Published in final edited form as:

J Assoc Nurses AIDS Care. 2010 ; 21(2): 144–152. doi:10.1016/j.jana.2009.07.008.

Relationships between stigma, social support, and depression in HIV-infected African American women living in the rural Southeastern United States

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Abstract

This cross-sectional study examined relationships between HIV-related stigma, social support, and depression in a sample of 340 HIV-infected African American women living in rural areas of the Southeastern United States. Three aspects of social support (availability of different types of support, sources of support, and satisfaction with support) and two aspects of HIV-related stigma (perceived stigma and internalized stigma) were measured. Perceived availability of support ($p < .0001$), sources of support ($p = .03$), satisfaction with support ($p = .003$), perceived stigma ($p < .0001$), and internalized stigma ($p < .0001$) were all significantly correlated with depression. Social support variables were negatively correlated and stigma variables were positively correlated with depression. HIV-related perceived stigma and internalized stigma were found to mediate the effect of sources of available support on depression. Study findings have implications for designing and implementing interventions to increase social support and decrease HIV-related stigma in order to decrease depression among African American women with HIV disease.

Keywords

African American women; depression; HIV disease; HIV-related stigma; rural; social support

Since the beginning of the HIV epidemic, HIV disease has been associated with stigma, mental stress, and psychiatric morbidity (Morrison et al., 2002; Prachakul, Grant, & Keltner, 2007).

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Although overt expressions of stigma have decreased considerably since the early years of the epidemic, more covert forms are still pervasive and result in avoidance or discriminatory behaviors directed toward persons living with HIV (PLWH; Herek, Capitanio, & Widaman, 2002). Universal existence of HIV-related stigma compromises public health efforts toward prevention, treatment, and the provision of the support needed for effective management of the disease (Parker & Aggleton, 2003). A significant body of research suggests that social support plays a key role in managing stress associated with having HIV, resulting in better psychological outcomes among persons with HIV disease. Although much is known about HIV-related stigma and social support, a review of the literature reveals a lack of understanding of the mechanisms through which they influence depression. Therefore, the purpose of this study was to explore the relationships between HIV-related stigma, social support, and depression in a sample of African American women with HIV disease living in the rural Southeastern United States.

Background

Previous research has indicated that estimated prevalence rates (lifetime and current) for depression are much higher in PLWH compared to general community samples (Ciesla & Roberts, 2001). Further, many studies of depression in PLWH have shown consistently higher rates of depression among women (Moneyham, Sowell, Seals, & Demi, 2000; Morrison et al., 2002). Evidence has suggested that African American women with HIV disease living in rural areas are at a particularly higher risk of depression compared to other PLWH. Unique characteristics of rural areas, including geographic distance and lack of transportation, isolate rural women from support services and resources (Moneyham et al., 2000). Additionally, conservative values and social norms favor stigmatization of HIV-infected women, making them reluctant to disclose their HIV status, which further isolates them from much needed social support (Hudson, Lee, Miramontes, & Portillo, 2001; Moneyham et al., 1996). Consequently, these women experience extreme psychological stress that exceeds their limited resources and coping abilities, which may result in adverse psychological outcomes such as depression.

HIV-related stigma still exists in American society (Herek et al., 2002), particularly in rural communities (Hudson et al., 2001). Evidence has also suggested that it is more prevalent, serious, and intense among women (Sandelowski, Lambe, & Barroso, 2004). Further, HIV-related stigma is found to be significantly higher among African Americans compared to Whites (Emlet, 2007). HIV-related stigma is a complex concept that lies within a person's perceptions and attitudes and often leads to discriminatory behaviors toward PLWH (Morrison, 2006). Sometimes individuals who are stigmatized by others accept and internalize the lived experiences of stigma and discrimination over time, resulting in internalized stigma (Morrison, 2006). Perceived stigma and internalized stigma have several consequences that compromise the psychological, physical, and social health of PLWH, including feelings of loneliness, social withdrawal, isolation (Brouard, 2006; Sayles, Ryan, Silver, Sarkisian, & Cunningham, 2007), and depression, particularly among women (Clark, Lindner, Armistead, & Austin, 2003; Prachakul et al., 2007).

Social support is a useful resource that helps minimize psychological stress. It also plays a key role in buffering the negative effects of HIV-related stigma (Brouard, 2006). Research has also indicated that social support is particularly important for women as they rely more on social relationships compared to men in similar situations (Hurdle, 2001). There is a well-documented inverse relationship between social support and depression in PLWH (Catz, Gore-Felton, & McClure, 2002; McDowell & Serovich, 2007).

Despite being important predictors of depression, HIV-related stigma and social support have not been thoroughly examined for possible ways in which they operate among the growing population of rural African American women with HIV. A better understanding of how stigma and social support affect depression is critical to develop future programs designed to reduce depression and thereby improve quality of life among rural HIV-infected women. Therefore, for the purpose of examining the relationships between HIV-related stigma, social support, and depression, the following three hypotheses were tested: (a) HIV-related stigma mediates the relationship between social support and depression, (b) social support mediates the relationship between HIV-related stigma and depression, and (c) social support and HIV-related stigma have interactive (moderation) effect on depression among rural women with HIV disease.

Theoretical Perspective

This study is based on the Cognitive-Relational Theory of Stress, Appraisal, and Coping (Lazarus & Folkman, 1984), which identifies antecedents and processes that account for individual differences in adaptation outcomes of stressful life situations such as HIV disease. Social support and HIV-related stigma are conceptualized as antecedent and cognitive variables, respectively, that together contribute to the experience of depression in the context of HIV disease. Within this model, social support acts as a stress resistance resource that influences the outcome of depression through its relationship to HIV-related stigma. As a resistance resource, social support influences perceptions of HIV-related stigma such that as social support increases, HIV-related stigma decreases. HIV-related stigma is conceptualized as a cognitive appraisal of social interactions within the context of HIV, with stigmatizing appraisals contributing directly to depression. Additionally, there is a possibility that social support and HIV-related stigma may affect depression through their interactions. By including both social support and HIV-related stigma, the model may help to explain individual differences in HIV-infected, rural African American women's experiences of depression.

Methods

Baseline data from the Rural Women's Health Project (RWHP; Moneyham, 2003) was used to perform secondary data analysis in order to examine the relationships between HIV-related stigma, social support, and depressive symptoms in the study population. The RWHP, a 5-year longitudinal study funded by the National Institutes of Health, was designed to evaluate and compare the effectiveness of two formats (face-to-face and telephone) for delivery of a peer counseling intervention aimed at decreasing depression and increasing disease management and quality of life among women with HIV disease living in the rural Southeastern United States. The study and the current analysis were reviewed and approved by the institutional review boards of the investigators' home institutions.

Sample and Setting

The analysis described here included 340 African American women out of a non-probability convenience sample of 399 women recruited from community-based HIV consortiums that provided services to HIV-infected women living in rural areas of South Carolina, North Carolina, and Alabama. Inclusion criteria for participation in the parent study were: (a) residence in rural areas or towns with a population of less than 50,000, (b) age 18 years or older, (c) verified HIV infection, (d) English-speaking, (e) no evidence of dementia verified by medical records, (f) no prior peer counseling experience, and (g) a score of 16 or higher on the Center for Epidemiologic Studies of Depression (CES-D) scale. Between March 2004 and January 2008, participants completed baseline face-to-face interviews administered by trained interviewers.

Measures

Data were collected on characteristics of the study sample and study variables identified in the conceptual model. Standard socio-demographic variables were measured to describe the sample, including age, marital status, living situation (whether living alone or with others), education, employment, annual household income, and receipt of public assistance.

Independent variables—Three dimensions of social support (i.e., the availability of different types of support, sources of available support, and satisfaction with available support) were measured using two scales. The Medical Outcomes Study Social Support Survey (MOS-SSS; Sherbourne & Stewart, 1991) was used to measure the perceived availability of different types of support. The 19 items in the scale were rated on a 5-point response format ranging from *none of the time* (1) to *all of the time* (5) as to the perceived availability of different types of support that a woman can turn to, if needed. A total score was obtained by summing responses to all items. Higher scores reflected higher levels of perceived availability of social support. Reported reliability of the scale was high ($\alpha > 0.91$) and its validity was supported by factor analysis (Sherbourne & Stewart, 1991). The scale's reliability for the study sample was 0.96.

The sources of support and satisfaction with available support were measured using the second scale, the short form of the Social Support Questionnaire (SSQ-6; Sarason, Sarason, Shearin, & Pierce, 1987). Each of the 6 items of the SSQ addressed a particular need for support. The first part of each of the 6 items measured source(s) of available social support. The responses were coded as *no support available* (0) and *support available* (1). Total score (range = 0–6) was obtained by summing all responses. Higher scores indicated more sources of available support. The second part of each item measured a degree of satisfaction with the available support. It was rated on a 6-point format ranging from *very dissatisfied* (1) to *very satisfied* (6), with a possible total score range of 6 to 36. Higher scores indicated greater satisfaction with available support. The scale had a high reported reliability ($\alpha = 0.90$) and the validity was supported by factor analysis (Sarason et al., 1987). The reliability of the scale to measure sources of available social support was 0.91 and to measure satisfaction with support was 0.95 for the study sample.

Two scales were used to assess the women's perceptions of HIV-related stigma and internalization of stigma. The stigma-perception scale (Sowell et al., 1997) consisted of 12 items designed to assess participants' frequency of experiencing various aspects of HIV-related stigma within the previous 6 months measured on a 4-point Likert format ranging from *never* (1) to *always* (4). Responses to all 12 items were summed to obtain a total score. Higher scores indicated higher levels of perceived stigma (range = 12–48). The scale demonstrated content validity and a reported internal consistency reliability of 0.89 (Sowell et al., 1997). The reliability for the study sample was 0.88.

The second scale, the internalized stigma scale, consisted of 10 items rated on a 5-point response format ranging from *strongly disagree* (1) to *strongly agree* (5) for how the respondent felt about herself since being diagnosed with HIV. A total score was obtained by summing responses to all items, with higher scores indicating higher levels of internal stigma (range = 10–50). Reliability and validity were not reported for this scale. The internal consistency reliability of this scale for the study sample was 0.91.

Dependent variable—Depression was measured using a 20-item self-report scale developed by the CES-D. The scale has been shown to have adequate test-retest reliability, high internal consistency reliability ($\alpha \geq 0.90$), and construct validity (Radloff, 1977). Participants rated the extent to which they had experienced each item (depressive symptom) in the previous week using a 4-point response format ranging from *rarely or none of the*

time (0) to *most or all of the time* (3). Four items (item #s 4, 8, 12, and 16) were reverse-coded. The total CES-D score was obtained by summing all responses. Higher scores indicated higher levels of depressive symptoms. The internal consistency reliability for the study sample was 0.78.

Analysis

All data analyses were performed using Statistical Analysis Software (SAS), version 9.2. Given the sample size of 340, all observations were assumed to be independent and normally distributed, and parametric statistical procedures were used for analyzing the data at 95% confidence level ($\alpha = 0.05$), unless otherwise stated.

Descriptive statistics were conducted to obtain frequencies for categorical variables and means, standard deviations, and ranges for continuous variables. For inferential statistics, bivariate as well as multivariate analyses were performed on the variables of interest. Pearson's correlations were performed to identify significant associations among the variables of interest. Mediation/Moderation analyses (Baron & Kenny, 1986) were performed to identify the nature of the relationships between dependent and independent variables. Each of the HIV-related stigma measures (perceived stigma and internalized stigma) and social support measures (perceived availability of support, sources of available support, and satisfaction with support) were examined for possible mediating effects on depression. The mediation analysis for HIV-related stigma was conducted in three steps as explained in the results section. Similar steps were repeated using social support variables as possible mediators between HIV-related stigma and depression. To examine for a moderation effect among the variables, the interaction term for social support and HIV-related stigma was entered in the regression model.

Results

As indicated in Table 1, the average age of the participants was 41.52 ± 9.47 years and the majority were single, unemployed, and had high school or less education. Approximately 68% of the participants were receiving some form of public assistance and 72% had an annual household income of less than \$10,000. Nearly 58% of the participants had a previous diagnosis of depression and only half of them were receiving treatment (i.e., medications and/or counseling) at the time of the interview. Participants reported high levels of depressive symptoms, indicated by an average depression score of 27.82 ± 9.25 . A CES-D score of 16 or above is highly correlated with a clinical diagnosis of depression and higher scores reflect higher levels of depressive symptoms (Radloff, 1977). The mean scores of independent variables are reported in Table 2.

None of the socio-demographic variables was significantly associated with depressive symptoms. In contrast, all of the social support and stigma variables were significantly correlated with depressive symptoms ($p < .05$). The social support variables were all negatively correlated with depressive symptoms, while the stigma variables were all positively correlated.

During the mediation analyses (Figure 1), both measures of HIV-related stigma (perceived stigma and internalized stigma) were found to mediate the relationship between sources of available social support and depression. In the first step of the analysis, depression was regressed on sources of available support (path c) and perceived stigma (path b), one at a time, and both models were significant ($p = .03$ and $p < .0001$, respectively). In the next step, perceived stigma was regressed on sources of available support (path a) and the model was statistically significant ($p < .001$). In the final step, depression was regressed on both sources of available support and perceived stigma in one model. The results revealed that sources of available support (path c), which was a significant predictor of depression in the first step, became non-significant with the addition of perceived stigma to the model in the final step.

($p = 0.17$). Perceived stigma (path b) remained significant ($p < .0001$), thus indicating that it acts as a mediator between sources of available social support and depression (Table 3).

In the regression analysis that included internalized stigma and sources of available support as independent variables (Table 4), the final step revealed that sources of available support, which was a significant predictor of depression in the first step ($p = .03$), became non-significant when internalized stigma was added in the model ($p = .1$), whereas internalized stigma remained significant ($p < .0001$). Thus, internalized stigma also acted as a mediator between sources of available social support and depression.

For other social support variables, perceived availability of support and satisfaction with support, no mediation effect of HIV-related stigma was found. In the final models, these variables remained significant predictors of depression along with stigma variables. Similarly, none of the social support variables were found to mediate the relationship between HIV-related stigma and depression. None of the interactions between social support variables and stigma variables were statistically significant, and thus no moderation was detected.

Discussion

This study explored the mechanisms through which social support and HIV-related stigma may affect depression in a sample of African American women with HIV disease living in the rural Southeastern United States. The majority of the participants reported high levels of depressive symptoms, a finding consistent with past research (Miles, Holditch-Davis, Pedersen, Eron, & Schwartz, 2007; Moneyham et al., 2000). Also consistent with the findings of previous research, only a portion of the participants (58%) had received a formal diagnosis of depression, and almost half of those diagnosed were not receiving any form of treatment. This finding is consistent with reports that depression is often under-diagnosed and under-treated, particularly among women (Asch et al., 2003).

As expected, based on the theoretical framework for the study, the social support variables (perceived availability of social support, sources of available support, and satisfaction with support) were significantly and negatively correlated with depression, whereas the stigma variables (stigma perceptions and internalized stigma) were significantly and positively correlated with depression. These findings were consistent with past research. A large body of research has demonstrated that social support minimizes the stress caused by HIV disease (Catz, et al., 2002; McDowell & Serovich, 2007), resulting in better adaptation outcomes and lower psychological symptoms. Further, there is a well-established positive association between HIV-related stigma and adverse psychological outcomes including depression (Emlet, 2007; Herek et al., 2002; Prachakul et al., 2007).

The results of this study indicated that both perceived and internalized stigma acted as mediating variables that intervened between sources of available social support and depression. Since the development of stigma involves social interactions, it follows that social support could affect HIV-related stigma. A supportive environment that accepts a woman with HIV disease and provides positive experiences can build her self-esteem and self-efficacy while reducing psychological distress including depression. On the other hand, a hostile environment exacerbates stigma by making a woman feel that she is responsible for her disease and making her afraid to access social support. Although all of the social support variables were found to be significantly associated with HIV-related stigma and important predictors of depression, HIV-related stigma mediated the effect of only sources of support on depression. This finding highlighted the importance of having more individuals in support networks for rural women with HIV disease. The findings of our study suggested that if a woman had several sources of support that she could turn to if needed, it might alter and decrease her perceptions of HIV-

related stigma, as well as internalized stigma. This may minimize the psychological stress associated with having HIV and possibly reduce depressive symptoms. These findings underscore the importance of addressing issues related to social support and HIV-related stigma in the management of depression among rural African American women with HIV disease.

In addition to the inherent limitations of a secondary data analysis, the study had other limitations. The cross-sectional design of the study prevents the establishment of causality as well as true mediation among the variables, which can only be determined in longitudinal study designs. Because this study was a secondary data analysis, it restricted our ability to thoroughly investigate relationships among variables of interest. Additionally, this study did not address other possible factors that might have been related to depression and could explain more variance in the outcome. Further, since this study targeted only rural African American women, the findings cannot be generalized to other PLWH.

Despite these limitations, this study is one of only a few those have examined HIV-related stigma and social support in the context of depression among African American women who live in rural areas. The findings have implications for designing and implementing appropriate interventions for HIV-infected rural African American women with depression. Further, the findings also help to identify points of intervention for reducing depression as a response to HIV disease. The findings underscore the importance of targeting HIV-related stigma and social support in the management of depression. It is important to educate health care professionals, case managers, and social workers regarding the role of HIV-related stigma in influencing prevention, care, and treatment of HIV disease as well as its psychological outcomes. Persons involved in the care of HIV-infected women must understand the critical role of social support in reducing HIV-related stigma and depression and should assess the social relationships of their clients. Efforts must be made to involve the client's family members and/or friends in HIV disease management as well as depression management. Because depressive symptoms may indicate the presence of other mental health issues, health care professionals should consider referring women with positive depression screenings for further assessment of their reported symptoms to rule out other psychological co-morbidities. Additionally, they should also consider referring women to support groups when necessary. In the long run this will result in better management of HIV disease and improve the overall quality of life for rural women with HIV disease.

Conclusion

Findings indicate that social support and HIV-related stigma are associated with depression in HIV-infected African American women who live in rural areas. Perceived availability of social support, sources of available support, and satisfaction with available support are significantly and inversely correlated with depression. Perceived stigma and internalized stigma are significantly and positively correlated with depression. Perceived stigma and internalized stigma both mediate the effect of sources of available support on depression. Further research is warranted to identify true mediation and to better understand the complex factors influencing depression. Longitudinal study designs may provide much needed additional information.

Clinical Considerations

- Health care professionals should understand the importance of HIV-related stigma in the management of depression.
- Efforts must be made to identify HIV-related stigma and formulate appropriate strategies to address the issue.

- Social support is an important factor in managing both HIV-related stigma and depression.
- Efforts must be made to involve family members and friends in the management of depression among rural African American women with HIV disease.
- Health care professionals should consider referring women with positive depression screenings for additional psychiatric assessment to rule out other psychological co-morbidities
- Health care professionals should consider referrals to support groups as warranted.

Acknowledgments

The RWHP study was supported by funding from the National Institute of Nursing Research, the National Institutes of Health, grant number R01 NR 04956.

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Fig. 1.
HIV related stigma as a mediator between sources of available support and depression.

Table 1

Socio-demographic characteristics of rural African American women with HIV disease participating in the study (N = 340)^a

Variable	Frequency	%
Age ($M = 41.52$, $SD = 9.47$, Range = 21–67 years)		
18–30	43	12.65
31–45	186	54.71
> 45	109	32.06
State		
Alabama	43	12.65
North Carolina	22	6.47
South Carolina	275	80.88
Marital status		
Single ^b	271	79.71
Non-single ^c	69	20.29
Living situation		
Live alone	67	19.71
Live with others	272	80.00
Education		
High school or less	231	67.95
College/more	109	32.05
Full/part-time employment		
No	269	79.12
Yes	71	20.88
Annual household income		
< \$5,000	141	41.47
\$5,000–59,999	104	30.59
≥ \$10,000	93	27.35
Public assistance/welfare		
No	105	30.88
Yes	234	68.82
Depression diagnosis		
No	132	38.82
Yes	196	57.65
Current depression treatment ($n = 196$) ^d		
No	95	48.47
Yes	100	51.02

Note: None of the socio-demographic characteristics were significantly associated with depression.

^a n varies due to missing responses

^b includes those never married, separated, divorced, or widowed

^c includes those married or living with a partner

^d applicable only for those with a diagnosis of depression

Means, standard deviations, and range for variables of interest in rural African American women with HIV disease participating in the study

Table 2

Variable	N ^a	Mean ^b	SD	Minimum	Maximum
Depression ^c	338	27.82	9.25	3	50
Perceived availability of social support	340	66.10	19.15	19	95
Sources of available support	339	5.02	1.84	0	6
Satisfaction with support	337	29.58	9.52	6	36
Perceived stigma	340	24.26	8.36	11	48
Internalized stigma	340	32.45	9.81	10	50

Note:

^a N varies due to missing responses

^b Higher scores indicate higher levels of depressive symptoms, perceived availability of social support, sources of available support, satisfaction with support, perceived stigma, and internalized stigma

^c Minimum depression score differed from the screening criteria due to time gap between screening and data collection (CES-D scale assesses depressive symptoms within previous week).

Perceived stigma as a mediator between sources of available social support and depression among study participants

Table 3

Step 1: Simple regression analysis of depression on sources of available support and perceived stigma individually

Variable	Variable Statistics		
	Beta	Standard Error	p
Sources of available support (Step 1a)	-.61	.27	.03*
Perceived stigma (Step 1b)	.31	.06	< .0001*

Step 2: Simple regression analysis of perceived stigma on available social support

Variable	Variable Statistics		
	Beta	Standard Error	p
Sources of available support	-.82	.24	< .001*

Step 3: Multiple regression analysis of depression on sources of available social support and perceived stigma

Variable	Variable Statistics		Model Statistics			
	Beta	Standard Error	p	F	R ²	Adjusted R ²
Perceived stigma	.29	.06	< .0001 *	15.15	.08	.08
Sources of available support	-.37	.27	.17			

* statistically significant results at $\alpha = .05$

Table 4
Internalized stigma as a mediator between sources of available support and depression among study participants
Step 1: Simple regression analysis of depression on sources of available support and internalized stigma individually

Variable Statistics				
Variable	Beta	Standard Error	p	
Sources of available support (Step 1a)	-.61	.27	.03*	
Internalized stigma (Step 1b)	.23	.05	< .0001*	

Step 2: Simple regression analysis of internalized stigma on sources of available support

Variable Statistics		
Variable	Beta	p
Sources of available support	-.76	< .01*

Step 3: Multiple regression analysis of depression on sources of available support and internalized stigma

Variable Statistics		Model Statistics		
Variable	Beta	Standard Error	p	Adjusted R ²
Internalized stigma	.22	.05	< .0001*	.06
Sources of available support	-.45	.27	.10	

* statistically significant results at $\alpha = .05$