

# Symptoms of Psychological Distress: A Comparison of Rural and Urban Individuals Enrolled in HIV-Related Mental Health Care

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## Abstract

Over the past decade, the number of individuals who have been diagnosed with HIV in nonmetropolitan areas (population of less than 50,000 individuals) has increased; however, the majority of the research has been conducted in metropolitan areas. Even less research has examined the levels of psychological distress among rural individual living with HIV. The purpose of this study was to explore the nature and range of psychological distress symptoms experienced by individuals living in rural areas who had self-enrolled into HIV-related mental health care and to compare their levels of distress to their urban counterparts accessing care at the same clinic. Data were collected from 95 individuals who self-enrolled in HIV-related mental health at either a rural ( $n=47$ ) or urban ( $n=48$ ) clinic. All participants completed the Brief Symptom Inventory (BSI), the instrument used in this study to assess symptoms of psychological distress. Rural participants had significantly higher mean scores on the hostility dimension of the BSI,  $F(1, 93)=8.77$ ,  $p=0.004$ , than their urban counterparts. Furthermore, the rural participants had a greater proportion of individuals who had a T-score  $\geq 63$ , a level indicative of a need for further psychological evaluation, for generalized anxiety, hostility, and psychoticism. The results indicated that rural individuals presented with higher levels of symptoms of psychological distress than their urban counterparts. These differences may be reflective of situational circumstances in rural areas where access to care, social isolation, and perceived stigma may delay screening for, and treatment of, psychological distress.

## Introduction

THERE ARE CURRENTLY OVER 1.1 million individuals estimated to be living with HIV in the United States.<sup>1</sup> While HIV prevalence has historically been higher in urban areas, there has been an increase in the incidence of AIDS diagnoses in rural areas during the past decade.<sup>2</sup> In 2006, 7.2% of new AIDS cases occurred in non-metropolitan statistical areas (population less than 50,000).<sup>2</sup> Of those individuals who were diagnosed in a nonmetropolitan area in 2006, 68% lived in southern states, 74% self-identified as male, and 48% as African American or black.<sup>2</sup>

Since the majority of individuals living with HIV reside in urban areas, the majority of HIV-related research has been conducted in urban settings. While the number of studies focused on rural individuals living with HIV has increased over the past couple of years, most have focused on the bar-

riers and access to care among rural residents. Some of the barriers cited by rural individuals include: traveling long distances for medical services, lack of transportation, lack of available services, and HIV-related stigma and discrimination.<sup>3-6</sup> While barriers to care have been identified, there has been little research conducted to assess the physical and mental health needs of rural individuals living with HIV.

Individuals living with HIV often experience varying levels of psychological distress following an HIV diagnosis,<sup>7-9</sup> therefore, mental health care has been integrated in many HIV-related care systems in the United States. While the primary purpose of HIV-related mental health care is to improve psychological functioning, it has also supports an individual's ability to become connected with, and remain engaged in, other HIV-related services such as primary care.<sup>10,11</sup> Furthermore, associations have been established between an individual's participation in HIV-related mental health care and

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their increased engagement with medical and dental providers, increased medication adherence, increased maintenance of lower-risk sexual behaviors, increased disclosure of HIV serostatus to sexual partners, and improved overall quality of life.<sup>11,12-14</sup>

Despite the documented importance of integrating mental health care services into the HIV infrastructure, rural individuals are less likely to access mental health care than their urban counterparts.<sup>15</sup> In the only study to date to compare access to HIV-related mental health care between rural and urban individuals, Reif and colleagues<sup>15</sup> found that rural individuals were significantly less likely to have seen a mental health care professional in the last month and last year than their urban counterparts, despite no differences in level of psychological distress.

A few studies have also focused on the psychological distress of rural individuals living with HIV. One study found that rural African Americans had significantly lower levels of symptoms of depression than their Caucasian counterparts.<sup>16</sup> Furthermore, in two separate studies, over 60% of rural HIV-infected individuals reported moderate to severe levels of depressive symptoms.<sup>17,18</sup> This finding is substantially higher than the 5%–31% rates of expressed depressive symptomatology of seronegative individuals living in rural areas.<sup>19</sup> Furthermore, the prevalence is considerably higher than urban individuals living with HIV who self-reported symptoms indicative of a depression diagnosis.<sup>20-22</sup> Additional research is needed to examine the psychological distress levels among individuals living in rural areas in order to assist HIV service providers in addressing the unmet mental health needs of this population. This study was designed to increase understanding of the nature and range of psychological distress symptoms among rural individuals with HIV seeking mental health care and compare those to their urban counterparts.

## Methods

### *Data collection*

Data were collected from 95 individuals living with HIV who self-enrolled at one of two publicly funded mental health clinics, in either an urban or rural region in the southeastern United States between January 2002 and December 2006. This study used a cross-sectional design; all data were collected during the routine self-reported mental health intake assessment process. Participants had the option of completing the study instruments in either English or Spanish. Those who were unable to read the instruments were assisted by a trained mental health provider. All participants provided their consent for data from their assessment to be used for research and evaluation purposes, and the response rate for those included in the analyses presented in this paper was 100%. All protocols for this study were approved by the Institutional Review Board at Indiana University-Bloomington.

### *Selection of participants*

Since there were more individuals receiving care during the study period at the urban clinic, a sample of urban clients was selected that matched the rural sample on two variables: (1) length of diagnosis at time of enrollment and (2) age at time of enrollment. These variables were chosen given the established

relationships between these variables and mental health outcomes.<sup>18,23</sup>

## *Measures*

During the assessment, participants completed measures of demographic and HIV-related characteristics (gender, age, ethnicity, sexual orientation, educational level, and income, HIV serostatus, presence of AIDS diagnosis, and CD4 count). Symptoms of psychological distress were assessed using the Brief Symptom Inventory (BSI), a 53-item self-report inventory.<sup>24</sup> Previous research has demonstrated that the BSI is a valid and reliable instrument for obtaining psychological health status data from adult populations, with internal consistency ranging from a low of 0.71 on the psychoticism dimension to a high of 0.85 on the depression dimension.<sup>24-26</sup> The BSI has also been used in numerous studies focusing on HIV and is considered a valid and reliable measure for assessing distress in this population.<sup>27-32</sup> On the BSI, a T-score equal to or greater than 63 on any dimension of psychological distress, or "caseness," indicates a need for further psychological evaluation because it indicates a level of distress symptoms that exceed the norms for the tool.

## *Data analysis*

Descriptive statistical tests were conducted to analyze the demographic and health status characteristics of the sample. BSI scores were transformed to T-scores so that each of the psychological distress symptoms could be compared descriptively. A dummy variable was created to categorize individuals into one group if they had a T-score greater than or equal to 63 ("caseness") and to categorize others into a second group if they had a score less than 63. A two-way contingency table analysis was conducted to evaluate whether the rural or urban samples had statistically different proportions of individuals who met "caseness" on each of the ten BSI dimensions.

A one-way analysis of variance (ANOVA) was conducted to determine if the mean BSI scores were significantly different on each of the BSI dimensions. In order to minimize the risk of a type I error, the Bonferroni adjustment was made for each of the 10 ANOVA tests; therefore, reducing the critical value from 0.05 to 0.005. The ANOVA analyses were computed using the BSI raw scores because the T-score transformation changes the distribution of scores and can alter the results of the study. All univariate tests were analyzed at a 95% confidence interval and all analyses were conducted with SPSS version 16.0 (Statistical Package for the Social Sciences; SPSS Inc., Chicago, IL).

## Results

### *Participant description*

There were no significant differences between the rural ( $n = 47$ ) and urban ( $n = 48$ ) samples on any of the demographic variables or the self-reported HIV-related characteristics. The majority of participants were men and self-identified as Black or African-American, had earned at least a high school diploma, and were unemployed. Just under half of the participants self-identified as homosexual or gay and the average age was 39.2 (standard deviation [SD] = 7.7) years (Table 1).

TABLE 1. PARTICIPANT DESCRIPTION AND HIV-RELATED CHARACTERISTICS

	Rural (n = 47)		Urban (n = 48)	
	n/average/median	SD	n/average/median	SD
Black or African American	32		26	
Male	32		38	
High school graduate	37		38	
Homosexual/gay	23		23	
Age	39.61	6.14	38.73	7.58
HIV diagnosis	47		48	
AIDS diagnosis	10		13	
MSM transmission	23		24	
HIV CD4 count (cells/mm <sup>3</sup> )	580.71	323.62	419.41	196.17
AIDS CD4 count (cells/mm <sup>3</sup> )	224.60	245.35	143.41	132.01
Years since diagnosis	6.96	6.20	7.08	6.04

SD, standard deviation; MSM, men who have sex with men.

### HIV-related characteristics

All of the participants had received an HIV diagnosis prior to enrolling in mental health care given the nature of the clinics; however, 19.0% ( $n = 18$ ) had also received an AIDS diagnosis. The length since HIV diagnosis was approximately 7 years, median CD4 count for individuals with only an HIV diagnosis upon enrollment was 467.5 cells/mm<sup>3</sup> and the median CD4 count for individuals with an AIDS diagnosis was 136.5 cells/mm<sup>3</sup>. Finally, with respect to self-reported HIV transmission, 67.2% of the sample reported MSM transmission (Table 1).

### Symptoms of psychological distress

Across all dimensions of the BSI, scores for rural participants were higher than those from urban participants. However, when the BSI scores were compared between the two samples the only significant difference, after Bonferonni adjustment, was on the dimension of hostility. The rural sample had significantly higher scores on this dimension,  $F(1,93) = 8.77$ ,  $p = 0.004$ , than the urban sample ( $M = 52.81$ ,  $SD = 11.08$  versus  $M = 47.94$ ,  $SD = 8.76$ ). There were no other significant differences in BSI scores between the two samples. Table 2 presents the mean scores and standard deviations for BSI T-scores.

TABLE 2. BRIEF SYMPTOM INVENTORY T SCORES OF MALES AND FEMALES AND INDIVIDUALS LIVING WITH HIV OR AIDS

	Rural (n = 47)		Urban (n = 48)	
	Mean	SD	Mean	SD
Somatization	56.13	10.97	52.69	9.57
Obsessive compulsive	53.19	12.51	49.27	9.57
Interpersonal sensitivity	49.80	10.01	47.88	9.88
Depression	48.96	10.45	46.42	9.79
Anxiety	49.00	10.54	46.94	11.57
Hostility <sup>a</sup>	52.81	11.08	47.94	8.76
Phobic anxiety	50.64	11.20	50.10	9.73
Paranoid ideation	52.96	9.26	52.08	8.60
Psychoticism	52.87	10.26	48.58	9.72
Global Severity Index	56.13	11.88	49.02	9.58

<sup>a</sup> $p < 0.05$ .

SD, standard deviation.

While mean differences in the dimensions of psychological distress were nonexistent, other than hostility, there were significant differences in the proportion of individuals in the rural and urban samples who met caseness (an indication that further assessment by a mental health professional is needed) on three of the BSI dimensions. The rural participants had greater proportion of individuals meeting caseness for the global severity index, generalized anxiety,  $\chi^2(1, n = 95) = 6.64$ ,  $p = 0.01$ , Cramer's  $V = .26$ ; hostility,  $\chi^2(1, n = 95) = 8.63$ ,  $p = 0.003$ , Cramer's  $V = 0.30$ , and psychoticism dimensions,  $\chi^2(1, n = 95) = 6.30$ ,  $p = 0.01$ , Cramer's  $V = 0.26$ , as compared to their urban counterparts. Table 3 presents the proportion of each sample that met caseness for each of the BSI dimensions.

### Discussion

This study was conducted to compare symptoms of psychological distress among rural and urban individuals who self-enrolled in publicly-funded HIV-related mental health care. The results of this study suggest that, despite limited

TABLE 3. PROPORTION OF SAMPLE MEETING CRITERIA FOR CASENESS<sup>a</sup>

	Overall (N = 95)		Rural (n = 47)		Urban (n = 48)	
	n	%	n	%	n	%
Somatization	22	23	12	26	10	21
Obsessive compulsivity	15	16	10	21	5	10
Interpersonal sensitivity	9	9	6	13	3	6
Depression	11	12	7	15	4	9
Anxiety	8	8	4	9	4	9
Hostility <sup>b</sup>	14	15	12	26	2	4
Phobic anxiety	16	17	8	17	8	17
Paranoid ideation	10	11	7	15	3	6
Psychoticism <sup>b</sup>	12	13	10	4	2	4
Global Severity Index <sup>b</sup>	15	19	12	26	3	6

<sup>a</sup> $t \geq 63$  = operational definition for diagnosis or "case" (Derogatis, 1993).

<sup>b</sup> $p < 0.05$ .

differences in demographic variables, significantly more rural individuals living with HIV expressed markedly higher levels of overall psychological distress, hostility, and psychoticism than their urban counterparts. Furthermore, rural individuals had higher mean scores on the hostility dimension of psychological distress. Overall higher rates of psychological distress in the rural sample, as measured in this study by the Global Severity Index (GSI) dimension of the BSI, have been found in previous studies.<sup>16–18</sup> However, these results contradict findings by Reif et al.<sup>15</sup> in which no differences in psychological distress were found between the rural and urban samples. These contradictory results may be due to differences in samples. The participants in the Reif et al.<sup>15</sup> study were recruited from Infectious Disease clinics and were not all actively engaged in mental health services. In fact, only 27% of the participants had received services from a mental health provider within the past year. The sample in this study is inherently different because all of the participants self-enrolled in mental health services with a mental health provider. Therefore, it can be inferred that the participants in this study all perceived the need for mental health services. Perhaps, if the Reif et al.<sup>15</sup> study had compared psychological distress among individuals who were engaged in care, the results would have been similar.

It has been clearly documented that individuals living with HIV in rural areas travel significant distances for HIV-related care either due to a lack of health care professionals in their hometown<sup>3,5</sup> or due to the perceived stigma they would encounter if others in their area learned of their HIV status or that they were seeking mental health care.<sup>3,5,6</sup> Therefore, this limited access to mental health care resources provides challenges to screening and treating psychological distress. Due to these limited resources, rural individuals may be less likely to identify the need for mental health care as an integral component for their HIV care, less likely to know about available treatment options, and more likely to defer seeking treatment. Of particular interest in this study is the proportion of individuals meeting caseness for hostility and psychoticism in the rural sample. Of the 14 individuals who met caseness for hostility, 12 were from the rural sample. One possible explanation for the significantly higher number of individuals reporting high levels of hostility in the rural sample may be reflective of situational circumstances in rural areas. There are few HIV-related resources in rural areas, making it difficult to access not only health services, but ancillary services including support groups.<sup>18</sup> Even though many online resources currently exist to connect individuals living with HIV, including chat rooms and online support groups, many rural areas do not have internet access and many low-income individuals do not have access to computers.<sup>33</sup> This social isolation may have contributed to hostility expressed among the rural individuals in this sample.

Additionally, the culture of small communities in rural areas may have increased the feelings of hostility in relationship to perceived and/or experienced stigma among individuals many rural areas, where residents know everyone and word can spread quickly especially related to health status and HIV infection. Therefore, individuals may have felt that they must keep their status a secret in an effort to prevent HIV-related stigma and persecution from the community. The items on the BSI which measured hostility in this study assessed how many times in the past week an individual has

“had urges to beat, injure, or harm someone” or “had urges to break or smash things.” Since this may have been the first time these individuals were asked to express their psychological distress, their frustration may have translated to types of depression or anxiety that were expressed in this hostile manner. Regardless, these findings suggest a need to further examine individuals who score highly on the hostility sub-scale and to provide anger management counseling and other coping skills. The proportion of rural individuals who met the caseness for psychoticism (10/12) may also be associated with reflection of lack of health services and resources in rural areas, which may contribute to delayed screening and referral for mental health issues.

There are limitations to the study that should be discussed. The study sample was relatively small ( $n=95$ ) which provided only enough power to detect large effect sizes<sup>34</sup> as well as limited the type of inferential analyses that could be conducted. It is possible that with a larger sample size more differences in psychological distress would have been identified between the rural and urban sample. The study sample was also drawn from two HIV-related mental health clinics in the same southern state. As a result, there may be unique characteristics about the clinics, the types of individuals who seek care there, and perhaps the types of social service providers from other agencies who provide referrals to the clinic, which might have introduced bias in to the study. These factors limit the generalizability of the results to other populations living with HIV. However, the clinics where this study was conducted are similar to other mental health and social service agencies that are publicly funded systems of care in areas of high HIV prevalence.

In summary, the results in this study highlight the need for HIV-related mental health care in rural areas. Given the disparities in mental health between rural and urban individuals in this study, there needs to be more research conducted to assess the specific mental health needs of rural individuals living with HIV. Specifically, studies need to be conducted with larger sample sizes in order to increase the power of the study as well as to allow for higher level statistical analyses. Furthermore, while it may not be feasible to have a mental health practitioner in all rural areas, more effort needs to be done to increase the availability of services to individuals who are positive, including the possibility of alternative methods of service delivery (telemedicine, Internet-based, etc.).

### Acknowledgment

This publication was partially supported by Grant Number UL1 RR024992 from the National Center for Research Resources (NCRR), specifically KL2RR024994. Its contents are solely the responsibility of the authors and do not necessarily represent the official view of NCRR or the National Institutes of Health (NIH).

### Author Disclosure Statement

No competing financial interests exist.

### References

1. U.S. Centers for Disease Control and Prevention. Basic Statistics. 2009. [www.cdc.gov/hiv/topics/surveillance/basic.htm#hivest](http://www.cdc.gov/hiv/topics/surveillance/basic.htm#hivest) (Last accessed October 14, 2009).

2. U.S. Centers for Disease Control and Prevention. (2008). HIV/AIDS Surveillance in Urban and Nonurban Areas (through 2006). Available at: [www.cdc.gov/hiv/topics/surveillance/resources/slides/urban-nonurban/index.htm](http://www.cdc.gov/hiv/topics/surveillance/resources/slides/urban-nonurban/index.htm) (Last accessed October 14, 2009).
3. Heckman T, Somlai J, Peters J, et al. Barriers to care among persons living with HIV/AIDS in urban and rural areas. *AIDS Care* 1998;10:365–375.
4. Reif S, Golin CE, Smith SR. Barriers to accessing HIV/AIDS care in North Carolina: Rural and urban differences. *AIDS Care* 2005;17:558–565.
5. Yannessa JF, Reece M, Basta TB. HIV provider perspectives: The impact of stigma on substance abusers living with HIV in a rural area of the United States. *AIDS Patient Care STDs* 2008;22:669–675.
6. Zukowski AP, Thorburn S. Experiences of stigma and discrimination among adults living with HIV in a low-prevalence context: A qualitative analysis. *AIDS Patient Care STDs* 2009;23:267–276.
7. Burnam A, Bing EG, Morton SC, et al. Use of mental health and substance abuse treatment services among adults with HIV in the United States. *Arch Gen Psychiatry* 2001;58:729–736.
8. Treisman G, Angelino AF, Hutton H. Psychiatric issues in the management of patients with HIV infection. *JAMA* 2001;286:2857–2864.
9. Judd FK, Cockram AM, Komiti AM, Hoy J, Bell R. Depressive symptoms decrease in individuals with HIV treated with highly active antiretroviral therapy: A longitudinal study. *Aust NZ J Psychiatry* 2001;34:1015–1021.
10. Reece M. HIV-related mental health care: Factors influencing dropout among low-income, HIV-seropositive individuals. *AIDS Care* 2003;15:707–716.
11. Basta T, Shacham E, Reece M. Psychological distress and engagement in HIV-related services among individuals seeking mental health care. *AIDS Care* 2008;20:969–976.
12. Janssen RS, Holtgrave DR, Valdiserri RO, Shepherd M, Gayle H, DeCock KM. The serostatus approach to fighting the HIV epidemic: Prevention strategies for infected individuals. *Am J Public Health* 2001;91:1019–1026.
13. Fairfield KM, Libman H, Davis RB, Eisenberg DM, Phillips RS. Delays in protease inhibitor use in clinical practice. *J Gen Intern Med* 1999;14:43–47.
14. Sherbourne CD, Hays RD, Fleischman JA, et al. Impact of psychiatric conditions on health-related quality of life in persons with HIV infection. *Am J Psychiatry* 2000;157:248–254.
15. Reif S, Whetten K, Ostermann J, Raper J. Characteristics of HIV-infected adults in the Deep South and their utilization of mental health services: A rural vs. urban comparison. *AIDS Care* 2006;18(S1):S10–S17.
16. Heckman BD. Psychosocial differences between Whites and African-Americans living with HIV/AIDS in rural areas in 13 states. *J Rural Health* 2006;22:131–139.
17. Heckman TG, Anderson ES, Sikkema KJ, Kalichman S, Anderson T. Emotional distress in nonmetropolitan persons living with HIV disease in a telephone-delivered, coping improvement group. *Health Psychol* 2004;13:94–100.
18. Heckman TG, Carlson B. A randomized clinical trial of two telephone-delivered, mental health interventions for HIV-infected persons in rural areas of the United States. *AIDS Behav* 2007;11:5–14.
19. Paykel ES, Abbott R, Jenkins R, Brugha TS, Meltzer H. Urban-rural mental health differences in Great Britain: Findings from the National Morbidity Survey. *Psychol Med* 2000;30:269–280.
20. Basta T, Shacham E, Reece M. Psychological distress patterns of Latinos self-enrolling in HIV-related mental health care. *J HIV/AIDS Soc Serv* 2008;7:157–174.
21. Shacham E, Basta T, Reece M. Self-reported symptoms of psychological distress experienced by African-Americans seeking HIV-related mental health care. *AIDS Patient Care STDs* 2008;22:413–421.
22. Pence BW, Miller WC, Whetten K, Eron JJ, Gaynes BN. Prevalence of DSM-IV-Defined Mood, Anxiety, and Substance Use Disorders in an HIV Clinic in the Southeastern United States. *J Acquire Immune Defic Syndrome* 2006;42:298–306.
23. Reece M, Basta T, Koers E. Psychological distress patterns of women and mothers presenting for HIV-related mental health care. *J HIV/AIDS Soc Serv* 2004;3:93–109.
24. Derogatis L. Brief Symptom Inventory Administration, Scoring and Procedures Manual. Minneapolis, MN: National Computer Systems, 1993.
25. Arion KJ, Patsdaughter CA. Multiple-method, cross-cultural assessment of psychological distress. *J Nurs Scholarsh* 1989;21:90–93.
26. Croog SH, Levine S, Testa MA, et al. The effects of antihypertensive therapy on the quality of life. *N Engl J Med* 1986;314:1657–1664.
27. Goggin K, Catley D, Brisco ST, Engelson ES, Rabkin JG, Kotler DP. A female perspective on living with HIV disease. *Health Social Work* 2001;26:80–90.
28. Hudson AL, Lee KA, Portillo CJ. Symptom experience and functional status among HIV-infected women. *AIDS Care* 2003;15:483–492.
29. Kennedy CA, Skurnick JH. Gender differences in HIV-related psychological distress in heterosexual couples. *AIDS Care* 1995;7(Suppl 1):S33–38.
30. Perry S, Jacobsberg L, Fishman B, Weiler P, Gold J, Frances A. Psychological responses to serological testing for HIV. *AIDS* 1990;4:145–152.
31. Perry S, Jacobsberg L, Card C, Ashman T, Frances A, Fishman B. Severity of psychiatric symptoms after HIV testing. *Am J Psychiatr* 1993;150:775–779.
32. Shacham E, Reece M, Monahan PO, et al. Measuring psychological distress symptoms in individuals living with HIV in western Kenya. *J Mental Health* 2007;17:424–434.
33. Whitacre BE. Infrastructure and rural-urban divide in high-speed residential internet access. *Int Reg Sci Rev* 2007;30:249–273.
34. Cohen J. Statistical Power Analysis for the Behavioral Sciences, 2nd ed. Hillsdale, NJ: Lawrence Earlbaum Associates, 1998.

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