

Resilience Among Women with HIV: Impact of Silencing the Self and Socioeconomic Factors

Sannisha K. Dale · Mardge H. Cohen · Gwendolyn A. Kelso · Ruth C. Cruise · Kathleen M. Weber · Cheryl Watson · Jane K. Burke-Miller · Leslie R. Brody

Published online: 12 February 2014
© Springer Science+Business Media New York 2014

Abstract In the U.S., women account for over a quarter of the approximately 50,000 annual new HIV diagnoses and face intersecting and ubiquitous adversities including gender inequities, sexism, poverty, violence, and limited access to quality education and employment. Women are also subjected to prescribed gender roles such as silencing their needs in interpersonal relationships, which may lessen their ability to be resilient and function adaptively following adversity. Previous studies have often highlighted the struggles encountered by women with HIV without focusing on their strengths. The present cross-sectional study investigated the relationships of silencing the self and socioeconomic factors (education, employment, and income) with resilience in a sample of women with HIV. The sample consisted of 85 women with HIV, diverse ethnic/racial groups, aged 24–65 enrolled at the Chicago site of the Women’s Interagency HIV Study in the midwestern region of the United States. Measures included the Connor-Davidson Resilience Scale -10 item and the Silencing the Self Scale (STSS). Participants showed high levels of resilience. Women with lower scores on the STSS (lower self-silencing) reported significantly higher resilience compared to women with higher STSS scores. Although

employment significantly related to higher resilience, silencing the self tended to predict resilience over and above the contributions of employment, income, and education. Results suggest that intervention and prevention efforts aimed at decreasing silencing the self and increasing employment opportunities may improve resilience.

Keywords Resilience · Silencing the self · HIV · Women · Socioeconomic factors

Introduction

Women account for 26 % of new HIV diagnoses in the U.S. population (CDC 2013a), and in the present manuscript cited studies are based on U.S. samples unless otherwise noted. Women are disempowered by gender in a patriarchal society that imposes restrictive roles/norms for acceptable female behaviors, thoughts, and occupational choices (Brody 1999; Perry 1998). Gender inequities in employment, income, and education continue to exist (Boden 1999; England 2005; Klasen 2002, utilized data on 109 countries in regions such as North Africa, Eastern Europe, and East Asia). Moreover, internalized traditional female gender roles such as silencing the self, defined as not expressing feelings and opinions in order to maintain relationship harmony and avoid relational loss (Jack and Dill 1992), may thwart women’s capacity to survive and thrive in the face of adversity and illness.

Prior research on women with HIV has focused mainly on the challenges/ vulnerabilities they face, while positive outcomes and resilience remain understudied. Resilience includes the ability to function competently following stressors, and/or to achieve positive work, relational, cognitive and behavioral outcomes, and healthy psychological and physical functioning despite adverse experiences and environments (Bonanno et al. 2007; Masten et al. 1990; Werner 1993).

S. K. Dale (✉) · G. A. Kelso · R. C. Cruise · L. R. Brody (✉)
Boston University, 648 Beacon Street, Boston, MA 02215, USA
e-mail: sannishadale@gmail.com
e-mail: lesbro@bu.edu

M. H. Cohen · K. M. Weber · C. Watson · J. K. Burke-Miller
Departments of Medicine, Cook County Health & Hospital System,
2225 W. Harrison, Suite B, Chicago, IL, USA

M. H. Cohen · K. M. Weber · C. Watson · J. K. Burke-Miller
Rush University Chicago, Chicago, IL 60612, USA

M. H. Cohen · K. M. Weber · C. Watson · J. K. Burke-Miller
CORE Center at John H. Stroger Jr Hospital of Cook County,
Chicago, IL 60612, USA

Resilience has been related to resources that may empower and assist women in functioning adaptively, such as higher income, education, and employment (Bonanno et al. 2006; 2007; Morenoff et al. 2001; Wells 2009). It may also be associated with gender-related coping strategies women adopt in their interpersonal relationships, such as silencing the self, as well as to their social supports.

Across racial and ethnic groups women with HIV have to overcome many adversities, such as poverty, witnessing violence, and experiencing sexual and physical abuse, as well as gender inequities including limited income, and educational and employment opportunities (CDC 2013b; Cohen et al. 2000; Machtinger et al. 2012; Zierler and Krieger 1997). In addition, the majority of women diagnosed with HIV in the U.S. are African American and they experience racism (Kelso et al. 2013). Moreover, the HIV diagnosis itself constitutes an adversity since it is a chronic illness that needs to be closely monitored and is associated with stigma on multiple levels, affecting work, family, friends, and sexual relationships (Demarco et al. 2002; Golub et al. 2008; Whetten et al. 2008).

The present study explores the relationships of resilience with the gender role related interpersonal coping strategy of silencing the self and also with levels of income, education, and employment among a sample of HIV infected women with diverse racial/ethnic backgrounds in the midwestern region of the U.S. Our findings may be relevant to both domestic and international women who report silencing the self. Although women's occupational and behavioral choices as well as their power in relationships are restricted across many cultures (Jack and Ali 2010, based on perspectives from 13 countries including India, Haiti, and the United States), most empirical studies of the correlates of silencing the self and resilience have focused on U.S. samples.

Resilience

In previous literature, scholars have defined and studied resilience in several different ways: as the process of bouncing back from adversity (Jacelon 1997; Olsson et al. 2003), as an outcome consisting of adaptive functioning (Bonanno 2012; Bonanno et al. 2006), and/or as a set of personality traits (Connor and Davidson 2003; Jacelon 1997). Researchers who view resilience as a process emphasize “how” someone adapts successfully following trauma (Jacelon 1997; Olsson et al. 2003). Researchers such as Bonanno (2012) encourage the conceptualization of resilience as an outcome trajectory and there are many variations in specific outcome measures used in the literature to represent resilience, e.g. improved mental health status; reduced symptomology or reduced substance use (McGeary 2011); as well as outcomes found across cultures (e.g., meaningful relationships) and culturally specific outcomes (e.g., religiosity; Ungar 2008, study conducted

across 11 countries). Some researchers view resilience not as a process or outcome, but as a set of personality traits or qualities that facilitate the process of arriving at an adaptive outcome, such as valuing commitment; having a sense of humor, optimism, self-efficacy, positive self-esteem, and a realistic sense of control; being action and goal-oriented; viewing stress as a challenge/opportunity; and being able to adapt to change (Connor and Davidson 2003; Werner 1993, 2004). A study by Steinhardt and Dolbier (2008) suggests that resilient personal qualities may be fostered and learned via interventions.

In summary, there are many ways of conceptualizing and measuring resilience, but, in general, it is assumed to be the ability to function adaptively following a traumatic experience, which may involve personality characteristics, coping strategies, and/or outcomes. It is also probable that the positive adaptation involved in resilience is a process that occurs over time. Evidence suggests that interactions among genetics, other biological processes, and the environment may lay the foundation for resilience (Caspi et al. 2003 study conducted in New Zealand; Waaktaar and Torgersen 2012, study conducted in Norway; Weder et al. 2009). Specific genes such as the 5-HTT gene promoter polymorphism (Caspi et al. 2003) and the MAOA genotype may act to promote resilience (Weder et al. 2009), in that they have been found to moderate relationships of stressful life events with depression and suicidality (Caspi et al. 2003) and of histories of abuse with aggressive behaviors (Weder et al. 2009). Environmental factors, including close friendships, parental support, and strong family networks, are also associated with resilient functioning (Haskett et al. 2006; Wells 2009).

Resilience, Education, Employment, and Income

Resilience has also been linked to environmental and psychosocial resources such as higher education, higher income, and employment, although often this research has resulted in inconsistent findings (Bonanno et al. 2006, 2007; Kjellstrand and Harper 2012). For example, Bonanno and colleagues (2007) found that compared with people who had not completed high school, those who had completed college were less likely to be resilient post the September 11 attack, after accounting for factors such as social support, trauma exposure, and life stress. However, a previous study with the same population had revealed an unadjusted association between higher resilience and higher levels of education (Bonanno et al. 2006). To add to the inconsistent findings, Wells (2009) found that income, education, and employment were not associated with resilience measured by the Resilience Scale (Wagnild and Young 1993). Inconsistencies among studies may be due to differences in how resilience is measured and conceptualized, types of trauma investigated, and

populations studied. Moreover, little attention has been paid to the availability of resources and the inequities involved in accessing them in relation to resilience. When significant relationships are found between higher levels of resources and higher resilience, it may be because increased resources may result in limited exposure to traumatic events (e.g., higher resources may be associated with living in a lower crime neighborhood) or higher resources may enable more access to healthcare and social support immediately following an adverse event (Callahan and Cooper 2005; Morenoff et al. 2001). The direction of causality may also be reversed in that after a traumatic experience a highly resilient individual may go on to attain higher education, employment, and higher income.

Silencing the Self

In the context of social inequity and gender expectations, women adopt and internalize specific cognitive schemas about the self in relationships with others (Jack and Dill 1992). These schemas guide the way that women think and behave within relationships. In particular, silencing the self is a strategy in which women inhibit self-expression in order to avoid relational loss and conflicts, judge themselves according to external standards, conform outwardly to gender stereotypes while feeling angry/rebellious internally, and prioritize the care of others over self-care (Jack and Dill 1992). Silencing the self may be adopted because women's choices of doing otherwise are limited and are often dictated by realistic fears of negative consequences in patriarchal systems (Jack and Dill 1992), such as abuse and social isolation/rejection. Violating prescribed gender roles may also be difficult because nontraditional roles can be in conflict with roles that some women view as important (i.e., commitment to a partner; Abraído-Lanza 1997).

Silencing the self contributes to low self-esteem, decreases women's autonomy and intimacy within their relationships, and increases vulnerability for depression (Jack and Ali 2010, based on 13 countries including India, Haiti, and the United States). Silencing the self has been significantly related to higher depressive symptoms among ethnically diverse female populations (Grant et al. 2009; Jack and Ali 2010; Jack and Dill 1992). In addition, silencing the self is related to lower levels of income, education, and unemployment for women (Bowleg et al. 2000; Brody et al. *in press*; Sen 2003; Vella 1994, based on a sample in Australia).

Silencing the Self, HIV, and Race/Ethnicity

In a sample of racially/ethnically diverse women from the Chicago Women's Interagency HIV Study, women with

HIV were found to report higher levels of silencing the self, in comparison with uninfected women from the same community and ethnic groups (Brody et al. *in press*). The majority of women in the U.S. diagnosed with HIV are African American (CDC 2013a) and this may be explained partly by a high concentration of HIV positive individuals within urban and low income African American communities and African American individuals having sexual relationships with other African American individuals (Adimora and Schoenbach 2005). African American women are exposed to the strong Black women prescriptive stereotype and are expected to "withstand male rejection, economic deprivation, crushing family responsibilities, and countless forms of discrimination" (Radford-Hill 2002, p 1086). However, African American women are not immune to silencing the self, especially in the context of heterosexual relationships. Ethnic minority women (including African American, Native American, Hispanic, and Asian women) have been found to report similar and even higher levels of silencing the self when compared to White women (Brody et al. *in press*; Grant et al. 2009). As a group, all women with HIV, regardless of ethnic background, face sexism and may be hindered by gender role prescriptions such as silencing the self. Thus, it is important to explore how silencing the self may relate to resilience in a sample that combines racial/ethnic groups and is demographically representative of the HIV epidemic in the U.S.

Relationship Between Resilience and Silencing the Self

Resilience requires an ability to adapt to changing circumstances, and silencing the self may interfere with resilience because it entails rigidly prescribed thinking patterns that generalize across relationships and that mask or deny the fulfillment of women's individual needs (Jack and Dill 1992). Silencing the self also may be negatively associated with resilience because it emphasizes dependency and passivity, characteristics associated with helplessness and depression (Brody et al. *in press*; Brody 1999; Jack and Ali 2010, based on 13 countries including India, Haiti, and the United States). Helplessness and depression may be especially destructive for women with HIV given the intersecting challenges they face that require assertiveness and self-advocacy to overcome.

It is also possible that silencing the self and resilience have bi-directional relationships, in that women who have resilient traits or outcomes may feel more empowered in their personal relationships and may be able to advocate for themselves instead of silencing their needs. Both resilience and silencing the self share a relationship with depression in that higher resilience (measured with the self-reported Connor-Davidson Resilience Scale [CD-RISC]) and lower silencing have been associated with less depressive symptoms among individuals with HIV (Farber et al. 2000; Yu et al. 2009, study conducted

in China; Brody et al. *in press*). Silencing the self is also related to lower levels of income, education, and unemployment for women (Bowleg et al. 2000; Brody et al. *in press*; Vella 1994; Sen 2003) and thus may relate to resilience which has also been found to be related to income, education, and unemployment, although sometimes with inconsistencies in the direction of the relationship (Bonanno et al. 2006, 2007; Kjellstrand and Harper 2012).

In summary, although research indicates that silencing the self in the context of relationships relates to lower levels of education, income, and employment, and that women with HIV have higher levels of silencing the self than uninfected women, it is not clear how silencing the self, employment, education and income relate to women's resilience. A better understanding of these relationships could potentially inform intervention and prevention efforts to promote resilience among women with HIV.

Aims and Hypotheses

The aims of the present study were to investigate the relationships among silencing the self, education, employment, income, and resilience in a sample of HIV+ women from diverse racial/ethnic groups. Specific hypotheses were that: (1) lower silencing the self would relate to higher resilience; (2) higher income, employment, and higher levels of education would relate to higher resilience; and (3) silencing the self would contribute unique variance to resilience over and above the contributions of income, employment, and education such that lower silencing the self would significantly relate to higher resilience after controlling for income, employment, and education. Hierarchical regressions are particularly useful to test our hypotheses because they help us to determine the unique contributions of silencing the self as a predictor above and beyond previously entered predictors (e.g., age, income, education, and employment) in relation to resilience (Lewis 2007). Age was included as a covariate and income, education, and employment were entered prior to the silencing the self measure in the regression analyses with resilience as the outcome because (1) researchers have argued that sociodemographic factors are appropriate to enter prior to other predictors in hierarchical regression analyses (Cohen et al. 2002) and (2) education, income, employment, and age have been significantly associated with both silencing the self and resilience. Specifically, older age has been associated with higher silencing the self and lower resilience (Brody et al. *in press*); higher income, higher education, and employment have been linked to lower silencing the self (Bowleg et al. 2000; Brody et al. *in press*; Vella 1994; Sen 2003); and income, education, and employment have been associated with resilience with inconsistencies in the direction of the relationships (Bonanno et al. 2006; Kjellstrand and Harper 2012).

Analyses for the present study combined multiple ethnic groups including African American, Hispanic, White, and multiracial, because all participants were from socio-demographically similar backgrounds and communities in terms of low socioeconomic status, limited access to opportunities (e.g., education and employment), homelessness, exposure to violence, abuse histories, and substance abuse, factors which have been noted as risk factors for HIV infection (Cohen et al. 2000; CDC 2013b). Wyatt (1994) and Quina et al. (2000) recommend pooling across ethnic groups because it may inform our understanding of the psychosocial risk factors for HIV among women irrespective of race and ethnicity. Further, researchers have pooled across ethnic groups in samples of ethnically diverse women in other studies of female gender roles (Shearer et al. 2005; Harvey et al. 2002).

Method

Participants

Eighty-five HIV+ women from the Chicago site of the Women's Interagency HIV Study (WIHS) from two enrollment waves (recruited 1994–1995 and 2001–2002) were asked to participate in the current sub-study during a routine study visit between 2008 and 2012. To participate women had to meet the following inclusion criteria: (1) be 18 years of age or above, (2) speak and read in English, and (3) have in-person clinic visits. Seven women were approached for the study but declined to participate. At study visits, questionnaires were administered to collect data on sociodemographics including race, age, household income, employment, and education level. WIHS cohort enrollment and characteristics have previously been described (Bacon et al. 2005; Barkan et al. 1998). For the current study, participants received a financial honorarium of \$25 for their time, transportation support, and childcare as needed. The study protocol was approved by the Cook County Health and Hospital System and Boston University Institutional Review Boards and the WIHS Executive Committee.

Table 1 displays participants' demographic characteristics for the current sample. Participants' average age was 43.75 years, 90 % self identified as African American, 24.1 % were legally married or living with a partner, and 40.8 % had never been married. Women reported having sexual/romantic/dating relationships with men (88 %), other women (5 %), and both men and women (7 %). One-third (32.5 %) of the sample was employed on a part-time or full-time basis; and 27.5 % completed or attended college but 40.8 % had less than a high school education. The cohort was of low socioeconomic status and 31.7 % reported annual household incomes less than \$6,001, 30.8 % reported \$6,000 to \$12,000 and 35 % reported more than \$12,000.

Table 1 Sociodemographic and study variable statistics among the sample of 85 women with HIV

	Mean (SD)
Age	45.14 (8.79)
CD-RISC	29.39 (7.85)
STSS	78.92 (21.91)
	<i>N out of 85 (%)</i>
Race	
White / non-Hispanic	4 (4.7)
White / Hispanic	2 (2.4)
African-Amer / non-Hispanic	77 (90.6)
Other / Hispanic	1 (1.2)
Other	1 (1.2)
Education	
Grade 11 or less	38 (44.7)
Completed high school	26 (30.6)
Some or complete college	20 (23.5)
Attended/completed graduate school	1 (1.2)
Income	
\$6,000 or less	25 (29.4)
\$6,001–\$12,000	34 (40.0)
\$12,001 or more	26 (30.6)
Employed (full-time or part-time)	25 (29.4)
Marital Status	
Legally/common law marriage	15 (17.6)
Not married but living w partner	3 (3.5)
Widowed	9 (10.6)
Divorced/Annulled	17 (20.0)
Separated	6 (7.1)
Never married	33 (38.8)
Other	2 (2.4)
Sexual Behavior	
Sex with men	75 (88.2)
Sex with women	6 (7.1)
Sex with men and women	4 (4.7)

STSS Silencing the Self Scale; CD-RISC Connor Davidson Resilience Scale

Procedures and Measures

The Silencing the Self Scale (STSS) was administered at a visit between 2008 and 2012 and the Connor Davidson Resilience Scale (CD-RISC) was administered in 2012 because after the collection of STSS data began we recognized that it would be useful to also administer a self-report measure of resilience. The mean time difference was 1.83 years ($SD=1.08$ years) between the administration of the STSS and CD-RISC measures. These two measures were selected based on their reliability and validity with ethnically diverse and HIV populations as well as based on pilot testing. Trained WIHS

research staff read the questions from each instrument aloud to the participants within a private area of the health clinic.

Education, Income, and Employment

Sociodemographic information on participants' level of education was collected at baseline visit and income and employment data were collected at the study visit. To obtain participants' education level participants were asked "What is the highest grade or year of school you have completed?" and responses were coded into seven categories (1=*No schooling*, 2=*Grades 1-6*, 3=*Grades 7-11*, 4=*Completed high school*, 5=*Some college*, 6=*Completed 4 years of college*, and 7=*Attended/completed grad school*). For employment status participants were asked, "Are you currently employed (for pay, full-time or part-time)" to which they had the option of responding "yes" or "no." To capture annual household income participants were asked "What is or was the average monthly income, before taxes, of your (current / most recent) household?" and they were given the option to respond with an amount for a monthly, weekly, or annual basis. Reported household income data were entered for an annual basis using eight categories (1=*\$6,000 or less*, 2=*\$6,001-\$12,000*, 3=*\$12,001-\$18,000*, 4=*\$18,001-\$24,000*, 5=*\$24,001-\$30,000*, 6=*\$30,001-\$36,000*, 7=*\$36,001-\$75,000*, and 8= \geq *\$75,001*), which were then recoded into three annual household income categories (1=*\$6,000 or less*, 2=*\$6,001-\$12,000*, and 3= \geq *\$12,001*) for the present study.

Silencing the Self

The Silencing the Self Scale (STSS; Jack and Dill 1992) was used to assess women's beliefs about the need to silence or hide aspects of themselves in order to secure intimate relationships and avoid conflict (sample item: "I don't speak my feelings in an intimate relationship when I know they will cause disagreement"). The 31 items are rated on a 5-point Likert scale. Scores range from 31 to 155 and higher scores indicate greater silencing to maintain harmony in relationships. The STSS has been administered to diverse samples domestically and internationally (Jack and Ali 2010, based on 13 countries such as India, Haiti, and the United States), as well as to samples of women with HIV (Brody et al. *in press*; DeMarco et al. 2001). The total score has shown excellent internal consistency (with α coefficients ranging from .86 to .94) and test-retest reliability (ranging from .88 to .93; Jack and Dill 1992). In addition, construct validity is supported by higher STSS scores among battered women who may silence to avoid abuse, and correlations of approximately .50 with the Beck Depression Inventory (BDI; Jack and Dill 1992). In the present sample the Cronbach's alpha was .90 for the total STSS scale.

Resilience

The Connor-Davidson Resilience Scale -10 item (Campbell-Sills and Stein 2007) is a self-report measure with a 4-point Likert scale that assesses the individual's ability to strive despite adversity (Campbell-Sills and Stein 2007). For instance, one item reads "Tend to bounce back after illness or hardship." Total scores (derived by summing each item) range from 0 to 40 with higher scores reflecting greater resilience. The CD-RISC has demonstrated good internal consistency (Cronbach's α coefficient=.85) and construct validity was supported by CD-RISC score moderating the relationship between childhood maltreatment, trauma exposure, and psychiatric symptoms (Campbell-Sills and Stein 2007; Wingo et al. 2010). Wingo and colleagues (2010) found that in a majority female (68 %) and African American (94 %) sample, CD-RISC score significantly moderated the relationship between childhood abuse/trauma exposure and depressive symptoms. Consistent with the literature, the Cronbach's alpha reliability coefficient for the CD-RISC in the current sample was .92 and a principal components factor analysis yielded one factor with an eigenvalue over 1, accounting for 58 % of the variance.

Missing Data

One participant was missing 1 out of 10 items on the CD-RISC and four participants were missing 1 – 4 items on the STSS. Missing items on the CD-RISC and STSS scales were replaced with the respondent's average item score that was computed from their completed items on the relevant scales. There were no differences in results before and after imputation of missing items, therefore imputed values for missing items were used in all subsequent analyses.

Results

Descriptive Statistics

The average score on the STSS was 78.92 ($SD=21.91$, range 31 to 155) suggesting a moderate level of silencing the self among our participants. The levels of resilience were substantially high. The maximum score that a participant could obtain on the CD-RISC was 40 and the average resilience score was 29.39, (range=8 to 40; $SD=7.85$, median=30).

Independent t-test analyses between racial groups (African American versus other ethnic groups) revealed no significant differences as a function of race on the STSS nor on the CD-RISC resilience, providing further support for our decision to pool across ethnic/racial groups. Similarly, t-test analyses showed that STSS scores did not differ between women who reported having sex with men compared to women who

reported either having sex with other women or with both men and women.

In addition, given that current participants were recruited in two enrollment waves, wave was initially controlled in all analyses. However, results including versus excluding enrollment wave did not differ and therefore enrollment wave was not included as a covariate in analyses in order to preserve statistical power. Further, enrollment wave was not significantly associated with CD-RISC resilience, $r(83)=-.09$, $p=.41$.

Table 2 displays a full correlation matrix of associations between all covariates, predictors and outcome variables presented in this manuscript. Multicollinearity was assessed among the predictors and covariates that were used in regression analyses: STSS, income, education, employment status, and age. As displayed in Table 3, results for tolerance (≥ 0.83) and variance inflation factor (VIF; ≤ 1.21) indicated that there was no evidence of multicollinearity.

Education, Employment, Income, and Silencing the Self

Partial correlations controlling for age indicated that higher self-silencing significantly related to lower income ($r=-.24$, $p=.03$); and tended to relate to lower education ($r=-.20$, $p=.07$). Employment did not significantly relate to silencing the self ($r=-.16$, $p=.14$).

Hypothesis 1: Silencing the Self in Relation to Resilience

To test the hypothesis that lower silencing the self would relate to higher resilience, a hierarchical multiple regression was conducted with age as a covariate, STSS as the predictor, and CD-RISC score as the outcome. Age was entered as a covariate in Block 1 and the STSS was entered as a main effect in Block 2. Change in R-squared (ΔR^2) was significant when the STSS measure was entered in Block 2, $\Delta R^2=.07$, $R^2=.08$, $F(1, 81)=6.18$, $p=.02$, indicating that higher scores on the STSS was significantly related to lower CD-RISC scores ($B=-.27$, $t=-2.49$, $p=.02$).

Table 2 Pearson correlations between age, education, income, employment, silencing the self, and resilience

Variable	1	2	3	4	5	6
1. Age	–	.19	-.07	.01	-.08	.09
2. Education		–	.16	.34**	-.20	.20
3. Employment			–	.16	-.16	.34**
4. Income				–	-.24*	.13
5. STSS					–	-.27*
6. CD-RISC						–

STSS Silencing the Self Scale; CD-RISC Connor Davidson Resilience Scale

* $p<.05$. ** $p<.001$

Table 3 Hierarchical multiple regression findings for the comparative contributions of silencing the self, education, employment, and income to resilience

Model	Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>	Tolerance	VIF
1	Age	0.08	0.10	0.10	0.87	0.39	1.00	1.00
2	Age	0.08	0.10	0.10	0.89	0.38	0.95	1.05
	Education	0.86	0.94	0.11	0.91	0.37	0.84	1.20
	Employment	5.27	1.84	0.31	2.87	0.01	0.96	1.04
	Income	0.42	1.12	0.04	0.37	0.71	0.87	1.15
3	Age	0.07	0.09	0.08	0.78	0.44	0.95	1.06
	Education	0.68	0.93	0.08	0.73	0.47	0.83	1.21
	Employment	4.85	1.83	0.28	2.65	0.01	0.94	1.06
	Income	0.05	1.12	0.01	0.04	0.97	0.84	1.19
	STSS	-0.07	0.04	-0.20	-1.86	0.07	0.91	1.10

STSS Silencing the Self Scale

Hypothesis 2: Education, Employment, Income in Relation to Resilience

Analyses were conducted to test the hypothesis that higher income, employment, and higher level of education would relate to higher resilience. A hierarchical multiple regression controlling for age was conducted, with education, employment and income as predictor variables and CD-RISC score as the outcome variable. Age as a covariate was entered in Block 1 and education, employment, and income were entered together as main effects in Block 2. Change in R-squared (ΔR^2) was significant for education, employment, and income entered in Block 2 and CD-RISC as the outcome, $\Delta R^2 = .14$, $R^2 = .14$, $F(3, 80) = 4.24$, $p = .01$. Employment contributed unique variance ($B = .32$, $t = 3.03$, $p = .01$), indicating that being employed significantly related to higher resilience measured by the CD-RISC.

Hypothesis 3: Comparative Contributions of Silencing the Self, Education, Employment, and Income to Resilience

To test whether silencing the self contributed unique variance to resilience over and above the variance accounted for by education, employment, and income, a hierarchical multiple linear regression was performed with CD-RISC score as the outcome variable. Age was entered as a covariate in Block 1 (Model 1); income, employment and education were entered as main effects in Block 2 (Model 2); and STSS was entered as a main effect in Block 3 (Model 3). Results indicated that Model 1 (with age) was not significant, $\Delta R^2 = .01$, $R^2 = .01$, $F(1, 82) = .75$, $p = .39$, but Model 2 (with income, employment, and education added as main effects) was significant, $\Delta R^2 = .12$, $R^2 = .13$, $F(3, 79) = 3.73$, $p = .02$, with employment contributing unique variance ($B = .31$, $t = 2.87$, $p = .01$). Model 3, with STSS added, approached significance, $\Delta R^2 = .04$, $R^2 = .17$, $F(1, 78) = 3.48$, $p = .07$, with silencing the self (STSS; $B = -.20$, $t = -1.86$, $p = .07$) tending to contribute unique variance above and beyond other predictors in predicting CD-RISC resilience scores.

Discussion

In the current ethnically diverse sample of women with HIV who have low education, low income, and a high unemployment rate, participants showed high levels of resilience. The average CD-RISC resilience score was similar to the average score in a U.S. community survey (Campbell-Sills et al. 2009). While our sample's median resilience score on the CD-RISC was lower than the median score of a majority female and African American sample in the U.S. (Wingo et al. 2010), it was slightly higher than the median score in a sample consisting of women in France, half of whom had a breast cancer diagnosis (Scali et al. 2012).

Women with HIV who reported lower silencing the self scored higher on resilience than those who reported higher silencing the self. This finding supports the literature showing that more egalitarian gender roles are adaptive for women's health and functioning (Jack and Ali 2010, based on 13 countries including India, Haiti, and the United States) and expands this relationship to resilience as an outcome and to women with HIV. Results also indicated that silencing the self tended to contribute to CD-RISC score over and above the contributions of income, employment, and education. These findings add to the literature on the factors that promote resilience (Werner 1993; Bonanno et al. 2007) by suggesting that silencing the self strategies contribute unique variance.

Although it is not possible to draw conclusions about the direction of causality of the relationships between silencing the self and resilience, it is possible that silencing the self reduces resilience because self-silencing tends to emphasize passivity and submissiveness. The opposite of silencing the self, self-advocacy, may be particularly important for women with HIV because it is adaptive for getting self-care needs met, interacting with the health care system, obtaining medication, and being consistent with drug regimens. Women who silence themselves in interpersonal relationships may be less apt to internalize adaptive beliefs assessed by the CD-RISC such as "I think of myself as a strong person" and "I can deal with whatever comes my way" which may thwart their ability to

adapt to stressors that occur. In addition, fewer opportunities for education, fulfilling careers, or egalitarian relationships and gender and/or racial inequities may contribute to the adoption of self silencing schemas, which in turn may constrict socio-economic and relational opportunities even further; this downward reciprocal cycle may be related to lower resilience.

However, it is entirely possible that the direction of causality is reversed, i.e., resilience leads to lower silencing the self. For example, it is possible that the genetic and environmental underpinnings of resilience (especially in early attachment relationships) may enable individuals to remain healthy despite experiencing later adversity (Masten et al. 1990). Resilient coping strategies and characteristics may promote lower silencing the self and the attainment of resources (which may in turn promote even greater resilience and self-advocacy), rather than the reverse. Another possibility is that women may develop resilient qualities and self-advocacy simultaneously, as they learn the skills they need to become empowered in the context of a patriarchal society that presents numerous obstacles and gender inequities that limit women's adaptive functioning.

Depressive symptoms may be a common link or mediator of the relationship between silencing the self and resilience, in that silencing the self may relate to resilience by way of depressive symptoms. Previous literature has highlighted that silencing the self relates to heightened depressive symptoms among women (Brody et al. *in press*; Jack and Ali 2010, based on 13 countries including Haiti, Puerto Rico, and the United States) while higher resilience (measured with the CD-RISC) relates to lower depressive symptoms among individuals with HIV (Farber et al. 2000; Yu et al. 2009, study conducted in China).

Our results showing that unemployment relates to lower resilience suggest that sociocultural factors and inequities that place women at risk for HIV (e.g. poverty, CDC 2013b) may continue to have negative influences post infection. Being employed may protect women from adverse experiences such as intimate partner violence and community violence even in the context of a disenfranchised community with common stressors such as poverty and violence. Employment may also increase women's access to care and resources following negative experiences and may serve to increase their resilience and even their longevity, as was found by Delpierre and colleagues in a study done in France (2008).

Recommendations for Intervention and Research

Based on our findings, we recommend an integration of assertiveness training and empowerment approaches in social service and health care settings that serve women with HIV, and in particular, group interventions for women with HIV that include an assertiveness training component to empower women to communicate and voice their needs, such as The Sisters Informing Sisters About Topics on AIDS (SISTA) intervention by DiClemente and Wingood (1995). Women with HIV are at

the intersection of ubiquitous and chronic stressors (e.g., coping with chronic illness, sexism, racism, and poverty), not just one-time traumatic events, and it is important to acknowledge that these adversities cannot be effectively met and addressed solely by efforts to increase resilience at the individual level. Instead, systemic changes are needed in societal and policy development to provide equal access to quality education, jobs, and salaries, as well as to increase cultural competency among service providers and to enforce anti-discrimination laws. Through systemic changes we may ultimately increase the odds that a women with HIV can engage in lower silencing the self to become more resilient.

Future research is also needed to investigate (a) the direction of causality between silencing the self and resilience, (b) the longitudinal trajectory of both resilience and silencing the self, (c) depression as a potential mediator of the relationship between silencing the self and resilience, (d) the relationships among resilience, health behaviors, and health outcomes such as medication adherence and quality of life, and (e) additional ways in which resilience can be better understood and enhanced.

Limitations

Our findings are limited by several factors. The cross-sectional study design prevented conclusions about the nature of the causal relationships between resilience and silencing the self. Our measure of household income did not take household size into consideration. Participants' responses on self-report measures used to capture silencing the self and resilience may have been influenced by social desirability biases. Another limitation of the study is that the women in the current sample may have had higher levels of resilience than other women did who were initially enrolled in WIHS in 1994 but who died before the present study was conducted. For example, in Chicago WIHS, 46.6 % of the women originally recruited for the study in 1994 (wave 1) and 14.0 % recruited in 2001–2002 (wave 2) have died. Thus, the current sample may consist of women who are especially resilient, with their resilience possibly contributing to their long-term survival. In addition, for HIV-infected women it is unclear if resilience and silencing the self reflect characteristics that lead to HIV risk or alternatively, reflect the effect of disease diagnosis and the stigma and relational losses that accompany it (Brody et al. *in press*).

Conclusions

Despite the noted limitations, there were many strengths of the present study. We investigated resilience and silencing the self among women with HIV, a population whose strengths are often disregarded, and found that lower silencing the self was significantly associated with higher resilience. We also

examined the contribution of silencing the self to resilience above and beyond important sociodemographic factors (i.e., income, education, and employment) to better understand what unique contributions silencing the self made to resilience. Our results indicate that silencing the self tended to contribute to resilience over and above education, income, and employment, perhaps good news because self-advocacy (the opposite of silencing) can be learned (Wingood et al. 2004). Prevention and intervention strategies for women with HIV should promote more self-advocacy and policies should address the gender inequities and environments that give rise to unequal employment, educational, and income-generating opportunities for women, thereby increasing the possibility that women can be resilient. However, given that self-advocacy in interpersonal relationships may meet resistance from others and result in negative consequences such as abuse by partners, intervention efforts should take these potential adverse consequences into consideration.

Acknowledgments Data in this manuscript were collected by the Chicago site of the Women's Interagency HIV study (WIHS), which is funded by the National Institute of Allergy and Infectious Diseases Grant U01-AI-34994 (PI, Dr. Mardge Cohen) and co-funded by the National Cancer Institute and National Institute of Drug Abuse. Sannisha K. Dale is funded by a National Research Service Award (#F31MH095510) from the National Institute of Mental Health. Kathleen Weber is also funded in part by P30-AI082151. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the views of the National Institutes of Health.

We would like to express tremendous gratitude to the WIHS participants in this study and to WIHS staff Cheryl Watson, Crystal Winston, Sally Urwin and Karlene Schowalter who were key in data collection and management.

References

- Abraído-Lanza, A. F. (1997). Latinas with arthritis: effects of illness, role identity, and competence on psychological well-being. *American Journal of Community Psychology*, *25*, 601–627. doi:10.1023/a:1024682800238.
- Adimora, A. A., & Schoenbach, V. J. (2005). Social context, sexual networks, and racial disparities in rates of sexually transmitted infections. *Journal of Infectious Diseases*, *191*(Suppl 1), S115–S122. doi:10.1086/425280.
- Bacon, M. C., von Wyl, V., Alden, C., Sharp, G., Robison, E., Hessel, N., et al. (2005). The Women's interagency HIV study: an observational cohort brings clinical sciences to the bench. *Clinical Vaccine Immunology*, *12*, 1013–1019. doi:10.1128/CDLI.12.9.1013-1019.
- Barkan, S. E., Melnick, S. L., Preston-Martin, S., Weber, K., Kalish, L. A., Miotti, P., et al. (1998). The Women's interagency HIV study. WIHS collaborative study group. *Epidemiology*, *9*, 117–125.
- Boden, R. J., Jr. (1999). Gender inequality in wage earnings and female self-employment selection. *The Journal of Socio-Economics*, *28*, 351–364. doi:10.1016/S1053-5357(99)00026-8.
- Bonanno, G. A. (2012). Uses and abuses of the resilience construct: loss, trauma, and health-related adversities. *Social Science & Medicine*, *74*, 753–756. doi:10.1016/j.socscimed.2011.11.022.
- Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2006). Psychological resilience after disaster: New York City in the aftermath of the September 11th terrorist attack. *Psychological Science*, *17*, 181–186. doi:10.1111/j.1467-9280.2006.01682.x.
- Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? the role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology*, *75*, 671–682. doi:10.1037/0022-006X.75.5.671.
- Bowleg, L., Belgrave, F., & Reisen, C. (2000). Gender roles, power strategies, and precautionary sexual self-efficacy: implications for black and Latina Women's HIV/AIDS protective behaviors. *Sex Roles*, *42*, 613–635. doi:10.1023/a:1007099422902.
- Brody, L. R. (1999). *Gender, emotion and the family*. Cambridge: Harvard University Press.
- Brody, L., Dale, S., Kelso, G., Cruise, R., Weber, K., Watson, C., et al. (in press). Gender roles and coping in relation to depression and quality of life in women with and at risk for HIV. In S. Dworkin, M. Gandhi, & P. Passano (Eds.), *In justice and in health: A new era in women's health and empowerment*. Berkeley: UC Press.
- Callahan, S. T., & Cooper, W. O. (2005). Uninsurance and health care access among young adults in the United States. *Pediatrics*, *116*, 88–95. doi:10.1542/peds.2004-1449.
- Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): validation of a 10-item measure of resilience. *Journal of Traumatic Stress*, *20*, 1019–1028. doi:10.1002/jts.20271.
- Campbell-Sills, L., Forde, D., & Stein, M. B. (2009). Demographic and childhood environmental predictors of resilience in a community sample. *Journal of Psychiatric Research*, *43*, 1007–1012. doi:10.1016/j.jpsychires.2009.01.013.
- Caspi, A., Sugden, K., Moffitt, T. E., Taylor, A., Craig, I. W., Harrington, H., et al. (2003). Influence of life stress on depression: moderation by a polymorphism in the 5-HTT gene. *Science*, *301*, 386–389. doi:10.1126/science.1083968.
- Centers for Disease Control and Prevention. (2013a). HIV surveillance - Epidemiology of HIV infection (through 2011). Retrieved from <http://www.cdc.gov/hiv/topics/surveillance/resources/slides/general/index.htm>
- Centers for Disease Control and Prevention. (2013b). HIV infection among heterosexuals at increased risk — United States, 2010. *Morbidity and Mortality Weekly Report*, *62*, 183–188.
- Cohen, M., Deamant, C., Barkan, S., Richardson, J., Young, M., Holman, S., et al. (2000). Domestic violence and childhood sexual abuse in HIV-infected women and women at risk for HIV. *American Journal of Public Health*, *90*, 560–565. doi:10.2105/AJPH.90.4.560.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2002). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). New Jersey: Routledge.
- Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*, 76–82. doi:10.1002/da.10113.
- Delpierre, C., Cuzin, L., Lauwers-Cances, V., Datta, G. D., Berkman, L., & Lang, T. (2008). Unemployment as a risk factor for AIDS and death for HIV-infected patients in the era of highly active antiretroviral therapy. *Sexually Transmitted Infections*, *84*, 183–186. doi:10.1136/sti.2007.027961.
- DeMarco, R., Johnsen, C., Fukuda, D., & Deffenbaugh, O. (2001). Content validity of a scale to measure silencing and affectivity among women living with HIV/AIDS. *Journal of the Association of Nurses in AIDS Care*, *12*(4), 77–88. doi:10.1016/S1055-3290(06)60219-7.
- Demarco, R., Lynch, M. M., & Board, R. (2002). Mothers who silence themselves: a concept with clinical implications for women living with HIV/AIDS and their children. *Journal of Pediatric Nursing*, *17*, 89–95. doi:10.1053/jpdn.2002.124126.

- DiClemente, R. J., & Wingood, G. M. (1995). A randomized controlled trial of an HIV sexual risk-reduction intervention for young African-American women. *Journal of the American Medical Association*, 274(16), 1271–1276. doi:10.1001/jama.1995.03530160023028
- England, P. (2005). Gender inequality in labor markets: the role of motherhood and segregation. *Social Politics: International Studies in Gender, State & Society*, 12, 264–288. doi:10.1093/sp/jxi014.
- Farber, E. W., Schwartz, J. A., Schaper, P. E., Moonen, D. J., & McDaniel, J. S. (2000). Resilience factors associated with adaptation to HIV disease. *Psychosomatics*, 41, 140–146. doi:10.1176/appi.psy.41.2.140 pp. 140-6.
- Golub, S. A., Tomassilli, J. C., & Parsons, J. T. (2008). Partner serostatus and disclosure stigma: implications for physical and mental health outcomes among HIV-positive adults. *AIDS and Behavior*, 13, 1233–1240. doi:10.1007/s10461-008-9466-1.
- Grant, T. M., Jack, D. C., Fitzpatrick, A., Jull, P., & Ernst, C. (2009). Carrying the burdens of poverty, parenting, and addiction: depression symptoms and self-silencing among ethnically diverse women. *Community Mental Health Journal*, 47, 90–98. doi:10.1007/s10597-009-9255.
- Harvey, S. M., Bird, S. T., Galavotti, C., Duncan, E. A., & Greenberg, D. (2002). Relationship power, sexual decision making and condom use among women at risk for HIV/STDS. *Women & Health*, 36(4), 69–84. doi:10.1300/J013v36n04_06.
- Haskett, M. E., Nears, K., Ward, C. S., & McPherson, A. V. (2006). Diversity in adjustment of maltreated children: factors associated with resilient functioning. *Clinical Psychology Review*, 26, 796–812. doi:10.1016/j.cpr.2006.03.005.
- Jacelon, C. S. (1997). The trait and process of resilience. *Journal of Advanced Nursing*, 25, 123–129. doi:10.1046/j.1365-2648.1997.1997025123.x.
- Jack, D. C., & Ali, A. (Eds.). (2010). *Self-silencing and depression across cultures: Depression and gender in the social world*. New York: Oxford University Press.
- Jack, D. C., & Dill, D. (1992). The silencing the self scale: schemas of intimacy associated with depression in women. *Psychology of Women Quarterly*, 16, 97–106. doi:10.1111/j.1471-6402.1992.tb00242.x.
- Kelso, G., Cohen, M., Weber, K., Dale, S. K., Cruise, R. C., & Brody, L. (2013). Critical consciousness, racial and gender discrimination, and HIV disease markers in African-American women with HIV. *AIDS & Behavior*. doi:10.1007/s10461-013-0621-y.
- Kjellstrand, E. K., & Harper, M. (2012). Yes, She Can: an examination of resiliency factors in middle- and upper-income single mothers. *Journal of Divorce & Remarriage*, 53, 311–327. doi:10.1080/10502556.2012.671677.
- Klasen, S. (2002). Low schooling for girls, slower growth for all? cross-country evidence on the effect of gender inequality in education on economic development. *The World Bank Economic Review*, 16, 345–373. doi:10.1093/wber/lhf004.
- Lewis, M. (2007, February). Stepwise versus Hierarchical Regression. Paper presented at the annual meeting of the Southwest Educational Research Association, San Antonio. Retrieved from http://www.academia.edu/1860655/Stepwise_versus_hierarchical_regression_Proc_and_cons
- Machtiger, E. L., Wilson, T. C., Haberer, J. E., & Weiss, D. S. (2012). Psychological trauma and PTSD in HIV-positive women: a meta-analysis. *AIDS and Behavior*, 16, 2091–2100. doi:10.1007/s10461-011-0127-4.
- Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: contributions from the study of children who overcome adversity. *Development and Psychopathology*, 2, 425–444. doi:10.1017/S0954579400005812.
- McGeary, D. D. (2011). Making sense of resilience. *Military Medicine*, 176, 603–604.
- Morenoff, J. D., Sampson, R. J., & Raudenbush, S. W. (2001). Neighborhood inequality, collective efficacy, and the spatial dynamics of urban violence. *Criminology*, 39, 517–558. doi:10.1111/j.1745-9125.2001.tb00932.x.
- Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003). Adolescent resilience: a concept analysis. *Journal of Adolescence*, 26, 1–11. doi:10.1016/S0140-1971(02)00118-5.
- Perry, M. J. (1998). Gender, race and economic perspectives on the social epidemiology of HIV infection: implications for prevention. *The Journal of Primary Prevention*, 19, 97–104. doi:10.1023/a:1022688827012.
- Quina, K., Harlow, L. L., Morokoff, P. J., Burkholder, G., & Deiter, P. J. (2000). Sexual communication in relationships: when words speak louder than actions. *Sex Roles*, 42, 523–549. doi:10.1023/A:1007043205155.
- Radford-Hill, S. (2002). Keepin' it real: a generational commentary on Kimberly Springer's "third wave black feminism?". *Signs: Journal of Women in Culture and Society*, 27, 1083–1089. doi:10.1086/339638.
- Scali, J., Gandubert, C., Ritchie, K., Soulier, M., Ancelin, M.-L., & Chaudieu, I. (2012). Measuring resilience in adult women using the 10-items Connor-Davidson resilience scale (CD-RISC). role of trauma exposure and anxiety disorders. *PLoS ONE*, 7(6), e39879. doi:10.1371/journal.pone.0039879.
- Sen, B. (2003). Why do women feel the way they do about market work: the role of familial, social and economic factors. *Review of Social Economy*, 61, 211–234. doi:10.1080/0034676032000098228.
- Shearer, C. L., Hosterman, S. J., Gillen, M. M., & Lefkowitz, E. S. (2005). Are traditional gender role attitudes associated with risky sexual behavior and condom-related beliefs? *Sex Roles*, 52, 311–324. doi:10.1007/s11199-005-2675-4.
- Steinhardt, M., & Dolbier, C. (2008). Evaluation of a resilience intervention to enhance coping strategies and protective factors and decrease symptomatology. *Journal of American College Health*, 56(4), 445–453. doi:10.3200/JACH.56.4.445-454
- Ungar, M. (2008). Resilience across cultures. *British Journal of Social Work*, 38, 218–235. doi:10.1093/bjsw/bcl343.
- Vella, F. (1994). Gender roles and human capital investment: the relationship between traditional attitudes and female labour market performance. *Economica*, 61, 191–211.
- Waaktaar, T., & Torgersen, S. (2012). Genetic and environmental causes of variation in trait resilience in young people. *Behavior Genetics*, 42, 366–377. doi:10.1007/s10519-011-9519-5.
- Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the resiliency scale. *Journal of Nursing Measurement*, 1, 165–178.
- Weder, N., Yang, B. Z., Douglas-Palumberi, H., Massey, J., Krystal, J. H., Gelernter, J., et al. (2009). MAOA genotype, maltreatment, and aggressive behavior: the changing impact of genotype at varying levels of trauma. *Biological Psychiatry*, 65, 417–424. doi:10.1016/j.biopsych.2008.09.013.
- Wells, M. (2009). Resilience in rural community-dwelling older adults. *Journal of Rural Health*, 25, 415–419. doi:10.1111/j.1748-0361.2009.00253.x.
- Werner, E. E. (1993). Risk, resilience, and recovery: perspectives from the Kauai longitudinal study. *Development and Psychopathology*, 5, 503–515. doi:10.1017/s095457940000612x.
- Werner, E. E. (2004). Journeys from childhood to midlife: risk, resilience, and recovery. *Pediatrics*, 114, 492.
- Whetten, K., Reif, S., Whetten, R., & Murphy-McMillan, L. K. (2008). Trauma, mental health, distrust, and stigma among HIV-positive persons: implications for effective care. *Psychosomatic Medicine*, 70, 531–538. doi:10.1097/PSY.0b013e31817749dc.

- Wingo, A. P., Wrenn, G., Pelletier, T., Gutman, A. R., Bradley, B., & Ressler, K. J. (2010). Moderating effects of resilience on depression in individuals with a history of childhood abuse or trauma exposure. *Journal of Affective Disorders*, *126*, 411–414. doi:[10.1016/j.jad.2010.04.009](https://doi.org/10.1016/j.jad.2010.04.009).
- Wingood, G. M., DiClemente, R. J., Mikhail, I., Lang, D. L., McCree, D. H., Davies, S. L., et al. (2004). A randomized controlled trial to reduce HIV transmission risk behaviors and sexually transmitted diseases among women living with HIV: the WILLOW program. *Journal of Acquired Immune Deficiency Syndromes*, *37*(Suppl 2), S58–S67. doi:[10.1097/01.qai.0000140603.57478.a9](https://doi.org/10.1097/01.qai.0000140603.57478.a9).
- Wyatt, G. E. (1994). The sociocultural relevance of sex research. Challenges for the 1990s and beyond. *American Psychology*, *49*, 748–754. doi:[10.1037/0003-066X.49.8.748](https://doi.org/10.1037/0003-066X.49.8.748).
- Yu, X. N., Lau, J. T. F., Mak, W. W. S., Cheng, Y. M., Lv, Y. H., & Zhang, J. X. (2009). Risk and protective factors in association with mental health problems among people living with HIV who were former plasma/blood donors in rural China. *AIDS Care*, *21*, 645–654. doi:[10.1080/09540120802459770](https://doi.org/10.1080/09540120802459770).
- Zierler, S., & Krieger, N. (1997). Reframing women's risk: social inequalities and HIV infection. *Annual Review of Public Health*, *18*, 401–436. doi:[10.1146/annurev.publhealth.18.1.401](https://doi.org/10.1146/annurev.publhealth.18.1.401).