

# Correlates Of Internalized Hiv Stigma

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# CORRELATES OF INTERNALIZED HIV STIGMA: A COMPREHENSIVE SYSTEMATIC REVIEW

Yvonne L. van der Kooij, Chantal den Daas, Arjan E.R. Bos, Roy A. Willems, and Sarah E. Stutterheim

Internalized HIV stigma is prevalent and research on internalized HIV stigma has increased during the past 10 years. The aim of this systematic review was to synthesize research on internalized HIV stigma and relationships with various health-related variables in order to better inform the development of interventions aimed at reducing internalized HIV stigma. We reviewed 176 studies with a quantitative design reporting correlates that were peer-reviewed, published in English before January 2021, drawn from PubMed, PSYCHINFO, Web of Science, EBSCO, and Scopus. Synthesis showed consistent associations between internalized stigma and negative psychological (e.g., depression, anxiety), social (e.g., lack of social support, discrimination, nondisclosure, and intersecting stigmas), and health (e.g., substance use, treatment nonadherence, negative clinical HIV outcomes) variables. We argue for a more socioecological approach to internalized stigma, with greater attention for intersectional stigmas, and more longitudinal research, if we are to effectively develop interventions that reduce internalized stigma.

*Keywords:* HIV, internalized stigma, self-stigma, systematic review

## INTRODUCTION

HIV stigma affecting people living with HIV (PLHIV) is a major barrier to an effective response to the HIV/AIDS epidemic (Brent, 2016; Friedland et al., 2018). In

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*Supplemental materials are available online.*

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fact, stigma affects both HIV prevention efforts as well as HIV treatment (Pantelic, Sprague et al., 2019; Rueda et al., 2016; Simbayi et al., 2007; Stutterheim et al., 2012), and is linked to negative health consequences for PLHIV (Bos et al., 2013; Logie & Gadalla, 2009; Rueda et al., 2016; Yigit, Weiser, et al., 2020).

Traditionally, research on HIV-related stigma has focused primarily on public HIV stigma, which refers to negative public attitudes or discriminatory behavior towards PLHIV (Bos et al., 2013). Until relatively recently, less attention was paid to internalized HIV stigma (also termed self-stigma; Pantelic et al., 2015), which is a process by which PLHIV internalize or endorse society's negative beliefs about HIV and accept their validity (Earnshaw et al., 2013; Pantelic et al., 2015; Stutterheim et al., 2012). However, in recent years, internalized HIV stigma has been acknowledged as an important aspect of the experience of living with HIV and, accordingly, the body of literature on internalized HIV stigma and its effects has grown substantially. This systematic review sets out to synthesize the existing quantitative research on internalized HIV stigma and its psychological, social, health, and sociodemographic correlates, paying attention also to the kinds of study designs employed in empirical studies of internalized HIV stigma and the instruments used to measure internalized HIV stigma in those studies.

To our knowledge, no such review has been conducted. Logie and Gadalla (2009) did conduct a meta-analysis of health and demographic correlates of HIV stigma more broadly but did not focus on internalized stigma specifically. Pantelic et al. (2015) looked specifically at predictors of internalized HIV stigma in 2015 but then only for sub-Saharan Africa. Similarly, Ingram and colleagues (2019) investigated, in their systematic review, a number of socioecological factors related to various forms of HIV-related stigma, including internalized HIV stigma but the scope of that review was limited to PLHIV living the U.S. South. No global synthesis of socioecological factors related to internalized HIV stigma is present. However, this is needed as the literature currently abounds with empirical studies of various correlates of internalized HIV stigma including, but not limited to, psychological distress, anxiety, depression, feelings of loneliness, poorer self-esteem, nondisclosure of HIV-status, reduced efforts to seek help, less social support, treatment nonadherence (Earnshaw et al., 2013; Fekete et al., 2018; Herek et al., 2013; Ingram et al., 2019; Lyimo et al., 2014; Nobre et al., 2018; Overstreet et al., 2013; Rice et al., 2017; Van der Kooij et al., 2021).

A comprehensive global review of internalized HIV stigma literature is also important for the development of interventions. Recent literature indicates that well-established and theoretically grounded interventions addressing internalized HIV stigma are needed (Pantelic, Steinert, et al., 2019; Yigit, Weiser, et al., 2020). In order to effectively develop such interventions, we need to ascertain points of intervention. This global systematic review was conducted to synthesize correlates of internalized HIV stigma, from which to identify gaps in research and provide researchers, clinicians, program developers, and policy-makers a foundation to develop informed evidence-based interventions to reduce internalized HIV stigma.

## METHODS

This systematic review was designed and reported in accordance with the PRISMA guidelines for systematic reviews (Estarli et al., 2016; Moher et al., 2009). The protocol was registered with the International prospective register of

systematic reviews (PROSPERO) in accordance with PRISMA-P guidelines (PROSPERO CRD42020133475).

### SEARCH STRATEGY AND ELIGIBILITY

To identify relevant peer-reviewed articles, the following online databases were searched: PubMed, PSYCHINFO, Web of Science, EBSCO, and Scopus. Also, PROSPERO was screened to check for similar relevant reviews. We included peer-reviewed articles published in English before January 2021 with no restrictions to specific regions or sub-populations. Mesh terms and/or key words used to search in the title or abstract were: “internalized stigma” OR “internalised stigma” OR “internal stigma” OR “self-stigma” OR “self stigma” AND “HIV/ AIDS” OR “HIV” OR “human immunodeficiency virus”.

The inclusion criteria were: (a) the article reported on internalized stigma related to HIV and included at least one correlate, predictor, or outcome associated with internalized stigma; (b) the study focused on PLHIV including specific key populations living with HIV (e.g., sex workers, women, men who have sex with men); (c) the study was published in English; and (d) the study reported on primary quantitative research published in a peer-reviewed journal. Studies were excluded if they (a) did not measure internalized stigma; (b) did not report univariate data; and (c) they were intervention or qualitative studies. Any conflicts over study inclusion were resolved by the researchers.

### STUDY SELECTION AND DATA EXTRACTION

Figure 1 shows the flowchart for the selection process. We followed the Cochrane Collaboration Handbook (Higgins et al., 2011), by which searches were merged and de-duplicated. Two researchers (YvdK and CdD) screened titles and abstracts independently first, followed by a discussion with the full research team. Then, a full text screening of the remaining articles was conducted by four independent reviewers (YvdK, CdD, AB, and SS), who applied the inclusion and exclusion criteria before extracting data. The data were extracted by these four reviewers with assistance from two trained research assistants using a pre-piloted Excel spreadsheet. Data extracted included: author, publication year, region/country where study was conducted, study population, sociodemographic variables measured (gender, sexual orientation, ethnicity, age, employment status, marital status, years of living with HIV), study design, sample size, (stigma) instrument(s) used, main findings for correlates (with delineation as predictors or outcomes when specified). When data were duplicated across studies, the estimates of the largest sample were chosen.

### DATA SYNTHESIS

With the extracted data, we constructed a tabular summary of all included studies in Excel. Total numbers of the various study characteristics (see Table 1) were synthesized first. Then, all instruments used to measure internalized stigma in the included studies were assessed and combined in Table 2. From the tabular summary, we further selected all correlating variables of internalized stigma assessed in the 176 studies. For each variable, we first synthesized the absence or presence of a significant association (using  $p < .05$  or  $p > .05$ ), followed by the direction of the

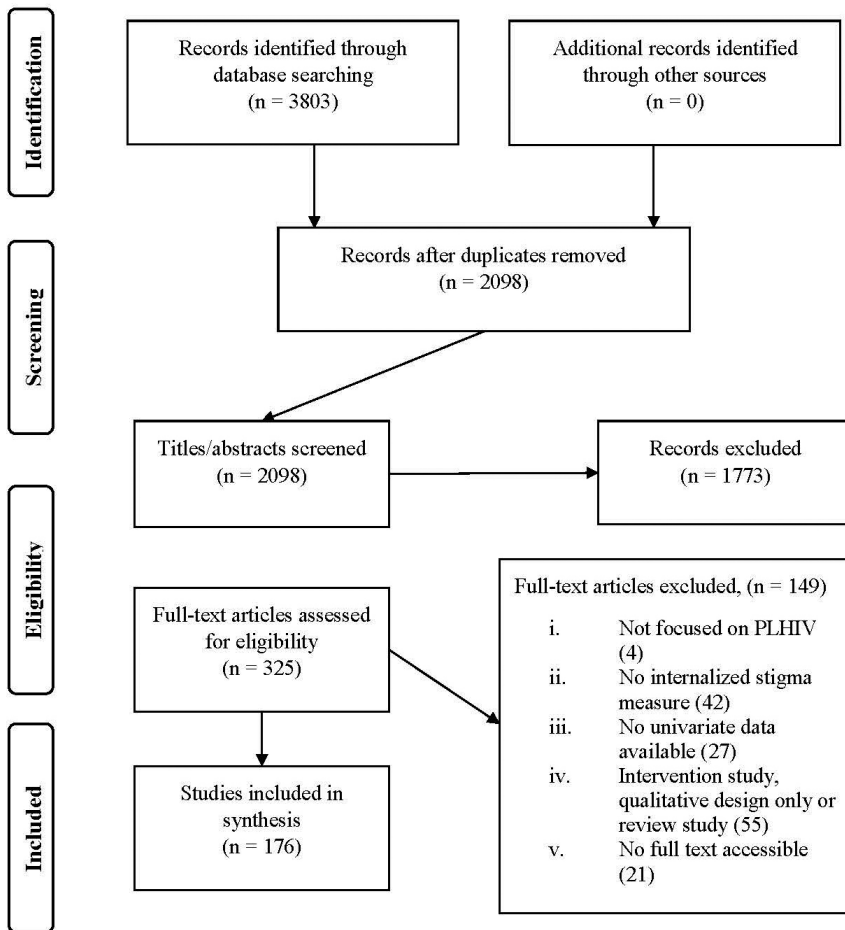


FIGURE 1. Flowchart of the article selection process.

significant relationships (positive or negative). For longitudinal studies, we included information about the strength of the relationship between correlates of internalized stigma over time, and if these acted as predictors or outcomes. We then thematically grouped variables into the following categories: psychological variables, social indicators, health and behavior, and sociodemographic variables.

## RESULTS

### STUDY CHARACTERISTICS

The initial search generated 3,803 unique articles, of which 176 were ultimately included in the review (Figure 1). The majority of articles (90.0%;  $n = 158$ ) were published from 2010 onward, indicating a growing interest in internalized HIV stigma

TABLE 1. Study Characteristics ( $n = 176$ )

Characteristic		<i>n</i>	%
Year of publication	2000–2010	18	10.2
	2010–2015	40	22.7
	2015–2021	118	67.1
Study design	Cross sectional	130	73.9
	Longitudinal	24	13.6
	Other (cohort/ exploratory study)	22	12.5
Sample size	1–100	9	5.1
	101–500	100	56.8
	501–1000	41	23.3
	1000+	26	14.8
Study region	North America	54	30.7
	South America	4	2.3
	Africa	57	32.4
	Europe	16	9.1
	Asia	43	24.4
	Australia	2	1.1
Key population	Adults living with HIV	107	60.8
	Women	24	13.6
	Youth/adolescents	13	7.4
	Men who have sex with men (MSM)	11	6.3
	African Americans	7	4.0
	Other PLHIV <sup>a</sup>	14	8.0

Note. <sup>a</sup>e.g., sex workers, outpatients, recently diagnosed.

in the recent years (Table 1). The majority of studies (73.9%;  $n = 130$ ) employed a cross-sectional design and most studies (80.1%;  $n = 141$ ) had a sample size between 100 and 1,000 participants.

In total, data were drawn from 120,684 PLHIV in 32 countries across all major geographical regions but predominantly in Africa (32.4%;  $n = 57$ ), North America (30.7%;  $n = 54$ ), and Asia (24.4%;  $n = 43$ ). Most studies (60.8%;  $n = 107$ ) included adults living with HIV. Specific key populations were also represented including women (13.6%;  $n = 24$ ), youth and/or adolescents (7.4%;  $n = 13$ ), men who have sex with men (6.3%;  $n = 11$ ), and African American people (4%;  $n = 7$ ).

## INTERNALIZED STIGMA MEASURES

Table 2 presents the measures used in studies of internalized HIV stigma and its correlates, and shows heterogeneity in how internalized HIV stigma is measured. The most commonly used scales were the negative self-image sub-scale of the HIV Stigma Scale (Berger et al., 2001; 33.5%,  $n = 59$ ) and the Internalized AIDS-Related Stigma Scale (Kalichman et al., 2009; 22.7%;  $n = 40$ ). Interestingly, 47 studies (26.7%) used a self-developed scale or did not specify how they measured internalized HIV stigma.

TABLE 2. Internalized HIV Stigma Measures Used in the Studies

	<i>n</i>	%
HIV Stigma Scale (HSS) <sup>a</sup>	59	33.5
Internalized AIDS-related Stigma Scale (ARSS) <sup>b</sup>	40	22.7
HIV/AIDS Stigma Instrument (HASI-P) <sup>c</sup>	9	5.1
Self Stigma Scale (SSS-S) <sup>d</sup>	7	4.0
People living with HIV Index (PLHIV Index) <sup>e</sup>	6	3.4
Internalized HIV Stigma Scale <sup>f</sup>	6	3.4
Internalized Stigma of AIDS Tool (ISAT) <sup>g</sup>	2	1.1
Self-developed/unknown	47	26.7

Note. <sup>a</sup>Berger et al., 2001; <sup>b</sup>Kalichman et al., 2009; <sup>c</sup>Holzemer et al., 2007; <sup>d</sup>Mak & Cheung, 2010; <sup>e</sup>UNAIDS, 2007; <sup>f</sup>Sayles et al., 2008; <sup>g</sup>Phillips et al., 2011.

## CORRELATES OF INTERNALIZED HIV STIGMA

Table 3 presents a parsimonious overview of the correlates of internalized stigma. Full details of all correlates found in the literature are presented in the supplementary materials.

### PSYCHOLOGICAL VARIABLES

The most frequently measured psychological correlate of HIV stigma was depression (34.7% of all studies;  $n = 61$ ). Depression was consistently (99.6%;  $n = 60$ ) positively related to internalized HIV stigma, as was anxiety (100%;  $n = 16$ ). Both were also established as outcomes of internalized HIV stigma in longitudinal studies (Boyes et al., 2020; Garrido-Hernansaiz & Alonso-Tapia, 2020).

Furthermore, the heterogeneous categories of negative mental health indicators (e.g., self-blame, loneliness, rumination; 23.9%;  $n = 42$ ) and positive mental health indicators (e.g., resilience, perceived control, life satisfaction; 14.2%;  $n = 25$ ) showed, respectively, consistent positive (97.6%;  $n = 40$ ) and negative associations with internalized HIV stigma (100%;  $n = 25$ ). Specific mental health indicators, namely posttraumatic stress disorder (PTSD) and HIV-related resilience, were also established longitudinally as being predicted by internalized HIV stigma, and past resilience was demonstrated, also longitudinally, to be a predictor of less internalized HIV stigma (Boyes et al., 2020; Garrido-Hernansaiz & Alonso-Tapia, 2020).

Another frequently investigated correlate was quality of life (16.5%;  $n = 29$ ). Quality of life was negatively associated with internalized HIV stigma in 89.7% ( $n = 26$ ) of studies.

Coping was measured in 24 studies (13.6%), of which 9 (37.5%) measured some form of adaptive coping and 15 (62.5%) explored some form of maladaptive coping. Both showed relatively consistent significant findings. Adaptive coping was significantly related to internalized HIV stigma in 88.9% ( $n = 8$ ) of studies, with 6 (80.0%) of those studies showing the expected negative relationship, one of which longitudinally established internalized stigma as a predictor of less adaptive coping. Maladaptive coping was significantly related to internalized HIV stigma in all

TABLE 3. Correlates of Internalized HIV Stigma

Variable	No. of studies ( <i>n</i> = 176)	N.S. ( <i>p</i> > .05)	Sign. ( <i>p</i> < .05)	Positive relationship ( <i>p</i> < .05)	Negative relationship ( <i>p</i> < .05)
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
<i>Psychological variables</i>					
Depression	61 (34.7)	1 (1.6)	60 (98.4)	58 (96.7) <sup>L</sup>	2 (3.2)
Anxiety	16 (9.1)	0 (0)	16 (100)	16 (100) <sup>L</sup>	0 (0)
Negative mental health indicators <sup>a</sup>	42 (23.9)	1 (2.4)	41 (97.6)	40 (97.6) <sup>L</sup>	1 (2.4)
Quality of life	29 (16.5)	3 (10.3)	26 (89.7)	0 (0)	26 (100)
Positive mental health indicators <sup>b</sup>	25 (14.2)	0 (0)	25 (100)	0 (0)	25 (100)
Maladaptive coping	15 (8.5)	0 (0)	15 (100)	14 (93.3)	1 (6.7)
Adaptive coping	9 (5.1)	1 (11.1)	8 (88.9)	2 (20.0)	6 (80.0) <sup>L</sup>
Substance use	21 (11.9)	9 (42.9)	12 (57.1)	11 (91.7)	1 (8.3)
<i>Social indicators</i>					
Social support & community engagement	46 (26.1)	2 (4.4)	44 (95.6)	6 (13.6)	38 (86.4)
Enacted stigma (discrimination)	34 (19.3)	6 (17.7)	28 (82.3)	27 (96.4)	1 (3.6)
Perceived public stigma	22 (12.5)	0 (0)	22 (100)	22 (100) <sup>L</sup>	0 (0)
Anticipated stigma	27 (15.3)	1 (3.7)	26 (96.3)	26 (100)	0 (0)
Intersecting stigmas	9 (5.1)	1 (11.1)	8 (89.9)	8 (100)	0 (0)
HIV disclosure	20 (11.4)	5 (25.0)	15 (75.0)	3 (20.0)	12 (80.0) <sup>L</sup>
<i>Health and behavior</i>					
Treatment initiation & adherence <sup>c</sup>	53 (30.1)	14 (26.4)	39 (73.6)	4 (10.3)	35 (89.7) <sup>L</sup>
Positive clinical HIV outcomes <sup>d</sup>	22 (12.5)	7 (31.8)	15 (68.2)	0 (0)	15 (100) <sup>L</sup>
Positive experiences with health care	10 (5.7)	3 (30.0)	7 (70.0)	0 (0)	7 (100)
Low general health <sup>e</sup>	26 (14.0)	3 (11.5)	23 (88.5)	15 (65.2)	8 (34.8)
Sexual risk behavior	11 (6.3)	2 (18.2)	9 (81.8)	8 (88.9)	1 (11.1)
Testing & linkage to care	12 (6.8)	3 (25.0)	9 (75.0)	7 (77.8)	2 (22.2)
Reproductive health	4 (2.3)	0 (0)	4 (100)	2 (50.0)	2 (50.0)
<i>Sociodemographic variables</i>					
Age (older)	33 (18.8)	12 (36.4)	21 (63.6)	5 (23.8)	16 (76.2)
Gender	28 (15.9)	15 (53.6)	13 (46.4)	13 (100)	0 (0)
Socioeconomic vulnerability <sup>f</sup>	34 (19.3)	14 (41.2)	20 (58.8)	19 (95.0) <sup>L</sup>	1 (5.0)
Level of education (high)	23 (13.1)	10 (43.5)	13 (56.5)	3 (23.1)	10 (76.9)
Area of residence	8 (4.6)	3 (37.5)	5 (62.5)	3 (60.0)	2 (40.0)
Ethnicity (minority)	18 (10.2)	13 (72.2)	7 (27.8)	5 (71.4)	2 (28.6)
Key populations <sup>g</sup>	11 (6.3)	3 (27.3)	8 (72.7)	6 (75.0)	2 (25.0)
Being in a relationship	15 (8.5)	10 (66.7)	5 (33.3)	0 (0)	5 (100)
Having children	2 (1.1)	2 (100)	0 (0)	0 (0)	0 (0)
Time since diagnosis	16 (9.1)	3 (18.8)	13 (81.2)	2 (15.4)	11 (84.6)

Notes. N.S.: not significant; Sign.: significant. <sup>a</sup>Psychological distress, self-blame, hopelessness, loneliness; <sup>b</sup>resilience, life satisfaction, self-esteem, self-efficacy; <sup>c</sup>ART adherence, medication adherence, visit adherence; <sup>d</sup>high CD4 count, undetectable viral load, no HIV symptoms; <sup>e</sup>low subjective health, sexual problems; <sup>f</sup>low income, unemployment, poverty, housing issues, food insecurity; <sup>g</sup>sexual minorities, transgender individuals, sex workers. L = at least one study confirmed this relationship longitudinally.



included studies (100%;  $n = 15$ ), and all but one of those studies (93.3%;  $n = 14$ ), the relationship was, as expected, positive.

Lastly, substance use was investigated in 21 studies (11.9%), of which only 12 (57.1%) demonstrated a significant relationship between substance use and internalized HIV stigma. In all but one of those 12 studies (91.7%,  $n = 11$ ), the relationship was, as expected, positive.

In summary, the literature shows consistent positive relationships between internalized HIV stigma and depression, anxiety, negative mental indicators, and maladaptive coping; and consistent negative relationships between internalized HIV stigma and positive mental health indicators, quality of life, and adaptive coping. Findings regarding the relationship between internalized HIV stigma and substance use were inconsistent but, when present, the association was, as expected, positive.

### SOCIAL INDICATORS

The most frequently reported social correlates of internalized HIV stigma were social support (including community engagement; 26.1%;  $n = 46$ ) and enacted stigma (thus discrimination; 19.3%;  $n = 34$ ). Social support was significantly related to internalized HIV stigma in 44 of the 46 studies (95.6%), and that relationship was negative in 38 (86.4%) and positive in 6 (13.6%) of the 44 studies showing a significant relationship. Enacted stigma was significantly related to internalized HIV stigma in 28 of the 34 studies (82.3%), and that relationship was, when found, consistently positive (96.4%;  $n = 27$ ).

Perceived public stigma (12.5%;  $n = 22$ ), anticipated stigma (including disclosure concerns; 15.3%;  $n = 27$ ), and intersecting stigmas (e.g., stigmas related to drug use or sexual minority status; 5.1%;  $n = 9$ ) were almost always found to be significantly related to internalized HIV stigma, respectively, 100% ( $n = 22$ ), 96.3% ( $n = 26$ ), and 89.9% ( $n = 8$ ), and, when found, the association was, as expected, positive. In one longitudinal study, prejudice predicted higher odds of internalized HIV stigma (Eaton et al., 2018).

HIV disclosure was also measured in 20 (11.4%) of the included studies, of which 15 (75.0%) found a significant association, which was usually negative (80.0%;  $n = 12$ ). Longitudinal data in one study showed that voluntary disclosure of HIV status predicts lower levels of internalized HIV stigma (Lyimo et al., 2014).

In sum, the literature shows consistent positive relationships between internalized HIV stigma and various other forms of stigma including enacted stigma, perceived public stigma, anticipated stigma, and intersecting stigmas. It also shows negative relationships between internalized HIV stigma and social support, and, to a slightly lesser extent (75.0%), between internalized HIV stigma and HIV disclosure.

### HEALTH AND BEHAVIOR

The most examined category of health or behavioral correlates of internalized HIV stigma was treatment initiation and adherence (30.1%;  $n = 53$ ). Treatment initiation and adherence was significantly associated with internalized HIV stigma in 39 of the 53 studies (73.6%), and of those 39, 35 (89.7%) established a negative relationship between internalized HIV stigma and treatment initiation and adherence. Three of the studies longitudinally found support for the contention that internalized stigma leads to lower *ART and visit adherence* (Lyimo et al., 2014; Turan, Rice, et al., 2019; Yigit, Bayramoglu, et al., 2020).

Positive clinical HIV outcomes (e.g., viral suppression, high CD4 count; 12.5%;  $n = 22$ ) were found to be related to internalized HIV stigma in 15 (68.2%) of the 22 studies investigating this. When found, the relationship was consistently negative (100%;  $n = 15$ ). One longitudinal study showed that internalized stigma predicts less viral suppression (Yigit, Bayramoglu, et al., 2020).

Positive experiences with health care (e.g., trust in health provider or medication, good communication; 5.7%;  $n = 10$ ) were significantly related to internalized HIV stigma in 7 of the 10 studies (70.0%), and, in all 7 (100%), that relationship was, as expected, negative. Variables related to testing and linkage to care (e.g., delays in testing, late diagnosis) were measured in 12 studies (6.8%), of which 9 showed a significant relationship (75.0%). Of those 9, 7 (77.8%) demonstrated a positive relationship with internalized HIV stigma.

Low general health was measured in 26 studies (14.0%) and was significantly associated with internalized HIV stigma in 23 of the 26 studies (88.5%). Of those 23, associations were positive in 15 (65.2%) and negative in the remaining 8 (34.8%). One study was longitudinal and established internalized stigma as a predictor of greater pain (Crockett et al., 2020).

Sexual risk behavior was examined in 11 studies (6.3%), of which 9 (81.8%) showed a relationship with internalized HIV stigma. That association was relatively consistently positive (88.9%;  $n = 8$ ). Lastly, reproductive health variables (number of births, wanting children) were investigated 4 studies (2.3%), all of which showed significant associations with internalized HIV stigma (100%) but the directions of those relationships varied across studies.

In sum, the literature shows more mixed results for relationships between internalized stigma and health and behavioral variables, particularly with respect to variables measuring HIV treatment initiation and adherence, positive clinical outcomes, and positive experiences with health care. Although these relationships were not consistently established, when found, they were consistently negative. Contrastingly, variables related to low general health and reproductive health were relatively consistently associated with internalized HIV stigma but the direction of those relationships varied across studies. Internalized HIV stigma was relatively consistently positively related to sexual risk behavior.

## SOCIODEMOGRAPHIC VARIABLES

The most common sociodemographic variables measured as correlates of internalized HIV stigma were age (18.8%;  $n = 33$ ), gender (15.9%;  $n = 28$ ), and socioeconomic vulnerability (19.3%;  $n = 34$ ). Of the 33 studies that assessed age, 21 (63.6%) found a significant relationship with internalized HIV stigma but the direction of that relationship varied to some extent across studies, with 16 (76.2%) associating higher levels of internalized HIV stigma with younger age and 5 (23.8%) linking internalized HIV stigma with being older. Gender also produced inconsistent findings, with more than half of the studies (53.6%;  $n = 15$ ) finding no relationship between gender and internalized HIV stigma. Among those studies that did find an association, 9 found higher internalized stigma in women, and four reported higher internalized stigma in men. The category socioeconomic vulnerability (e.g., poverty, housing issues, food insecurity, and unemployment) also showed mixed findings. Of the 34 studies that measured socioeconomic vulnerability, 20 (58.8%) found a significant relationship and these relationships were consistently positive (95.0%;  $n = 19$ ). One longitudinal study demonstrated internalized stigma as a predictor of

one variable representing socioeconomic vulnerability, namely food insecurity (Tsai et al., 2011).

Other sociodemographic variables found in the literature were educational level (13.1%;  $n = 23$ ), area of residence (4.6%;  $n = 8$ ), ethnicity (10.2%;  $n = 18$ ), and being a member of a key population (6.3%;  $n = 11$ ). Again, the findings were mixed. For educational level, a significant association was only found in 13 of the 23 studies (56.5%), and the direction of that relationship was usually negative (76.9%;  $n = 10$ ). For area of residence, 5 of the 8 studies (62.5%) demonstrated a positive relationship, but the direction of those relationships varied across studies. For ethnicity, the majority of studies showed non-significant findings (72.2%;  $n = 13$ ), and for key populations, the majority studies did establish an association with internalized HIV stigma (72.7%;  $n = 8$ ), with that relationship usually being positive (75.0%;  $n = 6$ ).

Fifteen studies explored *being in a relationship* (8.5%) and two looked at *wanting to have children* as correlates of internalized HIV stigma, both of which showed relatively non-significant results, respectively, 66.7% ( $n = 10$ ) and 100% ( $n = 2$ ). In those studies that did establish a relationship between internalized HIV stigma and being in a relationship (33.3%;  $n = 5$ ), that relationship was consistently negative.

The final sociodemographic variable measured was *time since diagnosis* (9.1%;  $n = 16$ ). Time since diagnosis was found to be significantly associated with internalized HIV stigma 13 of the 16 studies (81.2%), with that association generally being negative (84.6%;  $n = 11$ ).

Overall, the literature presents very mixed findings for relationships between internalized HIV stigma and sociodemographic variables, both with respect to statistical significance and with regard to directionality when statistically significant relationships were found.

## DISCUSSION

The current review uncovered a large body of research examining the relationships between internalized HIV stigma and a range of psychological, social, health, behavioral, and sociodemographic characteristics. Our results showed consistent negative associations between internalized HIV stigma and psychosocial and health indicators, supporting the notion that internalized stigma indeed has a detrimental effect on various outcomes for PLHIV (Nobre et al., 2018; Pantelic, Sprague, et al., 2019; Turan et al., 2017; Yigit, Weiser, et al., 2020).

A key finding of this review is that internalized HIV stigma is consistently and significantly associated with poor psychological health (e.g., depression, anxiety, other mental health indicators) as well disadvantageous coping. A second key finding is that internalized stigma is robustly related to a lack of social support and community engagement, and to various other forms of stigma, including enacted stigma, perceived public stigma, anticipated stigma, and intersecting stigmas. This is in line with research showing that various forms of stigma interact (Van der Kooij et al., 2021). It further demonstrates how PLHIV often have multiple stigmatized identities and that HIV stigma, including internalized stigma, is often compounded by homophobia, racism, and sexism (Logie et al., 2019; Rueda et al., 2016; Sengupta et al., 2011). As such, there is need for an intersectional approach when tackling (internalized) stigma (Jackson-Best & Edwards 2018; Pantelic, Steinert, et al., 2019; Turan, Elafros, et al., 2019). A third key finding is that, while slightly less consistent,

internalized stigma also correlates with important health variables such as poorer antiretroviral treatment initiation and adherence, and a number of other relevant clinical outcomes (e.g., viral suppression, CD4 count). It is also negatively related to positive experiences with health care. This has clear implications. Interventions aimed at improving HIV-related treatment outcomes are likely to be most effective if they also address internalized stigma and, given our findings on social support and the importance of positive health experience, reinforce social support provision by health care providers (e.g., in the form of trust, communication, nonjudgment, and confidentiality (Logie & Gadalla, 2009)). A final key finding is that the relationships between internalized HIV stigma and sociodemographic variables are inconclusive, both with respect to statistical significance and with regard to directionality when statistically significant relationships were found.

In terms of study design and instruments employed in quantitative studies on correlates of internalized HIV stigma, it is noteworthy that the vast majority of these studies were cross-sectional. Only a small portion of the included studies could actually establish directionality of these relationships via longitudinal research. Also, there is noteworthy heterogeneity in the instruments used to measure internalized HIV stigma, with the most prominent measure being a subscale of a larger HIV measure (Berger et al., 2001) and self-developed or unreported scales being used in more than a quarter of the included studies. This indicates an urgent need to develop theoretical and methodological consensus on how to best measure internalized HIV stigma. Lastly, the majority of studies in this review sampled adults living with HIV, with little attention being paid to the unique situation for various key populations such as men who have sex with men, women, trans individuals, sex workers, and people with a migration background, all of whom are likely to have various—but likely not the same—intersectional identities.

## KNOWLEDGE GAPS AND DIRECTIONS FOR FUTURE RESEARCH

Evidently, the paucity of longitudinal studies in the current literature on internalized HIV stigma is a significant research gap that needs to be addressed. Longitudinal studies enable us to ascertain which correlates now established in the literature are predictors of internalized HIV stigma, which are outcomes of internalized HIV stigma, and which may function as both in a negative reinforcing cycle (Pantelic et al., 2015). Prejudice, voluntary disclosure of HIV, and past resilience have been found to predict internalized stigma, but each only in a single study. Critical gaps in knowledge about the drivers of internalized HIV stigma therefore remain and may impede the development of an effective response to internalized stigma (Pantelic, Sprague, et al., 2019).

Second, given the heterogeneity of the instruments used to measure internalized HIV stigma, we call for not only greater theoretical and methodological consensus on how to measure this concept but also for the development and consistent use of validated instruments with strong psychometric properties as this enables future studies to report more conceptually consistent findings (Logie & Gadalla, 2009) and may allow for a meta-analysis of these findings in due time.

Third, given that the studies in this review infrequently explored correlates of internalized HIV stigma in specific key populations, we recommend that future research explore this in various key populations (e.g., men who have sex with men, women, trans individuals, sex workers, and people with a migration background), first, because many key populations are marginalized and marginalized individuals

tend to experience more stigma (The Joint United Nations Programme on HIV/AIDS [UNAIDS], 2016), and second, because the experience of stigma is likely to vary across key populations (Pantelic, Steinert, et al., 2019). In doing, intersectionality should be taken into account (Goodin et al., 2018; Ingram et al., 2019; Pantelic, Sprague, et al., 2019; Rueda et al., 2016; Sattler & Zeyen 2021; Turan, Elafros, et al., 2019).

Fourth, the various correlates found in this review reflect a number of socioecological levels (Bartholomew Eldredge et al., 2016; Crosby et al., 2013) of influence including the intrapersonal (e.g., mental health), the interpersonal (e.g., social support), organizational (e.g., experiences in health care), and more structural influences (e.g., socioeconomic vulnerability). Evidently, the well-being of PLHIV is not merely an individual issue but is something that is influenced by external environments, including social networks, social structures, and institutions (Ingram et al., 2019). Future research should see to unpack these various socioecological levels, and particularly their interactions.

### THEORY AND EVIDENCE-BASED INTERVENTIONS

The various correlates established in this review offer important insights that can be used to develop theory- and evidence-based intervention for internalized HIV stigma reduction. For example, interventions can explicitly focus on building resilience and promoting other positive mental health indicators. Additionally, they can embed exercises to improve self-efficacy in asking for support while also working towards the adoption of more adaptive rather than maladaptive coping approaches. Furthermore, given the associations between internalized HIV stigma and other forms of stigma, interventions would benefit from addressing not only internalized HIV stigma properly but also other forms of stigma. This can be done by providing opportunities for PLHIV to discuss their experiences with enacted stigma, their perceptions of public stigma, and their fears of experiencing stigma (anticipated stigma). Lastly, interventions aiming to reduce internalized HIV stigma should engage with the topic of HIV disclosure and provide PLHIV with opportunities to discuss their disclosure fears, their disclosure experiences, and to prepare for future disclosure, should they wish to do so.

### STRENGTHS AND LIMITATIONS

This systematic review is the first to present a global overview of the current literature on internalized HIV stigma and its correlates. Although a large number of countries and sub-populations were represented, the present review only screened peer-reviewed journals and did not include articles published in languages other than English. This may restrict the cross-cultural generalizability of our findings. Nevertheless, we report on studies from various geographical locations, with heterogeneous populations. Additionally, we synthesized only quantitative data on internalized HIV stigma and its associations, and excluded qualitative studies. New insights, especially concerning the subjective experience of internalized stigma for different key populations living with HIV, will likely contribute to our understanding of internalized HIV stigma, but integrating qualitative results was beyond the scope of this review.

Given that the majority of studies only presented cross-sectional data, causal relationships between internalized HIV stigma and other associations could not frequently be inferred. The review also showed substantial heterogeneity in how

researchers assessed internalized HIV stigma and its correlates. Additionally, many studies used self-reported measures or developed their own instruments. Consequently, we were not able to perform a meta-analysis due to the heterogeneity of the samples and measured constructs, which would have provided more evidence on the strength of certain associations of internalized HIV stigma.

## CONCLUSIONS

In sum, the current review provides a comprehensive overview of correlates of internalized HIV stigma. In line with earlier research this review confirms the well-established relationship between internalized HIV stigma and poor psychosocial and health outcomes (e.g., depression, anxiety, lack of social support, nondisclosure, and treatment nonadherence). The review further draws attention to (less studied) relations between internalized HIV stigma and intersecting stigmas, as well as sociodemographic factors (e.g., socioeconomic vulnerability and marginalized key populations). We call for more longitudinal research, and a broader socioecological approach to (internalized) stigma in general.

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## SUPPLEMENTARY MATERIALS

### *Correlates of internalized HIV stigma [extended version]*

Category of variables ( <i>n</i> )	Name variable	No. of studies ( <i>n</i> )	N.S. ( <i>p</i> >.05)	Positive relation ( <i>p</i> <.05)	Negative relation ( <i>p</i> <.05)
<b><i>Psychological variables</i></b>					
Depression (61)	Depression	60	1	53 <sup>L</sup>	2
	Depressive disorder	1	0	1	0
Anxiety (16)	Anxiety	14	0	14 <sup>L</sup>	0
	Attachment related anxiety	2	0	2	0
Negative mental health indicators (42)	Psychological distress	5	0	5	0
	Self-blame	1	0	1	0
	Worry (transmitting HIV)	1	0	1	0
	Hopelessness	1	0	1	0
	Shame	1	0	1	0
	Grief	1	0	1	0
	PTSD	3	0	3 <sup>L</sup>	0
	Trauma	1	0	1	0
	Avoiding social contact	1	0	1	0
	Attachment avoidance	1	0	1	0
	Stress	7	0	6	1
	Suicidal thought	4	0	4	0
	Loneliness	2	1	1	0
	Emotional dysregulation	2	0	2	0
	Mental illness	2	0	2	0
	Negative affect	4	0	4	0
	Rumination	1	0	1	0
	Denial	1	0	1	0
	HIV centrality	2	0	2	0
	Stress due to discrimination	1	0	1	0
Quality of life (29)	Quality of life	26	2	0	24
	Well-being	3	1	0	2
Positive mental health indicators (25)	Resilience	5	0	0	5 <sup>L</sup>
	Life satisfaction	5	0	0	5
	Acceptance	1	0	0	1
	Self-efficacy (to cope)	4	0	0	4
	Self-esteem	3	0	0	3
	Emotional wellbeing	1	0	0	1
	Thriving	1	0	0	1
	Perceived control	1	0	0	1
	Mastery	1	0	0	1
	Positive affect	1	0	0	1
	Psychological/mental health	1	0	0	1
	Acceptance	1	0	0	1
Maladaptive coping (15)	Avoidant coping	3	0	2	1
	Maladaptive coping	2	0	2	0
	Emotion-focused coping	3	0	3	0
	Self-blame	1	0	1	0

	Isolation	1	0	1	0
	Rumination	1	0	1	0
	Thinking avoidance	2	0	2	0
	Unspecified	2	0	2	0
Adaptive coping (9)	Active coping	1	0	0	1
	Religious coping	1	1	0	0
	Mindfulness	1	0	0	1
	Self-compassion	1	0	0	1
	Problem focused	3	0	2	1
	Positive coping	1	0	0	1 <sup>L</sup>
	Positive thinking	1	0	0	1
Substance use (21)	Drug use	6	2	4	0
	Alcohol use	7	2	5	0
	Drinking	1	1	0	0
	IDU	1	0	1	0
	Smoking	1	1	0	0
	Drug disclosure	1	1	0	0
	Substance dependence	3	2	1	0
	On drug treatment	1	0	0	1
<b><i>Social indicators</i></b>					
<b>Social support &amp; community engagement (46)</b>					
	Social support	35	2	4	29
	Social integration	1	0	0	1
	Acceptance from family	1	0	0	1
	Interpersonal relationship	1	0	1	0
	Likelihood to attend support group	1	0	0	1
	Social capital	1	0	0	1
	Communication with caregiver	1	0	0	1
	Knowing other PLHIV	1	0	0	1
	Volunteering	1	0	0	1
	Community engagement	1	0	0	1
	Church membership	1	0	0	1
	Male involvement in clinical process	1	0	1	0
<b>Enacted stigma (discrimination) (34)</b>					
	Experienced stigma	6	1	5	0
	Enacted stigma	7	3	4	0
	Discrimination	5	1	4	0
	Social isolation	2	0	2	0
	Social conflict	1	0	1	0
	Negative reactions	1	0	1	0
	Personalized stigma	1	0	1	0
	Verbal abuse	1	0	1	0
	Partner violence	2	0	1	1
	Other's fear of contagion	1	0	1	0
	Victimization	1	1	0	0
	Bullying	1	0	1	0
	Physical or verbal violence	1	0	1	0
	Felt abandoned by other household members	1	0	1	0
	Felt excluded from social activities	1	0	1	0
	Felt abandoned by spouse	1	0	1	0
	Perceived discrimination in health care settings	1	0	1	0

Perceived public stigma (22)					
	Perceived stigma	7	0	7	0
	Perceived community stigma	5	0	1	0
	Perceived family stigma	1	0	1	0
	Prejudice	1	0	1 <sup>L</sup>	0
	AIDS-related stigma	1	0	1	0
	Stigma consciousness	1	0	1	0
	Social stigma	1	0	1	0
	Stereotypes	1	0	1	0
	Felt stigma	2	0	2	0
	Felt normative stigma	2	0	2	0
Anticipated stigma (27)					
	Anticipated stigma	8	0	8	0
	Anticipated stigma by healthcare workers	1	0	1	0
	Disclosure avoidance/disclosure concerns	5	0	5	0
	Fear of stigma	1	0	1	0
	Rejection sensitivity due to HIV	1	0	1	0
	Concealing HIV status	1	0	1	0
	Concealing pills	2	0	2	0
	Vicarious stigma	2	1	1	0
	Fear of discovery	1	0	1	0
	Concerns being seen with medication	2	0	2	0
	Negative reminder medicine intake	1	0	1	0
	Fear of negative evaluation	2	0	2	0
Intersecting stigmas (9)					
	Drug use stigma	2	0	2	0
	Substance use stigma	1	0	1	0
	Internalized homonegativity	1	0	1	0
	Gay rejection	1	0	1	0
	Other stigma scales	4	1	3	0
HIV disclosure (20)					
	Disclosure	11	2	1	8
	Positive disclosure expectations	1	0	0	1
	Involuntary disclosure	1	1	0	0
	Voluntary disclosure	1	0	0	1 <sup>L</sup>
	Partner's knowledge of HIV	1	0	0	1
	Child's realization of HIV status	1	0	1	0
	Timing of disclosure	1	1	0	0
	Target specific disclosure	1	1	0	0
	Disclosure to partner	1	0	0	1
	Disclosure to other fam vs disclosure to someone	1	0	1	0
<i>Health and behavior</i>					
Treatment initiation & adherence (53)					
	ART adherence	2	1	0	1 <sup>L</sup>
	On ART	4	0	2	2
	Medication adherence	8	3	1	4
	Visit adherence	4	0	0	4 <sup>L</sup>
	Regular HIV care	2	0	0	2
	ART initiation	4	3	0	1
	Retention to care	1	0	0	1
	Recent ART	1	0	1	0
	Time on ART	4	1	0	3
	Missed visit (HIV)	2	0	0	2
	Medication beliefs	3	1	0	2

	Awareness of being virally suppressed/undetectable	1	0	0	1
	Treatment discontinuation	1	1	0	0
	Treatment adherence	1	0	0	1
	Adherence	14	4	0	10
	Adherence self-efficacy	1	0	0	1
Positive clinical HIV outcomes (22)					
	CD4 high	5	2	0	3
	Undetectable viral load	4	0	0	4
	Viral suppression	2	0	0	2 <sup>L</sup>
	No AIDS diagnosis	2	1	0	1
	No opportunistic infections	2	0	0	2
	No side effects	1	0	0	1
	HIV related disability	1	1	0	0
	PMO (ART)	1	0	0	1
	HIV viral load	1	1	0	0
	Viral load	1	1	0	0
	No AIDS symptoms	1	0	0	1
	No AIDS related opportunistic infections	1	1	0	0
Positive experience with HCP (10)					
	Trust in HCP/clinicians	2	1	0	1
	Communication form HCP	1	0	0	1
	Favorable attitude towards HCP	1	0	0	1
	Trust/attitude towards medication	1	0	0	1
	Medical trust	1	1	0	0
	Engagement in HIV care	3	1	0	2
	Getting needed care	1	0	0	1
Low general health (26)					
	Self-rated health or subjective health	6	0	2	4
	Perception on health	1	0	0	1
	Healthy lifestyle	1	0	0	1
	Changes in physical appearances	1	1	0	0
	Disease attribution	1	0	1	0
	Sleep quality	1	0	1	0
	Sexual dissatisfaction	1	0	1	0
	Current health status	1	1	0	0
	Fungal dermatoses	1	0	1	0
	Overall function	1	0	0	1
	Pain	1	0	1	0
	HIV symptoms	7	1	6 <sup>L</sup>	0
	Severity of HIV symptoms	1	0	1	0
	Symptom severity	1	0	0	1
	Physical health function	1	0	0	1
Sexual risk behavior (11)					
	Sexual risk behavior	8	2	6	0
	Changes in sexual risk behavior	1	0	0	1
	Condom use intentions (low)	1	0	1	0
	Hyper sexuality	1	0	1	0
Testing & linkage to care (12)					
	Linkage to care	2	1	1	0
	Access to treatment	1	0	0	1
	Late diagnosis	1	0	1	0
	Motivation for testing	1	0	1	0
	Delays in care seeking	1	0	1	0

	Repeat HIV test	1	1	0	0
	Provider recommended HIV test	1	0	1	0
	Behaviorally infected	2	0	2	0
	Diagnoses of HIV after HAART 1996 (for women)	1	0	1	0
Reproductive health (4)	Diagnosis HIV during pregnancy	1	1	0	0
	Fertility desire	1	0	1	0
	Wanting children	1	0	1	0
	Number of births	1	0	0	1
	Partner communication about place of birth	1	0	0	1
<hr/> <b><i>Sociodemographic variables</i></b> <hr/>					
Age (older)	Age	33	12	5	16
Gender (28)	Female	10	1	9	0
	Male	4	0	4	0
	Gender (unspecified)	14	14	0	0
Education level (high)	Education	23	10	3	10
Area of residence (8)	Urban	4	0	2	2
	Residence	1	1	0	0
	Area of residence	1	1	0	0
	US south (vs other region)	1	0	1	0
	Geo located income inequality	1	1	0	0
Being in a relationship (15)	Relationship status	5	5	0	0
	Relationship nature (commitment)	1	1	0	0
	Married	6	3	0	3
	With partner	1	0	0	1
	Widowed	1	1	0	0
	Cohabiting partner	1	0	0	1
	HIV positive partner	1	1	0	0
Having children (2)	Number of children	1	1	0	0
	Having HIV positive children	1	1	0	0
Ethnicity (minority) (18)	Race	8	7	1	0
	Ethnicity	4	3	0	1
	Hispanic women	1	0	1	0
	Migrant status	3	0	2	1
	Nonwhite (men)	1	0	1	0
	Origin	1	1	0	0
Key populations (11)	MSM	2	0	1	1
	Transgender	1	0	1	0
	Sex worker	1	0	1	0
	Incarcerated	1	0	1	0
	Sexual minority	1	0	0	1
	Heterosexual men	5	3	2	0
Time since diagnosis (16)	Time since diagnosis (long)	15	3	0	12
	Time since ART	1	0	1	0
Socioeconomic vulnerability (34)	Low income	6	4	2	0
	Unemployed	7	6	1	0
	Poverty	2	1	1	0

Financial difficulties	1	0	1	0
Homeless	3	0	3	0
Illiteracy	1	0	1	0
Orphan hood	1	1	0	0
Not owning a radio	1	0	1	0
Housewife/man	1	0	1	0
Uninsured	2	0	2	0
Food insecurity	5	1	4 <sup>L</sup>	0
Household asset wealth (low)	1	0	1	0
No professional occupation	1	0	1	0
Decision to stop working	1	0	1	0
Limited career progression	1	1	0	0

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L = at least one study confirmed this relationship longitudinally.

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