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## Posttraumatic Growth in Treatment-seeking Female Assault Victims

**Anouk L. Grubaugh, Ph.D.** and

Center for Trauma Recovery, University of Missouri-St. Louis, St. Louis, USA; Division of Public Psychiatry, Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, 67 President Street, P.O. Box 250861, Charleston, SC 29425, USA; Ralph H. Johnson Veterans Affairs Medical Center, Charleston, SC, USA

**Patricia A. Resick, Ph.D.**

Center for Trauma Recovery, University of Missouri-St. Louis, St. Louis, USA; Women's Health Sciences Division, National Center for PTSD, Boston, MA, USA; Boston University, Boston, USA

### Abstract

The importance of measuring growth outcomes following a traumatic event has been highlighted in recent literature. Although reports of growth are abundant, the relationship between growth outcomes and post-trauma distress remains unclear, with studies yielding conflicting results regarding this relationship. The purpose of the present study was to explore the interrelationships among growth outcomes and measures of depression and posttraumatic stress disorder (PTSD) among 100 female treatment-seeking physical and sexual assault victims. Although the majority of women reported some degree of growth in this study, and growth scores were comparable to those from other samples, measures of depression and PTSD were not significantly related to growth scores. The implication of these findings and future direction for research are discussed.

### Keywords

Posttraumatic growth; Perceived benefits; Posttraumatic stress disorder (PTSD); Trauma

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There is little doubt that trauma exposure and the associated clinical syndrome of posttraumatic stress disorder (PTSD) affect a significant number of individuals [1,2], are associated with extensive psychiatric comorbidity [2,3], and are linked with impairment across a number of psychosocial domains [4]. Despite this considerable body of research, the concept of posttraumatic growth, or the possibility that an individual can “grow” psychologically from an adverse life event, has gained increased attention in the past few years [5]. Although the term used to describe posttraumatic growth has varied across studies (e.g., “perceived benefits,” “positive psychological changes,” “stress-related growth”) [6-9], the conceptual aim of measuring growth outcomes typically has been to assess whether individuals can in some way move beyond a premorbid level of functioning following a traumatic event [10]. Thus, within the posttraumatic growth framework, an adverse experience is viewed as a potential catalyst for positive psychological and interpersonal change.

Studies examining a variety of adverse experiences such as disasters [11]; child abuse [7]; accidents [12]; rape [13]; cancer [14-16]; and bereavement [17] have found that reports of

growth are common. Altogether, these studies generally have revealed up to five categories of growth outcomes reflecting psychological, interpersonal, and life orientation changes [6,10, 18]. These categories broadly include, but are not limited to, perceived changes in the self such as greater self-efficacy and self-reliance, changed relationships with others, increased spirituality or changes in life philosophy, heightened awareness of new possibilities, and a greater appreciation of life. Consistent with these categories, researchers have documented increased feelings of self-efficacy among bereaved elderly women [19]; greater self-trust and self-worth among rape survivors [7,13]; strengthened relationships with family members and a better perspective on life among parents of at-risk infants [20], a perception of being better able to handle future problems among cancer patients [14]; and an increased appreciation for life and increased religiosity among bereaved spouses and parents [17].

Although reports of growth are common, the relationship between growth outcomes and psychological adjustment is unclear. It seems plausible that the ability to derive growth from a traumatic event could serve to ameliorate the negative psychological effects of the trauma. In support of this view, researchers examining a wide range of stressors have documented an inverse relationship between a number of growth domains and measures of adjustment [11, 14,18,21-26]. However, other studies have yielded mixed support for this relationship [7,13, 27,28], while a third group of studies have failed to find a significant relationship between measures of adjustment and growth [15,17,29,30]. Clearly, additional efforts are needed to clarify the relationship between growth outcomes and measures of adjustment.

The use of study-specific growth outcomes likely has complicated the effort to examine how psychological growth relates to symptom severity. That is, most of the existing literature has relied on qualitative assessments of perceived benefits such as anecdotal reports during interviews (e.g., [19]), or general or brief questions about perceived benefits (e.g., [14,17, 31]). To date, there are fewer studies examining the relationship between growth outcomes and symptom severity using more formal growth instruments, such as the Posttraumatic Growth Inventory (PTGI), that can generalize across samples [15,32-34]. Furthermore, a number of studies have used events that do not necessarily meet DSM-IV [1] diagnostic criteria for a traumatic stressor (e.g., [14,15,17,18,21,29]). This is an important conceptual distinction because medical stressors or bereavement may be qualitatively different than the experience of a traumatic stressor such as a sexual or physical assault.

After narrowing growth outcomes studies to those using events likely to meet DSM-IV diagnostic criteria for a traumatic stressor [7,11,13,23,24,28,32], and to those that included measures of psychopathology [11,13,23,24,30], few studies remain. Far fewer studies remain using the PTGI or a measure of growth than can be compared across samples [28,30]. Because of the frequency with which treatment-seeking trauma victims present with symptoms of PTSD and depression, the relationship between these disorders and growth outcomes is of interest to clinicians and warrants research attention. That is, it is of interest whether or not growth outcomes serve a protective function in this population, and if so, the effects of fostering such outcomes during the recovery process.

The purpose of the present study is to describe reports of growth and to explore the relationship between growth outcomes and symptom severity using a sample of treatment-seeking female physical and sexual assault victims. Comparisons will be made between posttraumatic growth scores and severity and diagnostic measures of PTSD and depression, and our growth findings will be compared to other samples using the PTGI. This study will expand the previous literature by using DSM-IV defined assault, and by including diagnostic interview measures of depression and PTSD, as well as the PTGI. Furthermore, the treatment-seeking women in this sample are self-identified as distressed and in need of services. Thus, they represent a unique subset of trauma survivors within the growth literature.

## Method

### Participants

Participants were 100 (1 participant was removed from the final sample because of missing scores on the PTGI) treatment-seeking adult female assault victims who were part of a larger, ongoing treatment study (NIH-2-R01-MH51509; Dr. Patricia Resick, PI). Participants were primarily self-referred to the project or to the clinic. If self-referred to the clinic, women were told about the research study as a comparable treatment option and were screened appropriately. Referrals also were made through local agencies, therapists, and police departments. Media coverage occasionally was used, as well as fliers. Eligible participants were screened briefly on the telephone to assess eligibility criteria. Inclusion criteria required participants to be at least 3 months post-assault at the time of the first assessment interview. Furthermore, participants were required to identify a discrete physical or sexual assault that met Criterion A for PTSD. Exclusion criteria included psychosis, mental retardation, active suicidality or parasuicidality, current drug or alcohol addiction, or illiteracy. For cases of domestic violence or marital rape, the participant must have been out of the relationship for at least 6 months and could not be experiencing ongoing harassment/stalking.

In the present study, 56.0% of participants identified as Caucasian, 36.0% as African-American, and 8.0% identified as Native Hawaiian, Asian, or "Other." Race and ethnicity were not mutually exclusive and 6.3% of the total sample identified as Hispanic. The average age (SD) of participants at the time of the assessment was 32.34 (11.24) years. In terms of marital status, 57.0% identified as single, 23.0% as married/cohabitating, and 20.0% as separated/divorced/widowed. Household income for this sample ranged from less than \$5000 a year to over \$50,000 with a mean income of \$20,000. Sixty-four percent of the sample presented for treatment due to symptoms related to a sexual assault, while 36.0% identified a physical assault as the presenting trauma. In terms of symptom severity, 90.9% (the majority) of the sample met criteria for current PTSD, 51.5% met criteria for current depression, and 54.4% met criteria for both depression and PTSD, and only two women (2.0%) did not meet criteria for either PTSD or depression.

### Measures

**Beck depression inventory-II (BDI-II: [35])**—The BDI-II is a 21-item self-report scale that is one of the most widely used instruments to measure depression. Total scores range from 0 to 63, with higher scores indicating greater depressive symptomatology. Studies have typically supported the internal reliability (coefficient alpha's > 0.90), test-retest reliability ( $r = 0.93$ ), and convergent validity of the BDI-II ( $r$ 's > 0.50) (see [36]).

**Clinician-administered PTSD scale (CAPS: [37])**—The CAPS is a structured clinical interview that measures the intensity and frequency of the 17 DSM-IV PTSD symptoms and yields both severity and diagnostic scores [1]. Severity scores range from 0 to 136, with higher scores reflecting greater PTSD severity. It has adequate inter-rater reliability (0.92–0.99), internal consistency (0.73–0.85), convergent validity, and overall diagnostic efficiency (0.86) in diagnosing PTSD according to the Structured Clinical Interview for DSM-IV [38]. In the present study, the CAPS was used to obtain current PTSD symptom severity and diagnoses regarding an identified index event. Inter-rater reliability for diagnoses on a subset of 25% of the sample was 1.0.

**Structured clinical interview for DSM-IV-patient version (SCID: [39])**—The SCID is a frequently used and well-validated diagnostic interview based on the DSM-IV. The SCID is used to assess for the presence of mood disorders, anxiety, and substance abuse/dependence. Zanarini and colleagues [40] reported on the inter-rater reliability (0.80) and test-retest

reliability (0.63) of the depression module of the SCID DSM-IV version. For the present study, the SCID was used to obtain current diagnoses of depression, and inter-rater reliability for diagnoses on a subset of 25% of the sample was 0.80.

**Post traumatic growth inventory (PTGI: [41])**—The PTGI is a 21-item self-report instrument for assessing psychological growth following a traumatic event. The PTGI includes factors of New Possibilities (e.g., “Established a new path for my life”), Relating to Others (e.g., “A sense of closeness with others”), Personal Strength (e.g., “Knowing I can handle difficulties”), Spiritual Change (e.g., “I have a stronger religious faith”), and Appreciation for Life (“Appreciating each day”). Scores on the PTGI range from 1 to 126, with higher scores reflecting greater perceived growth. Items on the PTGI range from 1 (“I did not experience this change as a result of my crisis”) to 6 (“I experienced this change to a very great degree as a result of my crisis”). Tedeschi and Calhoun [41] reported a Cronbach’s alpha of 0.90 for the global score. Cronbach’s alphas for the five factor scores ranged from 0.67 to 0.85. The test-retest reliability over a 2-month period for the global score was 0.71. In the present study, Cronbach’s alpha for the PTGI total score was 0.94 and ranged from 0.78 to 0.85 for subscale scores.

**Demographic information**—This is a brief measure developed for previous studies [42] that covers demographic information (i.e., age, race, education, marital status), as well as type of assault experienced and months since the assault.

## Procedures

A graduate research assistant conducted the initial screening for the project on the telephone. During the phone screen, information regarding the characteristics of the crime and potential exclusion criteria was gathered. If the participant met the requirements of the study, she was scheduled for an initial assessment. After complete description of the study to the participants, written informed consent was obtained. This study was conducted with full approval from relevant Institutional Review Boards. The assessments were conducted at the Center for Trauma Recovery at the University of Missouri-St. Louis in two to three sessions up to 1 week apart.

All structured interviews were conducted by a master’s or doctoral level clinician. Structured interview measures included the CAPS and SCID. All CAPS and SCID interviews were audio-taped and 25% were scored by a second rater for reliability. Participants completed self-report measures on a laptop computer, typically during the second day. Self-report measures included the BDI-II and PTGI. Participants were compensated \$50 for their time.

## Results

### Preliminary analyses

**Descriptive statistics**—The inter-item reliability of the PTGI total score and subscales were evaluated by calculating Cronbach’s alphas. The PTGI scale and subscales had high internal reliabilities, ranging from 0.78 to 0.94. Refer to Table 1 for means, standard deviations, and range of each variable included in the analyses.

**Demographic variables**—Age, education, and months since the assault were examined to determine whether they were confounded with the variables of interest (i.e., growth, continuous symptom measures) using bivariate correlations. As Table 2 indicates, age and education were significantly associated with the PTGI total score and the majority of PTGI subscales. For categorical independent variables (i.e., race, marital status, and assault type), a MANOVA was conducted for continuous dependent outcomes (i.e., PTGI and BDI-II scores), and separate

chi-square analyses for categorical outcomes (i.e., race, marital status, and assault type). Race and relationship status were collapsed into two categories due to small cell sizes (Caucasian versus all other and living alone versus with someone). No significant differences emerged on these variables,  $P > 0.05$ .

Because age and years of education were significantly correlated with at least one variable of interest, they were both included as covariates in subsequent analyses. In the hierarchical regressions, these demographic variables were entered together in the first step.

### Primary analyses

**Growth scores**—Based on the response format of the PTGI, growth scores were common in the present sample with only one woman (1.0%) not endorsing any aspect of growth and 22.0% endorsing a *very small*, 32.0% endorsing a *small*, 24.0% endorsing a *moderate*, 11.0% endorsing a *great*, and 10.0% endorsing a *very great* degree of change.

**Symptom severity**—As mentioned in the Method section, 90.9% of the sample met criteria for current PTSD on the CAPS, 51.5% met criteria for current depression on the SCID, and 54.4% met criteria for both depression and PTSD.

**Growth scores and continuous severity scores**—Hierarchical regression analyses were performed in which demographic variables were entered first followed by BDI-II and CAPS total scores in separate analyses. For both regression equations, demographic predictors were statistically significant with older and less educated participants endorsing higher growth scores. However, the inclusion of CAPS and BDI-II scores in the second step was not significant (see Table 3).

**Growth scores across diagnostic groups**—Because the majority of the sample met criteria for either or both PTSD and depression, only two groups could be compared. A one-way ANCOVA was conducted to compare growth scores between women with PTSD only and those with both PTSD and depression. Growth scores were entered as the dependent variable and diagnostic group (PTSD and PTSD/Depression) was entered as the independent variable. Age and education were entered as covariates. After adjustment of covariates, growth scores were not found to significantly distinguish the PTSD ( $M = 67.03$ ;  $SD = 25.53$ ) from the PTSD/Depression ( $M = 61.63$ ;  $SD = 26.85$ ) group,  $F(1, 85) = 1.91$ ,  $P = 0.17$ , partial Eta squared = 0.02 ( $N = 40$  for PTSD and  $N = 49$  for PTSD/Depression groups).

**Degree of growth reported**—Because 45% of participants reported at least a moderate degree of growth from their experiences, cut-off scores for growth were created, thus allowing for a more thorough analysis of the variables of interest. A histogram was used to examine logical cut-off scores for participants identified as “high” and “low” growth reporters. The mean for the sample was 64.04, and “high” growth reporters were identified as those with scores of 85 or higher, while “low” growth reporters were identified as those with scores of 30 or less. The results of two one-way ANOVAs using separate symptom measures as the dependent variables (i.e., BDI-II, CAPS) yielded nonsignificant group differences,  $F(1, 25) = .78$ ,  $P = 0.39$ , partial Eta squared = 0.03; and  $F(1, 27) = 0.45$ ,  $P = 0.51$ , partial Eta squared = 0.02, respectively. Samples sizes ranged from 8 to 9 in the “low” group and 19 to 20 in the “high” group.

**Comparisons across samples**—Because the PTGI has not been used in an adult treatment-seeking assault sample, mean scores on this measure were compared to other samples (see Table 4) using the PTGI scores for which the means and standard deviations were available. Overall, participants in this sample reported total growth outcome scores that were

in the midrange compared to other samples. Specifically, our scores were higher than a mixed trauma sample and a group of Holocaust survivors, but lower than another mixed trauma sample and a group of bereaved parents.

## Discussion

To date, research has yielded mixed results regarding the relationship between growth outcomes and symptom severity. The extant literature on this topic has failed to yield consistent conclusions regarding the construct of growth and its relationship to functioning, and more study on this construct is needed before definitive conclusions can be made. Further, studies using treatment-seeking samples, a unique subset of those who have experienced a trauma, are lacking. The present study expanded efforts to examine the relationship between growth and distress using a diverse sample (56.0% Caucasian and 36.0% African American) of 100 treatment-seeking adult female sexual and physical assault victims.

Results revealed a non-significant direct relationship between growth outcomes and measures of depression and PTSD. The only significant relationships to emerge in this sample were between growth scores and the demographic variables of age and education. The finding that older individuals tend to report more growth from adverse experiences has been cited in prior research [7,33]. Conversely, age at the time of the interview was negatively associated with growth scores among bereaved parents [34]. However, the authors caution that the weak trend for older participants to report less benefit could be due to the high PTGI scores from two younger participants. Thus, there is some indication that the passage of time can foster the perception that one has grown from a traumatic event. The meaning of the finding that education was negatively correlated with growth scores is unclear. Perhaps those with less education are more likely to see the “silver lining” from negative events. Although two other studies found a negative relationship between measures of growth and education [43,44], the latter of these used a sample with a restricted income range. Thus, additional studies should examine this relationship using the PTGI in order to make definitive conclusions regarding this finding.

The present study supports a small, but growing body of literature suggesting that growth and symptom severity may be independent of one another [15,17,29,30]. It is not impossible to conceive that individuals may report some gains as a result of their trauma while still experiencing significant distress. That is, both growth outcomes and psychopathology can co-exist. Significant distress could in fact motivate a subset of individuals to create meaning from their experiences that helps to balance out the losses they have experienced. In their conceptual overview of growth, Tedeschi and Calhoun [45] assert that there may not be a direct relationship between these constructs. They further state that this lack of relationship is not a limitation of the growth construct, as growth is simply not the same as a decrease in distress or an increase in well-being.

Although it could be argued that the severity of distress endorsed by the treatment-seeking women in the present study limited possible growth outcomes, these women did report at least moderate levels of growth as a result of their trauma. Further, reports of growth in this sample were comparable to other, potentially less distressed samples. The overall presence of high levels of symptomatology (i.e., 90.9% of the sample met criteria for PTSD and 51.5% met criteria for current depression) and moderate reports of growth in the whole sample, as well as the results of dividing the sample into “low” and “high” growth reporters, provides further evidence that growth and symptom severity may not be directly related.

Despite the lack of a significant relationship between growth outcomes and symptom severity in this sample, a number of caveats should be noted. First, as mentioned above, the present

sample consists of distressed treatment-seeking women. Thus, there is a restricted range of symptom scores. Further, many of the women in this sample appear to be suffering from chronic trauma-related symptoms, which are likely to impact reports of growth. It would be worthwhile to examine the relationships explored above after these women have completed treatment. It is anticipated that there would be a greater range of symptom scores post-treatment, and that the treatment process itself would affect growth scores. Future studies also should attempt to replicate the present findings using similar methodological criteria and assessment measures. Comparisons of pre-to post-treatment changes, as well as the inclusion of a comparison sample of participants who experienced a traumatic event, but did not develop clinically significant symptoms, would add significantly to the growth literature.

This study lends support to the body of findings suggesting that growth and distress may not be directly related to one another. Theoretically, it may be of sufficient interest that despite the presence of significant symptoms, growth may occur. Although perceiving growth outcomes may not be significant in terms of promoting health as defined by the absence of particular symptoms, it is likely of critical importance in one's broader quest for understanding personal and significant life events.

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**Table 1**

## Descriptives

	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>
<i>Demographic variables</i>				
Age	99	32.34	11.24	38.0
Years of education	100	14.15	2.89	16.0
Months since assault	100	137.36	155.05	564.53
<i>Symptom measures</i>				
BDI-II total score	95	25.56	11.13	47
CAPS total score	99	70.25	21.25	110
<i>Posttraumatic growth inventory subscales</i>				
Growth total score	100	64.04	26.62	105.0
(F1) New possibilities	100	14.09	7.01	25.0
(F2) Relating to others	100	19.95	9.44	35.0
(F3) Personal strength	100	12.88	5.87	20.0
(F4) Appreciation for life	100	11.29	4.64	15.0
(F5) Spiritual change	100	5.83	3.88	10.0

**Table 2**

Intercorrelations between demographic variables and variables of interest

Variable	1	2	3	4	5	6	7	8	9	10	11
(1) Age	-	0.20	0.55*	0.02	-0.02	0.25*	0.28**	0.19	0.22*	0.13	0.29**
(2) Years education		-	0.23*	0.12	0.01	-0.24*	-0.14	-0.25*	-0.27*	-0.19	-0.14
(3) Months since assault			-	0.03	-0.15	-0.04	-0.01	-0.04	0.02	-0.14	-0.004
(4) BDI-II total				-	0.59**	-0.13	-0.17	-0.04	-0.14	-0.07	-0.18
(5) CAPS total					-	0.01	-0.04	0.05	-0.07	0.09	0.03
(6) PTGI total						-	0.89**	0.90**	0.86**	0.84**	0.76**
(7) Possibilities							-	0.72**	0.71**	0.69**	0.68**
(8) Relating to others								-	0.67**	0.72**	0.55**
(9) Personal strength									-	0.68**	0.65**
(10) Appreciation for life										-	0.58**
(11) Spiritual change											-

Note:

N's range from 96 to 100 due to missing values

\*  $P < 0.05$

\*\*  $P < 0.01$

**Table 3**  
Hierarchical regression predicting growth from PTSD and depressive symptoms

Variable	B	SE B	$\beta$	$\Delta R^2$	R <sup>2</sup>
<i>CAPS</i>					
Step 1				0.15***	0.15***
Age	0.73	0.22	0.31**		
Education	-2.80	0.89	-0.30***		
Step 2				0.00	0.15***
Age	0.73	0.22	0.31**		
Education	-2.80	0.89	-0.30***		
CAPS	0.03	0.12	0.02		
<i>BDI-II</i>					
Step 1				0.15***	0.15***
Age	0.73	0.23	0.31**		
Education	-2.80	0.91	-0.30***		
Step 2				0.01	0.16**
Age	0.73	0.23	0.32**		
Education	-2.67	0.91	-0.29		
BDI-II	-0.25	0.23	-0.11		

Note:

CAPS = Clinician Administered PTSD Scale; BDI-II = Beck Depression Inventory-II; N = 100 for CAPS analyses and N = 96 for BDI-II analyses

\*  $P < 0.05$

\*\*  $P < 0.01$

**Table 4**

Mean comparisons across samples using the PTGI

	Mixed sample [32] N = 54	Holocaust survivors [28] N = 97	Bereavement suicide [34] N = 28	Mixed sample [30] N = 193	Female assault sample N = 100
PTGI total scores	76.5 (22.0)	43.21 (17.32)	82.27 (22.04)	57.38 (17.68)	64.04 (26.62)
Spiritual change	–	–	7.57 (3.67)	4.57 (3.26)	5.83 (3.88)
Appreciation for life	–	–	12.57 (4.24)	9.82 (3.30)	11.29 (4.64)
Personal strength	–	–	16.27 (5.77)	12.58 (4.45)	12.8 (5.87)
Relating to others	–	–	27.87 (6.70)	17.95 (6.52)	19.95 (9.44)
New possibilities	–	–	18.00 (8.15)	12.63 (5.78)	14.09 (7.01)