

## **Correlates of posttraumatic growth among African Americans living with HIV/AIDS in Mississippi<sup>1</sup>**

Shenell D. Evans<sup>2</sup>  
Bryman E. Williams<sup>3</sup>  
Cheng-Shiun Leu<sup>2</sup>

<sup>2</sup> HIV Center for Clinical and Behavioral Studies

<sup>3</sup> Jackson State University

### **Abstract**

Individuals diagnosed with HIV face a host of challenges post-diagnosis. At risk for negative psychological outcomes, persons living with HIV/AIDS may also experience posttraumatic growth (i.e., positive cognitive and emotional changes that may occur following HIV diagnosis). African Americans, in particular, experience poorer psychosocial and behavioral outcomes and greater HIV-related health disparities, and also tend to report more posttraumatic growth than European Americans. This exploratory study examined demographic, psychosocial, and behavioral correlates of posttraumatic growth among 45 African American adults living with HIV in Mississippi. Statistical methods included correlational analyses and independent sample t-tests. As measured by the Posttraumatic Growth Inventory, posttraumatic growth was associated with several demographic (i.e., age, education, employment, income), psychosocial (i.e., social support, coping self-efficacy, psychological distress [negative]), and behavioral variables (i.e., church attendance, abstinence from drugs, alcohol, and cigarettes). Findings indicate that African Americans living with HIV in underserved, under-resourced areas are capable of perceiving posttraumatic growth post-diagnosis. Moreover, research has shown that perceived positive growth is associated with important sociocultural, psychosocial, and behavioral factors that directly and/or indirectly influence health and treatment outcomes. Implications of findings are discussed.

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## Introduction

Diagnosis of the human immunodeficiency virus (HIV), a highly stigmatized disease, is oftentimes stressful and traumatic (Kelly et al. 1998; Thompson, Nanni, & Levine, 1996). Disproportionately affected by HIV across the United States, African Americans accounted for 45% of people living with the life-threatening stage of HIV, acquired immune deficiency syndrome (AIDS) in the Southern<sup>1</sup> region of the country in 2010 (Centers for Disease Control and Prevention [CDC], 2012). Furthermore, the number of newly-reported AIDS cases in the Deep South<sup>2</sup> (Davis, Gardner, & Gardner, 1941/2009) increased more than seven times the rate of other Southern states (27.5% vs. 3.6%, respectively) from 2000-2004 with Mississippi ranked the highest (Qian, Taylor, Fawal, & Vermund, 2006). The term Deep South refers to a group of states, and regions in surrounding states (FL, VA, TN, AR, TX) that promoted slavery and had economic and agricultural structures based upon the cultivation of cotton (Davis et al., 1941/2009; “Merriam-Webster’s online dictionary,” 2013). In terms of quality of life post-diagnosis, empirical evidence has shown that African Americans living with HIV/AIDS are at higher risk of significant psychiatric conditions, including major depressive disorder, posttraumatic stress disorder, and substance abuse disorders (Brief, et al., 2004), which, in turn, affect HIV disease progression and interfere with treatment adherence (Gore-Felton & Koopman, 2008; Klimas, Koneru, & Fletcher, 2008). Conversely, positive psychosocial outcomes are also possible. African Americans living with HIV tend to report greater positive cognitive and emotional changes in the aftermath of trauma and adversity compared to European Americans (Helgeson, Reynolds, & Tomich, 2006; Sawyer, Ayers, & Field, 2010). Given the increasing rates of HIV/AIDS diagnoses and HIV-related disparities among African Americans living in the Deep South, it is an important public health priority to understand the perceptions and experiences occurring post-diagnosis. The findings may potentially inform culturally-sensitive interventions designed to reduce risk of HIV transmission, improve treatment outcomes, address mental and behavioral health, as well as enhance the psychosocial strengths of the aforementioned population.

Derived from empirical literature on the effect of traumatic events on coping and meaning-making processes, posttraumatic growth (PTG) (Tedeschi & Calhoun, 1996) is one plausible outcome of adjustment processes following diagnosis of HIV. PTG refers to the perception of positive changes following adverse events (e.g., diagnosis of a terminal illness or natural disaster). PTG is likely to occur when an individual goes through the arduous process of re-evaluating and reconstructing his or her basic assumptions about life and the world in the aftermath of devastating events (Calhoun & Tedeschi, 1998, 2006; Janoff-Bulman, 2004).

<sup>1</sup>South: AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV.

<sup>2</sup> Deep South: AL, GA, LA, MS, NC, SC.

Survivors of highly challenging events may experience distress (i.e., depression, anxiety), growth, or both (Tedeschi & Calhoun, 1996; Calhoun & Tedeschi, 2006; Cordova, et al., 2007; Linley & Joseph, 2004). Temporal relationships may influence the development and maintenance of posttraumatic growth, including individual differences, cognitive and emotional processing, social network, and culture (Calhoun & Tedeschi, 2004; Tedeschi & Calhoun, 2004). Recent data suggest that PTG may involve a shift from intrusive cognitive processing and negative emotionality of the event to more deliberate, reflective cognitive and emotional engagement (of the event over time) (Nightingale, Sher, & Hansen, 2010a, 2010b).

Measured by the Posttraumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996), posttraumatic growth is assessed across five domains: personal strength (e.g., self-reliance, ability to accept how things turn out), relating to others (compassion, stronger bonds with loved ones), appreciation of life (rethink values and priorities, attempt to live each day more fully), spiritual change (reevaluate spiritual beliefs, connect with spiritual foundation), and new possibilities (make choices in more conscious manner, ability to change things that need changing).

PTG has been differentiated from resilience by Tedeschi and Kilmer (2005) in that PTG represents transformative changes in one's perception of self, others, and philosophy of life; whereas, resilience may not necessarily mean transformative change. PTG has been significantly associated with socioeconomic status, racial/ethnic minority status, approach coping strategies, religious/spiritual orientation, social support, optimism, openness to experience, cognitive appraisal, cognitive processing, and affect variables (Linley & Joseph, 2004).

Among people living with HIV (PLWH), large proportions of samples (59% to 83%) have endorsed positive changes post-diagnosis (Milam, 2004; Siegel & Schrimshaw, 2000). Many studies have shown that women and racial/ethnic minorities (African American and Hispanic/Latino) report more PTG than men and European Americans, respectively (Littlewood, Vanable, Carey, & Blair, 2008; Milam, 2006; Siegel & Schrimshaw, 2007). A recent meta-analysis demonstrated that gender differences do not moderate the relationship between PTG and positive mental health (Sawyer, Ayers, & Field, 2010). In terms of ethnicity, studies with larger proportions of ethnic minorities (>25%) in the sample demonstrated a stronger relationship between PTG and positive mental health; whereas, samples with predominantly European American participants showed a stronger relationship between PTG and negative mental health (Sawyer, Ayers, & Field, 2010). It has been suggested that differences in sociocultural resources (e.g., family, religion, spirituality) among African American women may promote more existential changes and high rates of positive emotional outcomes (Milam, 2006; Sawyer, Ayers, & Field, 2010; Siegel & Schrimshaw, 2007). To date, the relationship between race/ethnicity and PTG remains unclear, especially given the negative social (racism, discrimination), economic, and health outcomes historically experienced by racial/ethnic minority groups.

PTG has been associated with an increased likelihood of engaging in health-promoting behaviors, such as physical activity, healthy eating, as well as reduced drug and alcohol use (Klimas, Koneru, & Fletcher, 2008; Littlewood, Vanable, Carey, & Blair, 2008; Milam, 2004). Posttraumatic growth is related to long-term emotional functioning among PLWH, specifically, lower depression has been associated with baseline reports of PTG and gains in PTG over time (Milam, 2004). Additionally, PTG appears to be a protective factor against HIV disease progression. For example, Bower, Kemeny, Taylor and Fahey (1998) found that PTG was associated with greater immune functioning (i.e., less rapid decline in CD4 cell count) and lower rates of AIDS-



related mortality over time among men diagnosed with HIV/AIDS. It should be noted that generalization of findings among PLWH is limited because investigators made significant changes to the PTGI (i.e., reduced to 11-items, and changed wording of response to reflect both choices related to an increase or decrease in each characteristic (Milam, 2004, 2006).

Most of the studies examining PTG among PLWH were conducted among European American men, in major metropolitan areas, and/or with modified versions of the PTGI. Findings from these studies may not generalize to samples of African Americans, particularly those living in the Deep South where the epidemic has been described as comparable to that seen in third world countries in terms of economic and sociocultural context (Whetten & Reif 2006). Given evidence that PTG may be a protective factor against HIV disease progression and have significant influence on engagement in health-promoting behaviors, further investigation of factors associated with PTG is warranted, particularly among African Americans who live in underserved, under-resourced areas and experience significant sociocultural, psychiatric, and HIV-related disparities. This study is exploratory in nature and will contribute to the scientific understanding of the relationships between demographic, psychosocial, and behavioral variables and posttraumatic growth among HIV-positive African Americans in the Deep South/South.

## **Method**

### **Participants**

Fifty-one individuals were screened and completed a questionnaire packet; 6 were excluded from analyses due to acknowledging a non-African American racial/ethnic status. The final sample was comprised of 45 African American participants recruited from two AIDS service organizations in central Mississippi. Inclusion criteria for the study were as follows: 1) diagnosed with HIV; 2) at least 18 years of age; 3) resident of the Jackson metropolitan area; and 4) English is a primary language, sufficient knowledge of written and oral English to complete study materials. Recruitment occurred from February 2008 – May 2008. Participants were compensated with a \$10.00 gift card. The Jackson metropolitan area is comprised of five counties, one of which includes Jackson, the state capital. According to the 2010 U. S. census, 80% of the residents of Jackson are African American, 18% European American, 1.6% Latino, 0.4% Asian, and 0.1% Native American, and the median income per household is \$34,567, with 28% of residents living below poverty level (U.S. Census Bureau, 2010).

### **Procedures**

After receiving Institutional Review Board approval from a local university, flyers were posted at two AIDS service organizations in the Jackson metropolitan area that serve individuals infected with HIV. The announcements described the study, specified the data collection site, and provided contact information. Callers were assured that their responses were confidential. Each participant was assigned a study number to ensure confidentiality. Informed consent was obtained from all participants. Participants were informed about the nature of the study and the opportunity to withdraw at any time. Administration of the instruments took approximately 25 minutes. All instruments were maintained in a locked and secure area.

### **Instruments**

**Sociodemographic questionnaire.** This instrument obtained background information regarding participants' socioeconomic status, education, marital status, sexual orientation, and HIV/AIDS disease status.

Participants were asked to recall their most recent CD4 cell count and HIV RNA viral load. Single items were used as indicators of religious and health behaviors. Church attendance was rated on a 4-point scale ranging from 0 (*none*) to 3 (*1 to 3 times per week*). Participants rated the extent to which they believed they ate a healthy diet on a 7-point scale ranging from 1 (*never*) to 7 (*all of the time*). Participants indicated how often they exercised per week on a 4-point scale ranging from 0 (*never*) to 3 (*every day*). Cigarette use was rated on a 5-point scale ranging from 0 (*never*) to 4 (*more than a pack a day*). Alcohol consumption in the past three months was determined on a 7-point scale ranging from 1 (*never*) to 7 (*every day*). Use of any illicit drugs in the previous three months was rated with a *No/Yes* item. Sexual behavior in the past 12 months was rated on a 4-point scale ranging from 0 (*none*) to 3 (*1 to 3 times per week*). Frequency of condom use was rated on an 8-point scale ranging from 0 (*not sexually active*) to 7 (*all the time*).

**Posttraumatic Growth Inventory (PTGI).** The PTGI<sup>12</sup> is a 21-item instrument measuring participants' experiences of positive outcomes after trauma. Participants indicate the extent to which they have experienced the change associated with each item. The 6-point Likert scale ranges from 0 (*no change*) to 5 (*a great degree*). For example, "I did not experience this change as a result of my crisis," through, "I experienced this change to a very great degree as a result of my crisis." With a maximum score of 105, higher scores indicate a greater degree of perceived growth. Statistically, the instrument ( $\alpha = .90$ ), as well as the factors, showed good internal consistency (Personal Strength,  $\alpha = .72$ ; Relating to Others,  $\alpha = .85$ ; Appreciation of Life,  $\alpha = .67$ ; New Possibilities,  $\alpha = .84$ ; Spiritual Change,  $\alpha = .85$ ).

**Multidimensional Scale of Perceived Social Support (MSPSS).** The MSPSS (Zimet, Dahlem, Zimet, & Farley 1988) is a 12-item self-report instrument designed to measure perceived adequacy of support from three different sources: family, friends, and significant other. Items are rated on a 7-point Likert scale ranging from *very strongly disagree* to *very strongly agree*. Total scores range from 0 to 84, and from 0 to 28 for each subscale. Good internal reliability ( $\alpha = .88$ ) and test-retest reliability ( $\alpha = .85$ ) were found for the scale with the initial validation sample of university students. The subscales also produced good internal reliability, Family  $\alpha = .87$ , Friends  $\alpha = .85$ , and Significant Other  $\alpha = .91$ , as well as test-retest reliability  $\alpha = .85$ ,  $.75$ , and  $.72$ , respectively.

**Brief Symptom Inventory-18 (BSI-18).** The BSI-18 (Derogatis, 2000) is an 18-item instrument designed to measure psychological distress among adults in community and medical settings. Empirically derived from the Brief Symptom Inventory and Symptom Checklist-90-R, the BSI-18 assesses global distress (i.e., global severity index) as well as dimensions of depression, somatization, and anxiety with six items on each subscale. Participants rate their level of distress over the past week using a five-point Likert scale 0 (*not at all*) to 4 (*extremely*). Raw scores were converted to T-scores and compared to a standardized community sample. The recommended cut-off score, indicating a clinically significant level of distress, is 63 or higher (90<sup>th</sup> percentile).

**Coping Self-Efficacy Scale (CSE).** The CSE (Chesney, Neilands, Chambers, Taylor, & Folkman, 2006) measures an individual's perceived ability to cope with life challenges or threats. On the 26-item instrument participants were asked, "When things aren't going well for you, or when you're having problems, how confident are you that you can do the following." The participants were asked to rate several coping behaviors across three domains (i.e., problem-focused, emotion-focused, and support-seeking) on an 11-point Likert scale from 0 (*cannot do at all*) through 5 (*moderately certain can do*) to 10 (*certain can do*). The scale showed good internal consistency ( $\alpha = .95$ ).

## Data Analysis

This study employed a cross-sectional, convenience sample design whereby community participants completed short questionnaires. Prior to bivariate analyses, the data set was evaluated for accuracy of data entry and missing values. Marital status was reduced to a binary outcome: single, never married (*no/yes*). Correlational analyses were conducted to determine the associations between PTG and demographic, psychosocial, and behavioral variables. To examine the association between PTG and categorical variables, we conducted Spearman's rho correlation analyses, and used Pearson correlation analyses for continuous variables. Independent samples t-tests were conducted to examine gender differences on PTG as well as psychological distress, social support, and coping self-efficacy. The significance level for all analyses was set at  $p \leq 0.05$ . IBM Corporation statistical software SPSS version 20 was used to analyze the data.

## Results

### Sample characteristics

**Demographic.** Participants were mostly female ( $n = 27$ ) and average age was 38 years ( $SD = 9.36$ ). Many were unemployed ( $n = 24$ ) and lived in poverty as 29 participants reported an annual household income below \$10,000. The majority of the participants ( $n = 38$ ) had been diagnosed with HIV for two or more years. Twenty-five participants reported that they were taking antiretroviral medications, 37 participants reported CD4 count ( $M = 489.41$ ,  $SD = 246.98$ ), and 34 reported undetectable viral load. See Table 1 for additional demographic and health-related variables.

**Table 1. Demographic and health-related variables ( $N = 45$ )**

	<i>N</i>	%	<i>M</i>	<i>SD</i>
<i>Demographic variables</i>				
Gender				
Male	18	40		
Female	27	60		
Age			38.00	9.36
Employment status				
Unemployed	24	56		
Part-time	9	21		
Full-time	10	23		
Education				
Less than high school	22	50		
High school (or GED)	17	39		
More than high school	5	1		
Marital Status				
Single, not dating	19	42		
Single, but dating	13	29		
Married	2	4		
Divorced	7	16		
Separated	4	9		
Previous year gross income ( $n = 43$ )				



<\$5,000	23	54		
\$5,000-\$9,999	6	14		
\$10,000-\$14,999	10	23		
\$15,000-\$24,999	2	5		
\$25,000+	2	5		
Sexual orientation				
Heterosexual	10	22		
Gay male	5	11		
Bisexual male	4	9		
Heterosexual female	20	44		
Bisexual female	6	13		
<i>Health-related variables</i>				
AIDS diagnosis ( $n = 40$ )	15	38		
Antiretroviral therapy ( $n = 44$ )				
Yes, always on	18	41		
Yes, recently started	7	16		
No, never on	16	36		
No, recently stopped	3	7		
Years since HIV diagnosis ( $n = 43$ )				
0-3 months	2	5		
3-6 months	1	2		
1-2 years	2	5		
2-5 years	11	26		
5-9 years	12	28		
More than 10 years	15	35		
CD4 count ( $n = 37$ )			489.41	246.98
Undetectable viral load	34	76		
Detectable viral load	11		850.00	3003.12

**Behavioral.** Twenty-nine participants reported attendance or involvement in church-related activities at least once a month. Many participants endorsed difficulty maintaining a healthy diet (endorsed *most of the time* to *seldom*;  $n = 28$ ). Most respondents ( $n = 33$ ) reported engaging in physical activity at least 1-2 times per week. In terms of substance use, 23 reported smoking cigarettes daily, 19 reported alcohol consumption within the past 3 months, and 14 endorsed illicit drug use in the past 3 months. The majority ( $n = 39$ ) of the participants were sexually active, and 25 reported frequency of condom use ranging from *moderately* to *seldom*. See Table 2 for frequencies of social, health, sexual, and substance use behaviors.

**Table 2. Behavioral characteristics ( $N = 45$ )**

	<i>N</i>	%
Church attendance		
1-3 times week	10	22

1-3 times month	19	42
1-3 times year	11	24
None	5	11
Healthy diet ( $n = 42$ )		
All the time	6	14
Often	5	12
Most of the time	11	26
Inconsistently	10	24
Sometimes	4	10
Seldom	3	7
Never	3	7
Physical activity ( $n = 42$ )		
1-2 times week	33	79
Never	9	21
Cigarette use ( $n = 42$ )		
More than a pack a day	1	2
One pack a day	9	21
Half a pack	8	19
Less than half a pack	5	12
Never	19	45
Alcohol consumption in past 3 months ( $n = 42$ )		
Daily	4	10
Often	2	5
3-4 times week	2	5
Sometimes	3	7
3-4 times month	8	19
Seldom	4	10
Never	19	45
Illicit drug use in past 3 months ( $n = 40$ )		
Yes	14	35
No	26	65
Sexual behavior		
1-3 times week	18	40
1-3 times month	12	27
1-3 times year	9	20
None	6	13
Condom use		



All the time	17	38
Moderately	2	4
Often	4	9
Inconsistently	12	27
Sometimes	2	4
Seldom	3	7
Never	2	4
Not sexually active	3	7

**Psychosocial.** Twenty-three participants endorsed a moderate to high degree of posttraumatic growth (i.e., scores at or above the 50<sup>th</sup> percentile, range = 83-104). The average PTGI total score was 73.42 ( $SD = 27.70$ ). In terms of psychological distress, approximately half ( $n = 22$ ) of the sample endorsed significant distress as evidenced by BSI-18 scores that exceeded the 90<sup>th</sup> percentile and cutoff point (i.e., BSI-18 global severity index T score  $\geq 63$ ). On BSI-18 subscales, 18 participants had significant problems with somatization, 20 reported significant depressive symptoms, and 17 reported difficulty with anxiety symptoms (data not shown). Twenty-four participants reported a moderate to high degree of perceived social support (total scores at or above 50<sup>th</sup> percentile, range = 54-84). On average, participants perceived the most social support from significant others ( $M = 19.20$ ,  $SD = 8.67$ ). Twenty-three participants reported a moderate to high degree of coping self-efficacy (total scores at or above 50<sup>th</sup> percentile, range = 162-252). Mean scores for the coping self-efficacy subscales were highest for problem-focused coping strategies, followed by emotion-focused and support-seeking strategies. See Table 3 for means and standard deviations of total and subscales for PTG, psychological distress, perceived social support, and coping self-efficacy.

**Table 3. Mean scores and standard deviations of posttraumatic growth and psychosocial factors**

Variable	<i>M</i>	<i>SD</i>	Range	
			Potential	Actual
Posttraumatic growth	73.42	27.70	0-105	0-104
Relating to others	23.29	9.32	0-35	0-35
New possibilities	17.53	6.91	0-25	0-25
Personal strength	14.38	5.65	0-20	0-25
Spiritual change	7.00	3.17	0-10	0-10
Appreciation of life	11.00	4.36	0-15	0-15
Psychological distress <sup>3</sup>	60.80	12.36	0-80	33-80
Somatization <sup>3</sup>	58.93	11.88	0-80	41-80
Depression <sup>3</sup>	60.36	10.93	0-80	40-79
Anxiety <sup>3</sup>	58.78	13.74	0-80	38-80
Perceived social support	51.09	22.76	0-84	12-84
Significant other	19.20	8.67	0-28	4-28

Family	15.98	8.52	0-28	0-28
Friends	15.91	8.90	0-28	0-28
Coping self-efficacy	153.69	70.70	0-260	5-252
Problem-focused	67.71	32.67	0-120	0-112
Emotion-focused	52.62	26.70	0-90	0-90
Support-seeking	31.18	13.99	0-50	3-50

Note: <sup>3</sup>Normalized T-scores with normal range,  $M = 50$  ( $SD = 10$ ).

### Correlates of PTG

**Demographic.** Age was significantly correlated with the PTGI total score and the New Possibilities and Personal Strength subscales. Positive correlates of PTGI total score included age, education, and income. PTG was unrelated to gender, and there were no differences in PTGI total scores for men and women in the sample ( $t(43) = -.77, p = .45$ ). No associations were found between PTG and sexual orientation or marital status (i.e., single, never married). See Table 4 for correlates of the PTGI total score and subscales with demographic, psychosocial, and behavioral variables.

**Behavioral.** The New Possibilities subscale was positively correlated with physical activity, healthy eating, and church attendance. The PTGI total and all of the subscale scores were significantly, negatively related to cigarette use, alcohol use, and illicit drug use. Sexual behavior in the past 12 months was inversely associated with appreciation of life.

**Psychosocial.** Statistically significant negative relationships were found between the BSI-18 total score and the PTGI total score, as well as PTGI subscales: Personal Strength, Spiritual Change, and Appreciation of Life. Most of the PTGI total and each of the subscale scores had significant, negative relationships with BSI-18 depression and anxiety subscales. PTG was positively correlated with the total score and all subscales on both the measure social support (range = .38 - .68) and coping self-efficacy (range = .60 - .86). There were no significant gender differences on psychological distress ( $t(43) = .35, p = .73$ ), social support ( $t(43) = -1.20, p = .24$ ), or coping self-efficacy ( $t(43) = -1.19, p = .24$ ).

**Table 4. Correlates of posttraumatic growth**

Variable	PTGI Total	Relatin g to Others	New Possibiliti es	Person al Strengt h	Spiritual Change	Appreciati on of Life
<i>Demographic</i>						
Gender	.04	.06	.08	.07	.08	.00
Age	.30*	.29	.35*	.31*	.24	.17
Education	.33*	.38*	.24	.22	.39**	.32*
Employment	.34*	.47**	.30	.19	.34*	.21
Income	.33*	.42**	.24	.25	.33*	.32*

Single, never married	.13	.11	.15	.14	.06	.04
Sexual orientation	.01	.04	-.12	.05	.00	.09
<i>Health behaviors</i>						
Cigarettes	-.49**	-.57**	-.37**	-.40**	-.59**	-.39*
Physical activity	.19	.16	.32*	.15	.16	.11
Healthy eating	.26	.24	.32*	.25	.16	.17
Alcohol use	-.49**	-.45**	-.51**	-.36*	-.58**	-.33*
Illicit drugs	-.51**	-.54**	-.52**	-.39*	-.55**	-.36*
Condom use	.23	.27	.13	.28	.17	.16
Church attendance	.44**	.39**	.49**	.34**	.39**	.39**
Sexual behavior	-.11	-.00	-.20	-.05	-.06	-.31*
<i>Psychosocial factors</i>						
Psychological Distress (total)	-.35*	-.29	-.28	-.35*	-.44**	-.36*
Somatization <sup>3</sup>	-.09	-.40	-.05	-.11	-.18	-.10
Depression <sup>3</sup>	-.45**	-.36*	-.39**	-.45**	-.54**	-.47**
Anxiety <sup>3</sup>	-.36*	-.31*	-.29	-.36*	-.46**	-.34*
Social Support (total)	.66**	.68**	.60**	.59**	.62**	.52**
Significant other	.65**	.65**	.61**	.59**	.59**	.58**
Family	.55**	.58**	.51**	.50**	.53**	.38*
Friends	.52**	.55**	.46**	.46**	.49**	.39**
Coping Self-Efficacy (total)	.86**	.86**	.80**	.81**	.81**	.66**
Problem-focused	.77**	.75**	.73**	.72**	.70**	.60**
Emotion-focused	.83**	.83**	.76**	.78**	.80**	.65**
Support-seeking	.82**	.84**	.76**	.79**	.77**	.60**

Note: Pearson  $r$  and Spearman's rho, two-tailed. PTG is a continuous score with high scores indicating positive changes since diagnosis. \* $p < .05$ . \*\* $p < .01$ .

## Discussion

African Americans living in the Southern region of the U.S., especially the Deep South, face significant challenges at every stage of HIV disease with greater incidence, prevalence, and deaths attributed to HIV/AIDS (CDC, 2012; Qian et al., 2006). The sociocultural context of the region, which is characterized by racism, discrimination, poverty, and oppression, is important to consider as African Americans living in the South experience numerous health and socioeconomic disparities that significantly influence HIV prevention, treatment, and care (Whetten & Reif 2006). Interestingly enough, studies have shown that in the midst of poorer socioeconomic, psychological, and physical health outcomes, African Americans tend to report more posttraumatic growth post-diagnosis of HIV. Few studies have examined the factors associated with positive psychological resources, such as posttraumatic growth, among this population, in general, and within the Deep South, in particular. The current study explored relationships between PTG, demographic, psychosocial, and behavioral factors among African Americans living with HIV/AIDS in Mississippi.



It has been suggested that increased reports of growth among ethnic minorities may be related to greater experience in dealing with sociocultural and economic challenges as well as utilization of coping mechanisms that foster positive affect and existential changes (e.g., positive reappraisal, spirituality/religiosity) (Helgeson, Reynolds, & Tomich, 2006; Sawyer, Ayers, & Field, 2010; Siegel & Schrimshaw, 2000). Findings in the present study indicate that African Americans living in underserved, under-resourced settings have the ability to perceive a moderate to high degree of positive changes in the midst of very challenging circumstances.

Religious coping style might be an important factor in the development and maintenance of PTG among African Americans. We found that reports of each domain of PTG were associated with church attendance. Generally related to one's sense of purpose and meaning in life, the Spiritual Change domain was significantly related to several demographic (employment, education, income), behavioral (church attendance, drug, alcohol, and cigarette use [negative]), and psychosocial factors (distress [negative], perceived social support, coping self-efficacy). It is important to note that in the aftermath of traumatic events individuals might also experience decreased or no changes in spirituality.

Older age was associated with New Possibilities and Personal Strength. With age, individuals might be more willing to try new things and recognize their strengths. The only domain of PTG associated with engaging in physical activity and eating a healthy diet was New Possibilities, which is characterized by the development of new interests and activities as well as changes in perceived significance of one's path in life. Both of these activities are very important in management of chronic diseases, including HIV. Additionally, PTG was associated with a greater likelihood of engaging in health-enhancing behaviors, such as abstinence from drugs and alcohol and reduced cigarette smoking. Larger scale studies are needed to further understand the determinants of PTG.

In terms of the relationship between growth and distress, findings in the current study showed negative associations between posttraumatic growth and psychological distress. Thus, persons who perceived positive life changes were less likely to be in significant distress. Moreover, one's confidence in his or her ability to utilize problem-solving, emotion-focused, and support-seeking coping strategies might be important in facilitating PTG. Coping self-efficacy has been identified as an important factor in posttraumatic recovery following natural disasters, terrorist attacks, being in a war zone, sexual and physical assault, and diagnosis and/or treatment of cancer (Benight & Bandura, 2004; Stanton, Bower, & Low, 2006).

There are several limitations of the current study. The study employed a cross-sectional design and, thereby, cannot infer causality. Given the targeted nature of study recruitment, the generalizability of the findings is limited to African Americans living with HIV in a single metropolitan area. Also, the sample size is relatively small with some potential participants possibly unable to participate for reasons, such as lack of personal transportation and distance from study site. The relationship between PTG and numerous variables might be underestimated due to the small sample size. Additionally, no significant results were found between PTG and biomedical markers, which might be due, in part, to reliance on self-report measures compared to objective measures (i.e., medical chart review). Another limitation is that the study questionnaire did not assess mode of HIV transmission (i.e., heterosexual sex, injecting drug use, anal intercourse), which may have important implications for the development of PTG. Also, we do not have additional information regarding the reasons that some participants were not taking antiretroviral medications. For instance, there is no way to determine whether the decision to stop taking medication was initiated by the prescribing physician or the



patient. Perceived barriers to medical care were not assessed in the current study. This is an important factor to consider in an underserved, under-resourced setting, and should be addressed in future research. Lastly, it should be noted that the majority of participants in this sample have been living with HIV/AIDS for at least two years. Thus, the sample is likely to be comprised of persons who are more skilled at navigating complex healthcare systems, developing or maintaining quality social support networks, and/or managing HIV-related distress.

In conclusion, empirical research among ethnic minorities living with HIV generally has focused more on poor outcomes, rather than strengths and positive changes. PTG has been positively associated with numerous health-enhancing behaviors and positive psychosocial characteristics. Both negative and positive psychosocial factors associated with HIV treatment and medical care are amenable to change, and novel targets and strategies utilizing evidence- and strengths-based approaches are now considered necessary to improve treatment outcomes, particularly among ethnically-diverse groups. Garnering a more in-depth understanding of the pathways to positive outcomes post-diagnosis of HIV/AIDS will aid the development of clinical interventions that not only result in reduction of distress, but also promote psychological well-being and safe health practices.

### References

- Benight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behaviour Research and Therapy*, 42, 1129-1148. doi: 10.1016/j.brat.2003.08.008
- Brief, D. J., Bollinger, A. R., Vielhauer, M. J., Berger-Greenstein, J. A., Morgan, E. E., & Brady, S. M., et al. (2004). Understanding the interface of HIV, trauma, post-traumatic stress disorder, and substance use and its implications for health outcomes. *AIDS Care*, 16(Suppl.), 97-120. doi: 10.1080/09540120412301315259
- Bower, J.E., Kemeny, M.E., Taylor, S. E., & Fahey, J.L. (1998). Cognitive processing, discovery of meaning, CD4 decline, and AIDS-related mortality among bereaved HIV-seropositive men. *Journal of Consulting and Clinical Psychology*, 66, 979-986. doi: 10.1037/0022-006X.66.6.979
- Calhoun, L.G., & Tedeschi, R. G. (1998). Beyond recovery from trauma: Implications for clinical practice and research. *Journal of Social Work Issues*, 54, 357-371. doi: 10.1111/j.1540-4560.1998.tb01223.x
- Calhoun, L. G., & Tedeschi, R. G. (2004). The foundations of posttraumatic growth: New considerations. *Psychological Inquiry*, 15, 93-102.
- Calhoun, L.G., & Tedeschi, R. G. (2006). The foundations of posttraumatic growth: An expanded framework. In L. G. Calhoun, & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and practice* (pp. 138-175). Mahwah, NJ: Erlbaum.
- Centers for Disease Control and Prevention. (2012). *Estimated HIV incidence among adults and adolescents in the United States, 2007-2010*. HIV Surveillance Supplemental Report, 17(4). Retrieved from <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/index.htm#supplemental>.

- Chesney, M.A., Neilands, T.B., Chambers, D.B., Taylor, J.M., & Folkman, S. (2006). A validity and reliability study of the coping self-efficacy scale. *British Journal of Health Psychology*, 11, 421-437. doi: 10.1348/135910705X53155
- Cordova, M. J., Davis, J. G., Golant, M., Kronenwetter, C., Chang, V., & Spiegel, D. (2007). Breast cancer as trauma: Posttraumatic stress and posttraumatic growth. *Journal of Clinical Psychology in Medical Settings*, 14, 308-319. doi: 10.1007/s10880-007-9083-6
- Davis, A., Gardner, B. B. & Gardner, M. R. (2009). *Deep South: A social anthropological study of caste and class*. Columbia: University of South Carolina Press. Available from <http://books.google.com/books> (Original work published 1941, Chicago: University of Chicago Press)
- Deep South. (n.d.). In *Merriam-Webster's online dictionary* (11<sup>th</sup> ed.). Retrieved from <http://www.merriam-webster.com/dictionary/deepsouth>.
- Derogatis, L. R. (2000). *Brief Symptom Inventory 18 (BSI 18) administration, scoring, and procedures manual*. Minneapolis: Pearson.
- Gore-Felton, C., & Koopman, C. (2008). Behavioral mediation of the relationship between psychosocial factors and HIV disease progression. *Psychosomatic Medicine*, 70, 569-574. doi: 10.1097/PSY.0b013e318177353e.
- Helgeson, V. S., Reynolds, K. A., & Tomich, P.L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology*, 74, 797-816. doi: 10.1037/0022-006X.74.5.797
- Janoff-Bulman, R. (2004). Posttraumatic growth: Three explanatory models. *Psychological Inquiry*, 15, 30-34. doi: 10.1207/s15327965pli1501\_02
- Kelly, B., Raphael, B., Judd, F., Perdices, M., Kernutt, G., Burnett, P., et al. (1998). Posttraumatic stress disorder in response to HIV infection. *General Hospital Psychiatry*, 20, 345-352. doi: 10.1016/S0163-8343(98)00042-5
- Klimas, N., Koneru, A. O., & Fletcher, M. A. (2008). Overview of HIV. *Psychosomatic Medicine*, 70, 523-530. doi: 10.1097/PSY.0b013e31817ae69f
- Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Traumatic Stress*, 17, 11-21. doi: 10.1023/B:JOTS.0000014671.27856.7e
- Littlewood, R. A., Vanable, P. A., Carey, M. P., & Blair, D. C. (2008). The association of benefit finding to psychosocial and health behavior adaptation among HIV+ men and women. *Journal of Behavior Medicine*, 31, 145-155. doi: 10.1007/s10865-007-9142-3
- Merriam-Webster's online dictionary* (11<sup>th</sup> ed.). (2013). Springfield, MA: Merriam-Webster. Retrieved from <http://www.merriam-webster.com/dictionary/deepsouth>

- Milam, J. E. (2004). Posttraumatic growth among HIV/AIDS patients. *Journal of Applied Social Psychology*, 34, 2353-2376. doi: 10.1111/j.1559-1816.2004.tb01981.x
- Milam, J. (2006). Posttraumatic growth and HIV disease progression. *Journal of Consulting and Clinical Psychology*, 74, 817-827.
- Nightingale, V. R., Sher, T. G., & Hansen, N. B. (2010a). The impact of receiving an HIV diagnosis and cognitive processing on psychological distress and posttraumatic growth. *Journal of Traumatic Stress*, 23, 452-460. doi: 10.1002/jts.20554
- Nightingale, V. R., Sher, T. G., & Hansen, N. B. (2010b). Cognitive processing, rumination, and posttraumatic growth. *Journal of Traumatic Stress*, 24, 85-92. doi:10.1002/jts.20606
- Qian, H., Taylor, R. D., Fawal, H. J., & Vermund, S. H. (2006). Increasing AIDS case reports in the South: U.S. trends from 1981-2004. *AIDS Care*, 18(Suppl. 1), 6-9. doi: 10.1080/09540120600839074
- Sawyer, A., Ayers, S., & Field, A. P. (2010). Posttraumatic growth and adjustment among individuals with cancer or HIV/AIDS: A meta-analysis. *Clinical Psychology Review*, 30(4), 436-447. doi: 10.1016/j.cpr.2010.02.004
- Siegel, K., & Schrimshaw, E. W. (2000). Perceiving benefits in adversity: Stress-related growth in women living with HIV/AIDS. *Social Science & Medicine*, 51, 1543-1554. doi: 10.1016/S0277-9536(00)00144-1
- Siegel, K., & Schrimshaw, E. W. (2007). The stress moderating role of benefit finding on psychological distress and well-being among women living with HIV/AIDS. *AIDS Behavior*, 11, 421-433. doi: 10.1007/s10461-006-9186-3
- Stanton, A. L., Bower, J. E., & Low, C. A. (2006). Posttraumatic growth after cancer. In L. G. Calhoun, & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and practice* (pp. 138-175). Mahwah, NJ: Erlbaum.
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9, 455-471. doi: 10.1007/BF02103658
- Tedeschi, R. G., & Calhoun, L.G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, 15, 1-18.
- Tedeschi, R. G., & Kilmer, R. P. (2005). Assessing strengths, resilience, and growth to guide clinical interventions. *Professional Psychology: Research & Practice*, 36, 260-237. doi: 10.1037/0735-7028.36.3.230
- Thompson, S. C., Nanni, C., & Levine, A. (1996). The stressors and stress of being HIV positive. *AIDS Care*, 8(1), 5-14. doi: 10.1080/09540129650125957



U.S. Census Bureau (2010). *Jackson, Mississippi*. Retrieved from  
<http://quickfacts.census.gov/qfd/states/28/2836000.html>

Whetten, K., & Reif, S. (2006). Overview: HIV/AIDS in the Deep South region of the United States. *AIDS Care*, 18(Suppl. 1), 1-5. doi: 10.1080/09540120600838480

Zimet, G.D., Dahlem, N.W., Zimet, S.G., & Farley, G.K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 52, 30-41. doi: 10.1207/s15327752jpa5201\_2