally married, in a common law marriage, or were living with a partner (43.4%), while 34.4% had never married. Most (81.2%) had an annual household income of \$24,000 or less, and 58.5% were unemployed at the time of WIHS enrollment.

WLWH of all ages experienced high levels of EVD. On the instrument used to measure this construct, the EVD Scale,<sup>29</sup> the possible scores range between 10 and 40 with lower scores illustrating higher discrimination. Among WLWH younger than 50 years and among those 50 years or older, their respective mean scores were 16.08 (SD = 6.44) and 14.64 (SD = 5.78). Similarly, WLWH had moderately high levels of medical distrust as measured by the GBM Distrust Scale<sup>30</sup> (range of 12–60 with lower scores representing higher levels of distrust). The mean score among WLWH younger than 50 years was 27.06 (SD = 7.80), whereas the mean score among WLWH 50 years or older was 26.48 (SD = 6.87) (see Table 1 for more information).

Using IBM SPSS AMOS version 23.0,<sup>46</sup> the proposed specified model, as illustrated in Figure 1, was tested using MG-SEM. The proposed specified model converged during initial estimation, but several pathways were nonsignificant (INT-ADH, ANT-DIS, ANT-ADH, ENC-DIS, and GBM-ADH). Using the modification index, a stepwise model generation strategy was then used deleting the nonsignificant parameters and introducing substantively meaningful and justifiable pathways (both recursive and nonrecursive) to improve goodness of fit<sup>47</sup>; the new pathways introduced, beyond those originally hypothesized, are indicated in blue in Figure 2. Ultimately, a final fitted parsimonious model (Fig. 2) with more satisfactory and robust fit indices ( $\chi^2 = 35.00$ , df = 39,  $P = 0.653$ ; Goodness of Fit Index = 0.95; Normed Fit Index = 0.89; Incremental Fit Index = 1.01; Relative Fit Index = 0.84; Comparative Fit Index = 1.00; and Root Mean Square Error of Approximation <0.001) was identified.

This fitted model was then used to determine the moderating effect of age on the identified model. Using MG-SEM, age was not identified as a moderator of the proposed pathways ( $\Delta\chi^2 = 8.22$ ,  $\Delta df = 9$ ,  $P = 0.513$ ). Instead, age was directly related to QOL ( $\beta = -0.14$ ,  $P < 0.031$ ) and internalized HIV stigma ( $\beta = -0.20$ ,  $P < 0.010$ ) in the total sample. Furthermore, the independent exogenous variables, EVD and GBM mistrust, were correlated ( $r = 0.37$ ,  $P < 0.016$ ). These 2 variables influenced depressive symptoms with EVD having a direct effect ( $\beta = 0.36$ ,  $P < 0.014$ ) and GBM mistrust having an indirect, or mediated effect, through internalized stigma ( $\alpha \times \beta = 0.21 \times 0.32 = 0.07$ ,  $P < 0.020$ ). In turn, internalized HIV stigma was directly related to



**FIGURE 2.** The final fitted structural equation model with stigma as a multidimensional construct. Fit indices for model:  $\chi^2 = 35.004$ ,  $df = 39$ ,  $P = 0.653$ ;  $\chi^2/df = 0.898$ ,  $GFI = 0.951$ ;  $NFI = 0.889$ ;  $IFI = 1.014$ ;  $RFI = 0.843$ ;  $CFI = 1.000$ ;  $RMSEA = 0.000$  (90% CI = 0.000–0.53). Dotted pathways were newly identified during stepwise model generation. CFI, comparative fit index; CI, confidence interval; GFI, goodness of fit index; IFI, incremental fit index; NFI, normed fit index; RFI, relative fit index; RMSEA, root mean square error of approximation.

decreased disclosure ( $\beta = -0.29$ ,  $P < 0.005$ ). Depressive symptoms served as a significant negative mediator of ART medication adherence ( $\alpha \times \beta = 0.36 \times (-0.31) = -0.11$ ,  $P < 0.011$ ), engagement in care ( $\alpha \times \beta = 0.36 \times (-0.25) = -0.09$ ,  $P < 0.027$ ), and QOL ( $\alpha \times \beta = 0.36 \times (-0.61) = -0.22$ ,  $P < 0.009$ ). Overall, this model predicted 51% of the variance associated with QOL among the total sample of WLWH.

### DISCUSSION

We identified a model that contextualizes the lives of WLWH and the factors influencing their QOL in the Southern United States, a region where HIV poses a significant burden. Although age did not moderate the pathways among the variables as hypothesized, increased age had a direct and negative effect on internalized HIV stigma and QOL. Depressive symptoms were a significant mediator in the identified model mediating the paths between EVD and ART medication adherence; the path between GBM distrust-internalized HIV stigma, and GBM distrust and ART medication adherence. In turn, depressive symptoms had a direct and negative effect on engagement in care and QOL.

As an increased number of WLWH will age in the coming years, it is essential to understand the contextual factors that influence elements of the HIV care continuum and

QOL in this population. WLWH in the United States are more likely to be of color and socioeconomically disadvantaged and frequently experience many layers of discrimination—racism, sexism, ageism, and classism—in their everyday lives. These socially constructed layers of discrimination, referred to as intersectional stigma, may result in multiple stigmatized social positions hindering engagement and retention in care and ART medication adherence and function as powerful stressors.<sup>10,48–51</sup> Subsequently, physiologic responses to these and other stressors, including the mechanisms of action of HIV stigma, negatively impact health in the long term<sup>10</sup> and are associated with HIV disease progression and symptoms, decreased CD4 counts, development of AIDS, and an increased risk for mortality.<sup>52–54</sup> Understanding how experiences with EVD relate to health inequities and QOL among WLWH is critical to develop effective interventions.

In this study, experiences with EVD were also common and directly linked to depressive symptoms, which in turn diminished ART medication adherence, engagement in care, and QOL. In a study by Casagrande et al<sup>55</sup>, African Americans and whites who experienced discrimination were more likely to have delays in seeking medical care and poor adherence to medical care recommendations. Among PLWH, discrimination in the health care setting was associated with internalized stigma resulting in depressive symptoms which in turn lowered

medication adherence.<sup>56</sup> Our study did not identify a relationship between experiences with EVD and of HIV stigma's mechanisms of action; instead, our results indicated that depressive symptoms served as a mediator between the effects of EVD and GBM distrust and internalized HIV stigma and ART medication adherence, engagement in care, and QOL.

In a national sample of PLWH, 41% reported at least one discriminatory health care experience since HIV diagnosis and 24% did not completely/almost completely trust their health care providers.<sup>57</sup> Among WLWH, mistrust of providers and the medical community is associated with discrimination and lack of continuation in care.<sup>58</sup> Recently, Stringer et al<sup>59</sup> reported that health care workers in HIV/STI clinics in the Deep South had higher levels of stigma toward PLWH compared with those working in non-HIV/STI clinics. This is concerning considering the number of WLWH who receive care in these settings. Furthermore, stigma experienced in the health care setting results in internalized stigma and anticipated stigma from health care workers leading to mistrust of physicians.<sup>60</sup> Although a patient-provider relationship built on trust is critical, such relationships take time to develop.

Among this sample of WLWH, mean scores associated with HIV stigma, and its mechanisms of action, were high. Consequently, women were less likely to disclose their status to others. Diminishing their potential to obtain social support, engage in intimate relationships, and negotiate safer sex with partners. Across studies, HIV stigma, especially internalized stigma, is associated with depressive symptoms and lower levels of adherence as was identified in this group of WLWH.<sup>61–64</sup> Concurrent with the gender inequities for depression in the general population, WLWH have higher rates of depression than men with HIV<sup>65</sup> reinforcing the need for screening and referral for treatment, when identified. Furthermore, HIV stigma continues to be a source of shame for many older African American WLWH who consequently avoid treatment for HIV because it might “out” them or because they did not like being isolated in an HIV clinic or the “infectious disease clinic.”<sup>58</sup> These results help to shed light on why WLWH who experience chronic depression are nearly twice as likely to die from AIDS-related complications compared to those with little or no depression, even after controlling for diminishing health over time.<sup>65</sup>

Several studies have explored different types of stigma and their impact on various psychosocial outcomes and adherence. In these studies, the detrimental impact of perceived stigma by the community, experienced stigma in the community, and perceived discrimination in the health care setting were linked to lower self-esteem<sup>60,66</sup> diminished social support,<sup>60</sup> and suboptimal ART medication adherence<sup>66</sup> with internalized stigma being a common mediator. In addition, several studies have examined the mediators between internalized stigma and diminished ART medication adherence identifying visit adherence,<sup>67</sup> social support/loneliness,<sup>68</sup> depressive symptoms,<sup>68</sup> adherence self-efficacy,<sup>69</sup> attachment-related anxiety,<sup>70</sup> and concern about being seen taking HIV medications<sup>69,70</sup> as mediators. Furthermore, economic security mediated the relationship between HIV stigma and racial discrimination and physical QOL among a national cohort of WLWH in Canada; however, economic security did not mediate the relationship between HIV stigma

and mental QOL or between gender discrimination<sup>48</sup> and mental or physical QOL. Thus, future studies need to consider these recently identified mediators between various forms of HIV stigma, especially internalized stigma, and psychosocial outcomes and elements of the HIV care continuum.

The strengths of this study include the use of psychometrically sound instruments enabling the exploration of experiences with EVD and GBM mistrust and their intersection with enacted, anticipated and internalized HIV stigma, elements of the treatment cascade, and QOL. By treating HIV stigma as a multidimensional construct in the analysis, we were able to specifically examine how multiple types of stigma—enacted, anticipated, and internalized—rather than a unidimensional construct and were related to other constructs in the identified model. Furthermore, the method of analysis—MG-SEM—allowed exploration of complex mediated pathways and the moderating effect of age.

This study is limited by a small nonprobability sample potentially impacting covariances, parameter estimates, and testing of model fit as well as reducing generalizability of results. Furthermore, the omission of important variables associated with care and treatment outcomes (eg, time since diagnosis, availability of transportation, and type of employment) also limit this study. Although this sample was representative of WLWH in the United States regarding race and ethnicity, multisite studies that are racially and ethnically representative including women from urban and rural environments and from across the age continuum are needed. Furthermore, WLWH who have higher levels of GBM distrust and/or HIV stigma may have been less likely to participate in a research study such as WIHS. Like all cross-sectional studies, we were not able to determine the exact nature of relationships in the final identified model; thus, longitudinal research designs are critically needed to explore the trajectories of HIV stigma, experiences with EVD, and the patient-provider relationship, and their connections to ART medication adherence, engagement in care, depressive symptoms, and QOL over time. Finally, the construct engagement in care was focused on health care in general and not specifically HIV-oriented medical care. As WLWH age, the likelihood of experiencing medical complications, comorbidities, and polypharmacy increases; therefore, it is critical that engagement in primary and HIV-oriented medical care as well as utilization patterns be explored in future research.

## PUBLIC HEALTH IMPLICATIONS

EVD, GBM distrust, and internalized HIV stigma adversely affect depressive symptoms, ART medication adherence, and engagement in care, which collectively influence QOL. Interventions are needed to combat these important contextual factors and their clinical and psychosocial effects on the lives of WLWH.

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