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Disability and Health Journal 9 (2016) 167–171

Disability and Health Journal

www.disabilityandhealthjnl.com

Brief Report

Posttraumatic growth in individuals with amputations

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Abstract

Background: Studying positive outcomes post-amputation is an important area of research in order to help individuals recover with the optimal quality of life possible.

Objective: To examine posttraumatic growth (PTG) in the understudied population of individuals with amputations. Our main aim was to assess the effect of gender, veteran status, age, and time since amputation on PTG. Our secondary aim was to examine the role support group participation on PTG.

Methods: Sixty-six adults with amputations completed an online survey consisting of the Posttraumatic Growth Inventory (PTGI) and free response questions about experiences with support groups. *T*-tests and correlations were the main statistical analyses.

Results: There were no gender differences in PTGI scores. Veterans had significantly lower PTGI scores than civilians, $t(64) = 2.63$, $p < 0.05$, Cohen's $d = .41$. Age was negatively correlated with PTGI score, $r = -.27$, $p < 0.05$. Participants who indicated consistent engagement in a support group had significantly higher PTGI scores than participants without support group engagement, $t(64) = 3.49$, $p < 0.01$, Cohen's $d = .89$.

Conclusions: Veterans may be a specific population to target for PTG. Support groups appear to be a venue associated with higher levels of growth.

Keywords: Posttraumatic growth; Amputation; Adjustment; Trauma; Support group

Approximately 1.6 million individuals were living with limb loss in the United States in 2005, and the prevalence is expected to double by 2050.[1] Individuals with amputations sometimes experience psychological disorders, especially symptoms of anxiety and depression.[2,3] One-quarter to one-third of individuals with amputations report moderate-to-high levels of trauma-related stress.[4,5] Research has focused on the percentage of individuals with amputations who experienced psychopathology; therefore, it is important to also examine individuals who experience growth.

Posttraumatic growth (PTG) refers to a positive psychological change in response to a challenging experience.[6] Several demographic characteristics in relation to PTG have also been studied. A recent meta-analysis found a small-to-moderate effect size of gender such that women reported having more PTG than men.[7] In addition, several previous studies have shown a negative correlation between age and PTG such that younger individuals report higher PTG.[8–11] Thus far, posttraumatic growth has been examined in a variety of medical populations such as individuals who experienced cancer,[12,13] spinal cord injuries,[14] brain injuries/stroke,[15,16] cardiac events,[17] arthritis,[18] lupus,[19] and HIV/AIDS.[10] Posttraumatic growth is important to study in these populations due to its linkage to physiological health benefits. For example, one study found that increases in one's spiritual growth and appreciation of life correlated with a more efficient stress response system.[20] In another study men with HIV who regarded their crisis as positive or meaningful were less likely to have rapid declines in their T helper cell levels and had significantly lower levels of mortality.[21] Perhaps there would be health benefits for individuals with amputations as well.

Several studies have begun the process of exploring posttraumatic growth in patients with amputations. Dunn found that 77% of participants described a positive outcome secondary to their amputation.[22] Moreover, Oaksford, Frude, and Cuddihy found significant evidence for the effectiveness in seeking social support, using humor, and engaging in efforts to cope with practical difficulties associated with amputation in improving outcomes.[23] Cognitive processing also appears to be particularly important for this

Prior presentation: Rehabilitation Psychology Conference in February 2015: "Posttraumatic Growth in Rehabilitation Populations."

Funding: Faculty study and research grant from Davidson College.

Conflicts of interest: None.

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1936-6574/$ - see front matter
http://dx.doi.org/10.1016/j.dhjo.2015.07.005

population; research has found that if positive cognitive processing occurs at 9 weeks after the amputation, posttraumatic growth at 12 months is significantly more likely.[24]

Previous research in this area has been limited, however. Existing studies have small samples sizes,[23,25] group all rehabilitation populations together,[26] only target a specific group (Operation Enduring Freedom/Operation Iraqi Freedom veterans),[27] examine only certain amputation areas (lower-limb),[23] or are time-limited to acute injuries.[24] Moreover, studies have not specifically looked at the effect of gender and age in relation to PTG in this population.

The present study addresses the limitations of the previous studies by collecting data from a diverse group of individuals with amputations. Our main aim was to assess the effect of gender, veteran status, age, and time since amputation on PTG. Our secondary aim was to examine the role of support group participation on PTG. This research will ultimately inform clinical practice to assist individuals in adjusting to their lives post-amputation.

Method

Participants

Following Institutional Review Board approval, 66 participants were recruited. Including 66 participants was sufficient power to conduct analyses and is a similar to the number of participants in previous studies of posttraumatic growth in rehabilitation populations.[24,27] Inclusion criteria included the following: (a) age 18 and older, (b) ability to read and respond in English, and (c) experienced an amputation. Women and men were almost equally represented in the present study. Participants were between the ages of 23 and 82 years, with a mean of 53.61 years (SD = 13.82). The mean time since amputation was 12.67 years (SD = 13.78), with a range of 0–48 years. There were 56 single amputations (lower limb = 52; upper limb = 4), 8 bilateral amputations (lower limb = 6, upper limb = 2), and 2 quadruple amputations. The reason for the amputation included the following: diabetes complications (51.6%), trauma (31.8%), congenital anomaly (3.0%), and not specified (13.6%). Table 1 includes detailed demographic information.

Table 1
Demographic variables of individuals with amputation (N = 66)

Demographic variable	*n* (%)
Gender	
Men	36 (54.5%)
Women	30 (45.5%)
Race	
White/Caucasian	57 (86.4%)
Black/African American	4 (6.1%)
Hispanic/Latino	3 (4.5%)
Multiracial/Other	2 (3.0%)
Region	
Northeast	12 (18.2%)
Southeast	14 (21.2%)
Midwest	11 (16.7%)
West	16 (24.2%)
Southwest	11 (16.7%)
Other	2 (3.0%)
Living situation	
With married spouse	39 (59.1%)
With domestic partner	7 (10.6%)
With parent(s)	5 (7.6%)
With roommate(s)	1 (1.5%)
Independent	12 (18.2%)
Education status	
High school or GED	8 (12.1%)
Some college	18 (27.3%)
Associate's degree	11 (16.7%)
Bachelor's degree	10 (15.2%)
Some graduate work	4 (6.1%)
Master's degree or higher	15 (22.7%)
Employment status	
Full-time	18 (27.3%)
Part-time	9 (13.6%)
Seeking work	5 (7.6%)
Homemaker	3 (4.5%)
Student	1 (1.5%)
Retired	22 (33.3%)
Unable to work	8 (12.1%)
Household income level	
Under $15,000	7 (10.6%)
$15,000 to < $25,000	6 (9.1%)
$25,000 to < $35,000	2 (3.0%)
$35,000 to < $50,000	8 (12.1%)
Over $50,000	43 (65.2%)
Veteran status	
Veteran	15 (22.7%)
Civilian	51 (77.3%)

Procedure

This study used an internet-based survey to collect information from individuals with amputations. A message was posted in online forums, emailed to leaders of eight regional support groups, and sent to relevant foundations (e.g., Save a Leg Save a Life Foundation); hundreds of individuals with limb loss were likely exposed to the advertisement. If participants gave consent and met criteria, then they completed three sections online: 1) demographic and amputation background section, 2) the Posttraumatic Growth Inventory (PTGI), and 3) a free response section. Additional validated questionnaires about negative affect were not included to reduce participant burden. Instead participants could respond about negative aspects of their adjustment in the free response section.

Measures

Demographics and amputation background questions

This first section included basic questions about the participant's personal characteristics and history. Participants subsequently answered questions about the location of their amputation(s), why it occurred, and the month/year it occurred.