

IMPACT OF PHYSICAL VIOLENCE BY AN INTIMATE PARTNER AND PERCEIVED OR
EXPERIENCED STIGMA ON HIV VIRAL LOAD STATUS: A CROSS-SECTIONAL
ANALYSIS USING THE WOMEN'S INTERAGENCY HIV STUDY (WIHS)

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
In partial fulfillment of the requirements for the
degree of
Master of Science
In
Epidemiology

By

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Washington, DC
May 11, 2021

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ABSTRACT

Worldwide, almost a third of all women who have been in a relationship with a partner or spouse - regardless of gender or sexual intimacy status - have experienced violence by an intimate partner, and among HIV-positive women in the United States, 55% have experienced or are currently experiencing violence by an intimate partner. Women who experience violence have been found to report lower adherence to HIV medication and lower rates of viral suppression. Despite this, little research has been conducted to determine potential barriers to care among this population. This study examined the impact of violence by an intimate partner and stigma and discrimination on HIV viral load status among women in the Women's Interagency HIV Study (WIHS). Logistic regression analysis using sociodemographic data, HIV viral load status, history of physical violence by an intimate partner, and the mean scores of the stigma and discrimination questionnaire domains determined that women who experience physical violence by an intimate partner were more likely to report experiences of stigma and discrimination in the healthcare system and were more likely to have detectable viral load levels. The findings from this study indicate an area of research that may be helpful to look into for aiding in viral load suppression rates in the United States.

TABLE OF CONTENTS

Chapter 1. Introduction	1
Chapter 2. Methods	7
Chapter 3. Results	14
Chapter 4. Discussion	20
Chapter 5. Limitations	23
Chapter 6. Conclusion	24
References	29

LIST OF FIGURES

Figure 1. Social ecological model for physical violence and HIV viral load status	11
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LIST OF TABLES

Table 1. Baseline demographic characteristics among study participants	26
Table 2. Stigma, trust and interaction quality among HIV+ study participants	27
Table 3. Factors associated with viral load status among HIV+ study participants	28

CHAPTER 1. INTRODUCTION

Background

The first antiretroviral was approved in 1987 (AZT). In 1996, combination therapy was shown to be superior (ACTG 320) and that ushered in a new era of HIV treatment. The improved combination therapy resulting in significant declines of AIDS-related deaths for the first time since the start of the AIDS Epidemic in 1981. ART works by reducing the HIV RNA copies (or HIV viral load) present in the blood of HIV-infected patients resulting in a virally suppressed status. HIV viral suppression allows for the body's immune system to recover and have the ability to combat infections that would otherwise arise with comprised immunity, thus increasing quality and longevity of life and prevents PLWH from infecting others. Treatment of people living with HIV (PLWH) to prevent the sexual transmission of the virus to uninfected partners has emerged as an important recommendation of public health officials and has been referred to as "treatment as prevention". Because of this, viral suppression is a key component of the 2019 US Government initiative "Ending the HIV Epidemic" which has the goal of reaching 75% reduction in new HIV infections by 2025 and at least 90% reduction by 2030 (CDC). Despite the success of ART, various barriers to ART adherence and subsequent HIV viral load suppression exist. The aims of this study are to determine the impact of physical violence by an intimate partner and perceived or experienced stigma and discrimination on HIV viral load status among women living with HIV with an overall goal of improving quality and longevity of care and to reduce overall viral load levels among people living with HIV.

Previous research done in the field of HIV has produced limited studies into how individual experiences in the healthcare system impact HIV patients and how those experiences impact HIV viral load suppression rates. The findings of previous research identify that certain barriers to care within the healthcare system are commonly associated with increased rates of detectable HIV viral load levels and non-adherence to ART including: lack of health insurance, limited access or confusion regarding access to health services, stigma, health literacy, and lack of trust in providers and the healthcare system as a whole (Crepaz et al, 2018 | Arnold et al, 2017 | Bauman et al, 2013 | Hardee et al, 2014 | Kimmel et al, 2016) Furthermore, no research has been undertaken to better understand how those experiences impact women who report past or current experiences of physical violence by an intimate partner. Worldwide, almost a third of all women who have been in a relationship with a partner or spouse - regardless of gender or sexual intimacy status - have experienced violence by an intimate partner, and among HIV-positive women in the United States, 55% have experienced or are currently experiencing violence by an intimate partner (Maher et al, 2000 | Marshall et al, 2018). Therefore, the needs of persons living with HIV who experience IPV represent the needs of many women living with HIV, a cohort of individuals who require specialized outreach and follow-up to ensure that they are engaged and retained in care in order to achieve suppressed HIV viral load levels.

Intimate Partner Violence and HIV

The World Health Organization defines intimate partner violence (IPV) as physical violence (slaps, punches, kicks, assaults with a weapon, homicide), sexual violence (rape, coercion and abuse, use of physical force, verbal threats and harassment to have sex, unwanted touching or

physical advances, forced participation in pornography or other degrading acts that often persist over time), psychological violence (belittling the woman, preventing her from seeing family and friends, intimidation, withholding of resources, preventing her from working or confiscating her earnings), and any violence (a combination of physical, sexual and psychological violence) perpetrated by an individual against a female intimate partner (WHO).

Women who experience IPV are at an increased risk of contracting HIV due to a number of structural mechanics. Some researchers have demonstrated links between IPV and increased sexual risk behaviors such as multiple sex partners or transactional sex, as well as other risk behaviors such as intravenous drug use (Dale et al, 2019 | Ogbe, 2020 | Leddy et al, 2019 | Gilbert et al, 2016). However, most of these studies focus on sex worker populations which may not be an accurate representation of all IPV populations. Structural gender inequalities also are believed to play a role in women's vulnerability to IPV and HIV, as violence against women is common and accepted in many cultures (Marshall et al, 2018). Some researchers also have found that male partners who regularly exhibit violence against their partners also are more inclined to be sexually promiscuous and engage in other high-risk behaviors which places their partner or partners at increased risk of contracting HIV (Machtiger et al, 2012). The current study specifically analyzes the impact of physical violence by an intimate partner on HIV viral load status, without taking into account experiences of sexual or psychological violence by an intimate partner.

HIV Healthcare and Viral Load Suppression

Nearly 1.2 million people have HIV in the United States, 1 in 7 are not aware of their status, 51% are unengaged in care, and 53% are virologically suppressed (CDC). The HIV Care Continuum aims to improve the number of people aware of their HIV status, improve rates of engagement in care, and improves rates of virological suppression. The ultimate goal is to increase and sustain rates of viral suppression in order to contain and halt the spread of HIV. Viral suppression is achieved through the consistent and prescription-appropriate use of antiretroviral therapy (ART) which reduces the amount of physical HIV RNA in the blood to levels that are undetectable. Undetectable levels of HIV prevent the transmission of HIV between an HIV-positive individual to child during pregnancy and delivery or to a sexual partner (NIH - HIV Suppression). Virally suppressed people living with HIV also stay physically healthier, experience improved quality of life, and live longer.

Barriers to care often prevent people living with HIV from linking to care after initial diagnosis, remaining in care, and achieving and maintaining viral load suppression. Qualitative findings suggest that women who experience IPV and Black women with HIV both report higher than average rates of stigma, mental health symptoms, poor physician-patient trust, and isolation from community or care - all of which impact HIV viral load suppression rates among these populations (Dale, 2019). Despite the many studies that have delved into common barriers to care among people living with HIV, almost no studies have attempted to understand potential barriers that exist within the healthcare system itself that prevents or dissuades women living

with HIV who experience physical violence from an intimate partner from engaging with or remaining in care therefore impacting the HIV viral load status of patients.

Healthcare Standards

Current healthcare standards in the United States remain primarily unchanged from the standards that existed a decade ago despite evolving perspectives in patient outreach and bedside manner (Flocke et al, 2002 | Sinclair et al, 2016). Concerns regarding the lack of compassionate outreach in healthcare settings prompted the Institute of Health - an independent, nonprofit organization that works outside of government to provide advice to decision makers and the public (nap.edu) - to issue a report on improving medical education by enhancing the behavioral and social science curricula in medical school (Sinclair et al, 2016). Patient perception of substandard care is often due to differences of opinions between providers and patients regarding perceived and experienced stigma and discrimination in the healthcare system. Wise et al. (2019) found in their study that looked at perceived barriers in the rural southern United States that providers often fundamentally misunderstood the barriers that patients commonly report encountering. While a patient may consider cost of treatment and stigma as the greatest barriers to treatment, providers would often place those barriers as low or unimportant, displaying a fundamental lack of understanding of what patients are experiencing and how these barriers prevent them from seeking out or being retained in care.

Previous Studies

Previous analyses from the Women's Interagency HIV Study (WIHS), the largest ongoing multi-center prospective cohort study of HIV among women in the US, have explored the adverse health impacts of IPV and ways to improve health outcomes among women who experience IPV. Wingwood et al. (2013) found that screening for IPV was an important step in HIV treatment due to the impact on the care cascade including retention in care and consistent use of ART/viral load suppression. The research found that many factors including drug use, home instability, and education level, prevent many women from effectively or comfortably navigating the healthcare system and many women who report experiences of IPV have higher rates of drug use and home instability as well as lower levels of education. Decker et al. (2016) determined that trauma-informed care, and addressing polyvictimization (the experience of multiple levels or forms of victimization including sexual abuse, physical abuse, neglect, or bullying), structural inequality, transactional sex, and substance use treatment, can improve women's safety and comfort levels within the healthcare system. Neither of these studies explored the impact of a negative healthcare environment on the care continuum of women who experience IPV but instead addressed external variables that contribute to the problems with retention in care. To provide a more comprehensive evaluation, we analyzed the impact of physical violence by an intimate partner and the perceived or experienced stigma and discrimination on HIV viral load status of women in the WIHS.

CHAPTER 2. METHODS

Data Collection

The data from the current study come from a large prospective observational cohort study, the Women's Interagency HIV Study (WIHS). The study began in 1994 in response to the growing concern of the impact of HIV on women and was designed to investigate the natural history of HIV disease in women. The core study visit includes a detailed and structured interview, limited physical and gynecologic examinations, laboratory testing, and biologic sample collection. Study visits are generally conducted approximately every 6 months. To date, a total of 4,982 women (3,677 HIV-Positive; 1305 HIV-Negative) have been enrolled in the WIHS through ten sites (Bronx, Brooklyn, Chicago, Washington D.C, Los Angeles, San Francisco, Atlanta, Chapel Hill, Miami, and Birmingham/Jackson) during four enrollment periods: 1994-1995, 2001-2002, 2012, and 2013-2015. All study participants underwent an initial screening to determine study eligibility. If the study participant was willing to take part in the study and gave informed consent, she participated in an in-depth interview, physical exam, and specimen collection. The WIHS was approved by the Institutional Review Board (IRB) at each clinical site. This analysis was also approved by the Georgetown University IRB (IRB ID: MOD00005115).

WIHS interviews detailed surveys that cover a range of socio-demographic, medical, obstetric/gynecological and contraceptive history, as well as alcohol, tobacco and other drug use and sexual behaviors. Interviewers were trained using standardized methods and the WIHS Data Management and Analysis Center (WDMAC) staff perform periodic assessments of the quality of the interviews (WIHS). The visit also includes determination of laboratory parameters

including HIV viral load measurements and CD4+ T-cell counts. Additional biological samples such as blood, urine, and cervicovaginal swab and lavage specimens are collected and stored.

The Stigma and Discrimination Questionnaire was first utilized during the period of interest (April 2018 - September 2018) among HIV positive women in the WIHS. It was adapted from the Discrimination and Stigma Scale (DISC) to measure HIV-related perceived and experienced stigma and discrimination. The DISC Scale was specifically developed to measure experienced and anticipated discrimination reported by people with mental illness. The DISC scale is a reliable and valid instrument to measure experienced and anticipated discrimination predominantly in personal and social relationships in global settings (INDIGO Network). The reliability of the DISC scale and sub scales are satisfactorily established, including internal consistency, test/re-test reliability and inter-rater reliability (Brohan et al, 2013).

Dependent and Independent Variables

The primary dependent variable of interest in this study is HIV viral load status (detectable or non-detectable). The independent variables of interest are exposure to physical violence by an intimate partner and perceived or experienced stigma and discrimination. Sociodemographic variables also were examined in order to determine potential confounding factors to HIV viral load status results.

Women who attended at least one WIHS visit during the six month period between April 2018 and September 2018 and answered the question regarding past and/or current experiences of

physical violence by an intimate partner were included in this analysis. Exposure to violence was self-reported by participants, elicited through administration of a specific structured questionnaire. Multiple measures of physical violence were gathered in the WIHS including violence by an intimate partner as well as violence from family members, acquaintances, and strangers. However, the latter categories of violence occurring via individuals who are not intimate partners were not included in the violence exposure definition that was applied in this analysis. Follow-up questions included whether or not the participant is currently experiencing violence, and how long the violence has occurred. Violence outcomes for this study are defined as experiencing physical violence by an intimate partner at any point in the present or past regardless of duration. The comparison group of women reported never experiencing violence by an intimate partner. These women may have experienced violence that occurred from individuals other than intimate partners.

In the initial analysis, we compared women reporting violence by an intimate partner to the referent group of women reporting no violence by an intimate partner, the referent group also included women reporting violence from family members, acquaintances, or strangers. The primary analysis compared HIV-positive women who experienced violence by an intimate partner with HIV-positive women who did not experience violence by an intimate partner and their perceived or experienced stigma and discrimination to determine the impact that these variables have on HIV viral load status.

Baseline Sociodemographic Data

Baseline variables were collected upon entry into the WIHS and include basic sociodemographic information. These variables were used to establish a baseline sociodemographic database for the women included in this study in order to determine potential contributing factors to perceived and experienced stigma-related barriers experienced by the women who participated in the WIHS. Baseline variables of interest measured at enrollment include: race (Black, White, Hispanic/Native American), age in years, marital status (legal/common-law, previously married, never married/other), residence (own house, other house, facility/other), education (< high school, high school, > high school), employment status (yes, no), insurance status (yes, no), and HIV status (positive, negative). Additional variables were collected during interviews and clinical visits conducted between April 2018 and September 2018.

Stigma and Discrimination Data

The stigma and discrimination-related variables used for this study were gathered between April 2018 and September 2018 from the stigma and discrimination questionnaire (DISC). Responses were measured on a 1 to 5 Likert scale - a bipolar scaling method that measures either positive or negative responses to a statement - from never (1) to almost always (5). Overall means of each category (HIV-related stigma, race-related stigma, anticipated stigma, patient-provider trust, and patient-provider quality) were calculated by summing and averaging the replies of WIHS participants from each section of the stigma and discrimination questionnaire. Stigma and discrimination variables that were gathered during the six month period of interest include: HIV-

related stigma, race-related stigma, anticipated stigma, patient-provider trust, and patient-provider interaction quality.

HIV Viral Load Data

For the purpose of this analysis, we used a dichotomous outcome of HIV viral suppression, described as HIV viral load < 200 copies per milliliter of blood and non-suppressed as HIV viral > 200 copies/mL. This has been recommended by the Centers for Disease Control and Prevention as the goal of therapy for HIV treatment. For this analysis we sought to determine the association between HIV viral load (suppressed vs non-suppressed) and stigma and discrimination in the HIV Care Continuum and how it impacts women who experience physical violence by an intimate partner and their ability to achieve viral suppression successfully. The

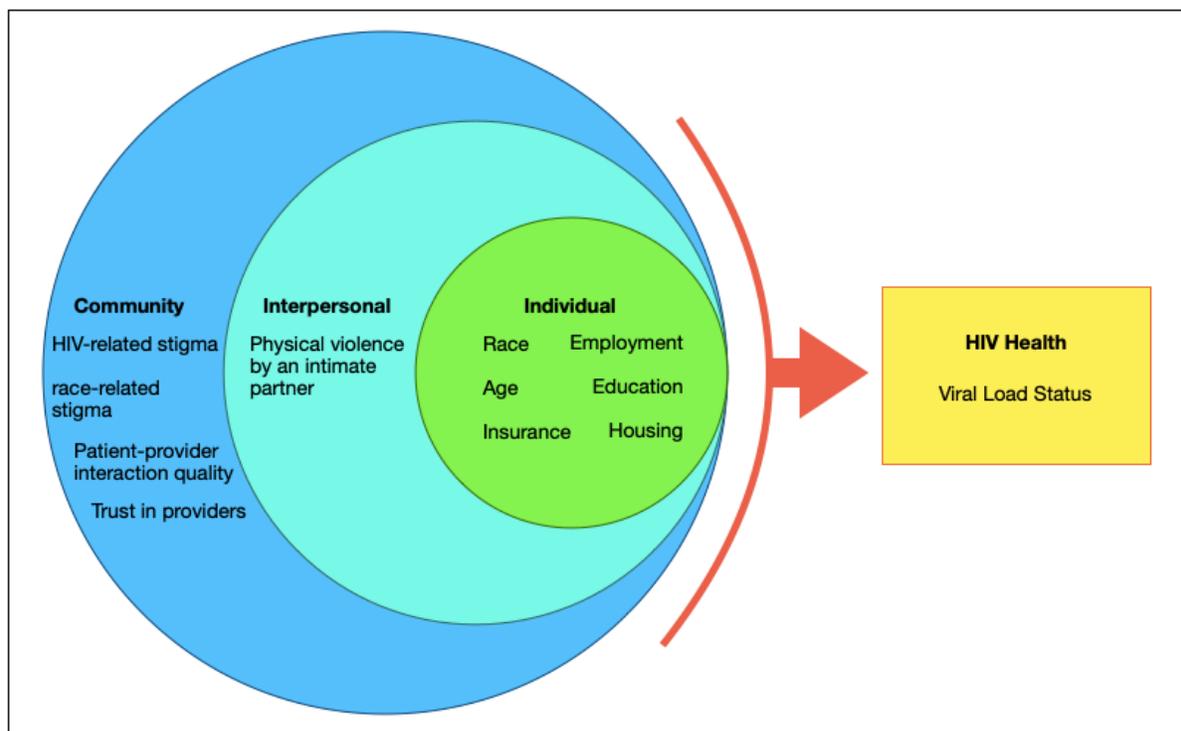


Figure 1: Social ecological model for physical violence and HIV viral load

social ecological model adapted for the relationship between the study cohort and HIV viral load status was used to explain and guide the analysis of the relationship between variables used for this analysis and HIV viral load status.

The stigma and discrimination questionnaire used for this study was only distributed to HIV-positive women in the WIHS. Because of this and the fact that HIV viral load status is the dependent variable and primary outcome of interest, all women - regardless of experiences of physical violence by an intimate partner - who were HIV-negative during the period of interest (April 2018 to September 2018) were not included in the analysis past the initial analysis of IPV and sociodemographic information.

Statistical Analysis

Counts and frequencies were used to determine overall percentages of women experiencing physical violence by an intimate partner stratified by race/ethnicity and by age. Counts and frequencies were also used for the initial assessment of HIV viral load status among women who reported physical violence by an intimate partner versus women who did not in order to determine a baseline observational standard. Chi-squared tests were used to determine significance.

In the initial analysis, we compared women reporting violence by an intimate partner to the referent group of women reporting no violence by an intimate partner. The referent group included women reporting violence from family members, acquaintances, or strangers and those

reporting no violence history. The primary analysis compared HIV-positive women who experienced violence by an intimate partner with HIV-positive women who did not experience violence by an intimate partner and their perceived or experienced stigma and discrimination to determine the impact that these variables have on HIV viral load status.

Welch Two Sample t-tests were used to examine the impact and significance of physical violence by an intimate partner on the mean values of each stigma and discrimination domain: HIV-related stigma, race-related stigma, anticipated stigma, patient-provider trust, and patient-provider interaction quality.

The stigma and discrimination questionnaire used for this study was only distributed to HIV-positive women in the WIHS. Because of this and the fact that HIV viral load status is the dependent variable and primary outcome of interest, all women - regardless of experiences of physical violence by an intimate partner - who were HIV-negative during the period of interest (April 2018 to September 2018) were not included in the analysis past the initial analysis of IPV and sociodemographic information.

Univariate and multivariate analysis with logistic regression models were used to examine the relationship between HIV viral load status, physical violence by an intimate partner, stigma, and sociodemographic data in order to determine the relationship between violence, HIV viral load status, and perceived or experienced stigma and discrimination. The univariate analysis examined the impact of each sociodemographic factor and stigma and discrimination factor on

viral load status given experiences of physical violence by an intimate partner. The multivariate analysis was conducted with all factors from the univariate analysis that show statistical significance. RStudio version 1.3.1093 was used for all statistical analyses.

CHAPTER 3. RESULTS

Violence by an Intimate Partner Outcomes

Among the 680 women eligible and included in the analysis, 455 women reported experiencing physical violence by an intimate partner at some point in their life either in the past or currently (66.91%), and 225 women reported never experiencing violence by an intimate partner neither in the past nor currently (33.09%). Among the 455 women who reported experiencing physical violence by an intimate partner, 176 women reported past experiences (26%) and 383 women reported current experiences (56%).

Baseline Demographic Characteristics

Baseline demographic characteristics of the study cohort are described in Table 1. Baseline characteristics were measured with violence results but without HIV status in order to determine baseline sociodemographic data. Among all 680 women included in the initial analysis of this study, 58.68% (n=399) were Black, 20.29% (n=138) were White, and 21.03% (n= 143) were Native American or Hispanic, which were combined due to overall lower sample size. Among the 455 women who reported experiencing physical violence by an intimate partner, 59.34%

(n=270) were Black, 13.85% (n=63) were White, and 26.81% (n=122) were Native American or Hispanic.

Age Distribution

Among all 680 women in this study, 10.15% (n=69) were 19 and younger, 12.5% (n=85) were between the ages of 20 and 29, 47.21% (n=321) were between the ages of 30 and 39, 18.38% (n=125) were between the ages of 40 and 49, and 11.76% (n=80) were 50 and older. Among the 455 women who reported experiencing physical violence by an intimate partner, 15.16% (n=69) were 19 and younger, 18.68% (n=85) were between the ages of 20 and 29, 34.73% (n=158) were between the ages of 30 and 39, 20.22% (n=92) were between the ages of 40 and 49, and 11.21% (n=51) were 50 and older.

Marital Status

Among all 680 women in this study, 31.91% (n=217) were legally or common-law married/living with partner, 35.74% (n=243) were previously married (divorced, widowed, separated), and 32.35% (n=220) were never married. Among the 455 women who reported experiencing physical violence by an intimate partner, 37.36% (n=170) were legally or common-law married/living with partner, 25.05% (n=114) were previously married, and 35.16% (n=160) were never married.

Residence Status

Among all 680 women in this study, 72.79% (n=495) lived in their own house, 18.24% (n=124) lived in someone else's house (parent, other), and 8.97% (n=61) lived in a facility (shelter, halfway house, drug/alcohol treatment facility, jail). Among the 455 women who reported experiencing physical violence by an intimate partner, 75.16% (n=342) lived in their own house, 17.80% (n=81) lived in someone else's house, and 7.03% (n=32) lived in a facility.

Employment and Insurance

Among all 680 women in this study, 71.62% (n=487) were not employed and 91.62% (n=623) had insurance (includes health insurance, ADAP, and/or Ryan White Program). Among the 455 women who reported experiencing physical violence by an intimate partner, 76.04% (n=346) were not employed and 90.55% (n=412) had insurance.

Education Level

Among all 680 women in this study, 29.26% (n=199) did not complete high school, 41.18% (n=280) completed high school, and 29.56% (n=201) had some experience with or completed college. Among the 455 women who reported experiencing physical violence by an intimate partner, 26.81% (n=122) did not complete high school, 47.69% (n=217) completed high school, and 25.49% (n=201) had some experience with, or completed, college.

HIV Status

Among all 680 women in this study, 53.53% (n=364) were living with HIV. Among the 455 women who reported experiencing physical violence by an intimate partner, 52.75% (n=240) were living with HIV.

HIV Viral Load Outcomes

Women who replied yes to overall physical violence by an intimate partner (past and/or present) and were HIV-positive numbered 240. Of these, 181 also received viral load labs during the 6 month period of interest. Of the 181 labs reported, 67 women were below the lower limit (< 200 copies per mL), and 114 had a detectable viral load (> 200 copies per mL). Women who replied no to overall IPV experience and were HIV-positive numbered 124. Of these, 77 women were below the lower limit, and 47 had a detectable viral load.

Stigma, Trust, and Patient-Provider Interaction Quality

Stigma, trust, and patient-provider interaction quality among HIV positive women in the study cohort are described in Table 2. Women who reported experiencing physical violence by an intimate partner were more likely to report experiences of HIV-related stigma (mean 2.76, p-value < 0.001), experiences of race-related stigma (mean 1.97, p-value < 0.001), experiences of anticipated stigma (mean 2.27, p-value < 0.001), and they were more likely to report poor patient-provider interaction quality (mean 3.39, p-value < 0.001) compared to women who reported never experiencing physical violence by an intimate partner. No significant difference in

means existed for the patient-provider trust outcome between women who reported experiencing violence by an intimate partner and those who reported never experiencing violence by an intimate partner.

Factors Associated with Viral Suppression

Factors associated with viral suppression among HIV positive women in the study cohort are described in Table 3. In the univariate analysis, women who reported never experiencing physical violence by an intimate partner were negatively associated with increased odds of having a detectable HIV viral load status OR=0.78 (95% CI 0.69-0.87, p-value <0.001). Black women were had higher odds of having a detectable HIV viral load status OR=2.10 (95% CI 1.85-2.39, p-value <0.001) and Hispanic and Native American women were less likely to have a detectable HIV viral load status OR=0.51 (95% CI 0.42-0.62, p-value <0.001). Age in years was positively associated with increased odds of having a detectable HIV viral load status OR=1.03 (95% CI 1.02-1.04, p-value <0.001). Women who reported never being married were more likely to have a detectable HIV viral load status as compared to married women OR=1.71 (95% CI 1.49-1.95, p-value <0.001). Women who resided in someone else's home (parent or other) were more likely to have a detectable HIV viral load status as compared to those who lived in their own home OR=1.29 (95% CI 1.13-1.49, p-value <0.001). Both women who only completed high school OR=2.58 (95% CI 2.24-2.97, p-value <0.001) and women who had some experience of, or completed, college OR=1.78 (95% CI 1.59-2.00, p-value <0.001) had greater odds of having a detectable HIV viral load status as compared to women with less than a high school education. HIV-related stigma was positively associated with increased odds of having a detectable HIV

viral load status OR=1.53 (95% CI 1.43-1.63, p-value <0.001). Race-related stigma was positively associated with increased odds of having a detectable HIV viral load status OR=1.79 (95% CI 1.59-2.02, p-value <0.001). Anticipated stigma was positively associated with increased odds of having a detectable HIV viral load status OR=1.49 (95% CI 1.39-1.58, p-value <0.001). Patient-provider interaction quality was inversely associated with having a detectable HIV viral load status OR=0.56 (95% CI 0.45-0.69, p-value <0.001), such that those who reported better interaction quality were more likely to have suppressed HIV viral load statuses than those who reported problems or concerns with the interaction quality of providers.

In the multivariate analysis, women who reported never experiencing physical violence by an intimate partner were less likely to have a detectable HIV viral load status as compared to women who reported physical violence by an intimate partner OR=0.63 (95% CI 0.55-0.72, p-value <0.001). Hispanic and Native American women were less likely to have a detectable HIV viral load status as compared to White women OR 0.79 (95% CI 0.65-0.97, p-value 0.027). Age in years was positively associated with increased odds of having a detectable HIV viral load status OR=1.01 (95% CI 1.00-1.01, p-value 0.039). Women who reported never being married were positively associated with increased odds of having a detectable HIV viral load status OR=1.28 (95% CI 0.89-1.04, p-value <0.001). Women who only completed high school had higher odds of having a detectable HIV viral load status OR=1.53 (95% CI 1.31-1.79, p-value <0.001). Women who experienced some, or completed, college were less likely to have a detectable HIV viral load status as compared to women who did not complete high school OR=0.70 (95% CI 0.59-0.84, p-value 0.001). HIV related stigma was positively associated with

increased odds of having a detectable HIV viral load status OR=1.66 (95% CI 1.34-2.05, p-value <0.001). Anticipated stigma was positively associated with increased odds of having a detectable HIV viral load status OR=1.20 (95% CI 1.09-1.31, p-value <0.001). Patient-provider interaction quality was positively associated with increased odds of having a detectable HIV viral load status OR=1.15 (95% CI 0.98-1.34, p-value=0.091) such that those who reported better interaction quality were more likely to have suppressed HIV viral load statuses than those who reported problems or concerns with the interaction quality of providers.

CHAPTER 4. DISCUSSION

Viral Load Levels

The results of this study found that, overall, women who reported experiencing physical violence by an intimate partner were more likely to have detectable HIV viral load levels compared to women who did not report experiencing physical violence by an intimate partner. These results reflect other studies that have been done examining the relationship between IPV and HIV viral load levels (Ogbe et al, 2020 | Gilbert et al, 2016 | Bacchus et al, 2018). Black women who reported experiencing physical violence by an intimate partner were more likely to have a detectable viral load compared to White women who reported similar experiences, and women who reported never having been married during the period of interest were more likely to have a detectable viral load compared to women who were legally married during the period of interest. Previous studies have found that Black women are disproportionately impacted by HIV in the

United States and have higher rates of ART non-adherence as well as more severe effects of early discontinuation of ART (Lipira et al, 2019 | Dale et al, 2019).

Stigma and Anticipated Stigma

Women who experience or have experienced physical violence by an intimate partner are more likely than women who have never experienced physical violence by an intimate partner to encounter certain stigma and discrimination experiences in the HIV healthcare settings. Women were more likely to report experiences of HIV-related stigma, experiences of race-related stigma, and experiences of anticipated stigma. The majority of women who reported experiencing physical violence by an intimate partner in the WIHS were Black, Hispanic, or Native American, which may partially explain the higher rate of perceived or experienced race-related stigma. Racial discrimination is a recurring issue within every facet of the healthcare system and warrants acknowledgement as well as improvement on the part of providers and healthcare workers. The results of this analysis as well as previous studies highlights the need for healthcare providers to build a healthcare system that actively prevents discriminatory behaviors when treating diverse and multicultural women of color. Reported experiences of HIV-related stigma, race-related stigma, and anticipated stigma may reflect the often poor self-worth, depression, and anxiety that is reported among women who experience violence by an intimate partner (Bacchus et al, 2018 | Kouyoumdjian et al, 2013 | Li et al, 2014 | Rioli et al, 2017). Compassion is often found to be lacking in healthcare settings, sometimes due to differing priorities between providers and patients, this highlights an area in which providers may benefit from additional education in patient needs (Sinclair et al, 2016). Evidence exists of the effectiveness of outreach

and interventions for women who experience IPV that focus on improving access to social support through the use of advocates with strong links to community-based organizations (Dale, 2019). Systematic and sensitive screening for all forms of violence by an intimate partner followed by interventions that provide women with community and social support may help retain women in care and provide more meaningful and effective care.

Patient-Provider Interaction Quality

Women who experienced physical violence by an intimate partner were more likely to report dissatisfaction with the interaction quality between patients and providers. This may indicate a lack of compassionate outreach on the part of the provider regarding the special needs that women who report physical violence by an intimate partner may require. Women who experience violence at home often feel intimidated by people in positions of power which may impact the interactions that occur between the patient and provider (Hardee et al, 2014 | Kouyoumdjian et al, 2013 | Rioli et al, 2017). Previous studies have found that trauma-informed care, an approach that recognizes the presence of trauma symptoms and acknowledges the role that trauma plays in people's lives, as well as high quality, compassionate care has improved retention in care and quality of life for women living with HIV experiencing IPV and other sources of trauma (Wingwood et al, 2013 | Sinclair et al, 2016).

Trust in HIV Care Providers

Although no significant difference in means existed between the two groups included in this study, lack of trust in HIV care providers is associated with a detectable HIV viral load status

among women in the WIHS overall without consideration of physical violence by an intimate partner. This may be an important area for future research as it may point to trust-related barriers to care among women living with HIV in the WIHS.

CHAPTER 5. LIMITATIONS

This study presents a few limitations. Firstly, this is an analysis of larger dataset that might not represent the findings within the larger dataset. This analysis also chose to focus on physical violence which might not generalize to other forms of violence. Another limitation was that education level as well as marital, residential, insurance, and employment statuses may have changed during the study period. Other limitations include the limited information available regarding reasoning behind answers on the stigma and discrimination questionnaire. Intimate partner violence is a difficult personal subject to discuss and the participants of the WIHS may not have been comfortable disclosing past or present physical violence by an intimate partner, especially if they are still in a relationship with said intimate partner. Due to this, there may be more individuals within the study who experienced physical violence from an intimate partner and did not report it.

A significant limitation of this study is that the experiences of women who report experiencing physical violence by an intimate partner in the WIHS also may not represent the full extent of the impact of violence from an intimate partner due to the fact that sexual violence and psychological violence were not analyzed. Finally, the impact of stigma and discrimination on HIV viral load status among women in the WIHS may not represent the experiences of women

in the HIV Care Continuum across the United States due to the limited sample size. The experiences of this cohort may not be accurately generalizable to other groups.

CHAPTER 6. CONCLUSIONS

Women who experience violence by an intimate partner not only suffer from physical abuse but long term psychological and emotional abuse that may prevent them from exhibiting health seeking behaviors (Ogbe et al, 2020). Previous research has hypothesized certain mechanisms that impact health related outcomes and HIV treatment in women who experience or have experienced violence by an intimate partner including fear of abuse leading to greater tolerance of partner's risk behavior, impaired sexual decision making, fear of disclosing HIV diagnosis, low self-worth, lack of control, adopting poor coping strategies, substance abuse, depression, and anxiety (Maher et al, 2000 | Marshall et al, 2018). These mechanisms impact not only the pathway of patients through the HIV Care Continuum but may also result in less than optimal healthcare experiences which places this population at risk of falling out of care. The results of this study reflect other studies that have looked into the barriers that exist within the healthcare system for people living with HIV and has found that women who experience physical violence by an intimate partner are more likely to experience certain perceived or actual barriers in the healthcare system. They are also more likely to have a detectable viral load indicating that treatment may not be effective in its present state. It is recommended that further study be conducted within this population to determine potential improvements within the HIV healthcare system in order to accommodate specialized treatment and outreach in order to further reduce viral load levels within the IPV population. Future studies should include all women in the

WIHS who report experiencing sexual and psychological violence by an intimate partner as well as physical violence in order to understand the full impact of violence by an intimate partner among HIV-positive women on HIV viral load levels.

Table 1. Baseline demographic characteristics among study participants

		Physical violence by an intimate partner						P-value
		Overall (n=680)		Yes (n=455, 66.91%)		No (n=225, 33.09%)		
Variables		N	%	N	%	N	%	
Race	White	138	20.29	63	13.85	75	33.33	0.001
	Black	399	58.68	270	59.34	129	57.33	
	Hispanic/Native American	143	21.03	122	26.81	21	9.33	
Age	<= 19	69	10.15	69	15.16	0	0	0.003
	20 - 29	85	12.5	85	18.68	0	0	
	30- 39	321	47.21	158	34.73	163	72.44	
	40 - 49	125	18.38	92	20.22	33	14.67	
	>= 50	80	11.76	51	11.21	29	12.89	
Marital Status	Legal/commonlaw	217	31.91	170	37.36	47	20.89	0.127
	Previously Married	243	35.74	114	25.05	129	57.33	
	Never married/other	220	32.35	160	35.16	60	26.67	
Residence	Own house	495	72.79	342	75.16	153	68	0.027
	Other house	124	18.24	81	17.80	43	19.11	
	Facility/other	61	8.97	32	7.03	29	12.89	
Employment	Yes	193	28.38	109	23.96	84	37.33	0.001
	No	487	71.62	346	76.04	141	62.67	
Insurance	Yes	623	91.62	412	90.55	211	93.78	0.166
	No	57	8.38	40	8.79	17	7.56	
Education	< high school	199	29.26	122	26.81	77	34.22	0.029
	Complete high school	280	41.18	217	47.69	63	28	
	> high school	201	29.56	116	25.49	85	37.38	
HIV status	Positive	364	53.53	240	52.75	124	55.11	0.562
	Negative	316	46.47	215	47.25	101	44.89	

Table 2. Stigma, trust, and interaction quality among HIV+ study participants

		Physical violence by an intimate partner		
		Yes (n=240)	No (n=124)	
Variables		Mean	Mean	P-value
Stigma	HIV-related	2.76	1.23	< 0.001
	Race-related	1.97	1.09	< 0.001
	Anticipated	2.27	1.30	< 0.001
Trust		3.70	3.67	0.194
Interaction Quality		3.39	1.31	< 0.001

Table 3. Factors associated with viral load status among HIV+ study participants

		Univariate			Multivariate		
Factor		OR	95% CI	P-value	OR	95% CI	P-value
Violence	Yes	Ref	Ref				
	No	0.78	0.69-0.87	< 0.001	0.63	0.55-0.72	< 0.001
Race	White	Ref	Ref				
	Black	2.10	1.85-2.39	< 0.001	1.05	0.91-1.21	0.493
	Hispanic/Native American	0.51	0.42-0.62	< 0.001	0.79	0.65-0.97	0.027
Age (years)		1.03	1.02-1.04	< 0.001	1.01	1.00-1.01	0.039
Marital Status	Legal/common-law	Ref	Ref				
	Previously married	0.98	0.87-1.09	0.698			
	Never married/other	1.71	1.49-1.95	< 0.001	1.28	1.17-1.40	< 0.001
Residence	Own house	Ref	Ref				
	Other house	1.29	1.13-1.49	0.001	0.96	0.89-1.04	0.363
	Facility/other	0.86	0.65-1.14	0.297			
Employment	Yes	Ref	Ref				
	No	0.91	0.80-1.04	0.166			
Insurance	Yes	Ref	Ref				
	No	1.28	0.95-1.71	0.102			
Education	< high school	Ref	Ref				
	high school	2.58	2.24-2.97	< 0.001	1.53	1.31-1.79	< 0.001
	> high school	1.78	1.59-2.00	< 0.001	0.70	0.59-0.84	0.001
Stigma	HIV-related	1.53	1.43-1.63	< 0.001	1.66	1.34-2.05	< 0.001
	Race-related	1.79	1.59-2.02	< 0.001	1.04	0.81-1.35	0.739
	Anticipated	1.49	1.39-1.58	< 0.001	1.20	1.09-1.31	< 0.001
Trust in provider		1.05	0.84-1.32	0.667			
Interaction quality		0.56	0.45-0.69	< 0.001	1.15	0.98-1.34	0.091

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