

# FACILITATING POSTTRAUMATIC GROWTH AFTER CRITICAL ILLNESS

By Abigail C. Jones, MEd, Rachel Hilton, MS, PMHNP-BC, Blair Ely, BS, Lovemore Gororo, JD, Valerie Danesh, PhD, RN, Carla M. Sevin, MD, James C. Jackson, PysD, and Leanne M. Boehm, PhD, RN, ACNS-BC

**Abstract** The theory of posttraumatic growth arose from accounts of various trauma survivors experiencing not only distress but also growth and change. An intensive care unit admission is an unplanned, sudden, and traumatic experience, and many survivors have posttraumatic stress that can lead to posttraumatic stress disorder. Survivors leave the intensive care unit with new functional impairments that drive depression, and they frequently experience anxiety. Amidst the stress of understanding the trauma of an intensive care unit admission, survivors can grow in their world views, relationships, and sense of self. Understanding posttraumatic growth in intensive care unit survivors will inform health care providers on how to help survivors understand their new difficulties after an intensive care unit stay and facilitate growth. This article is a conceptual review of posttraumatic growth, identifiers of posttraumatic growth, and how the tenets of the posttraumatic growth theory apply to intensive care unit survivors. Health care professionals, specifically nurses, can incorporate practices into their care during and after the intensive care unit stay that encourage understanding and positive accommodation of new difficulties brought on by the intensive care unit hospitalization to support survivor growth. Opportunities for research include incorporating posttraumatic growth assessments into post-intensive care unit clinics, self-help materials, and various programs or therapies. Outcomes associated with posttraumatic growth are listed to suggest directions for research questions concerning posttraumatic growth in intensive care unit survivors. (*American Journal of Critical Care*. 2020;29:e1-e8)

**T**raumatic events are life crises that disrupt the normal patterns of a person's life and challenge a person's beliefs and understandings of the world, known as their assumptive world.<sup>1,2</sup> It has long been the notion that psychological, physical, and social distress follow a traumatic event as a person and informal caregivers (eg, family members, significant others, close friends) attempt to incorporate the trauma into their life.<sup>1</sup> Negatively accommodated trauma (eg, "the world is out to get me") can lead to distress characteristic of posttraumatic stress (PTS).<sup>2</sup> However, there are also accounts of people

experiencing positive change after a traumatic event, which has led to the concept of posttraumatic growth (PTG). The displacement of one's understandings and beliefs that may occur after a traumatic event offers the opportunity to reexamine one's pretrauma self, relationships, and philosophy of the world, and to grow new perspectives that incorporate the trauma into reality.<sup>3</sup>

Posttraumatic growth is defined as the positive psychological change and improvement that can result from processing the trauma.<sup>4</sup> A new worldview that allows for trauma to be positively accommodated (eg, "bad things are a natural part of life") can lead to engagement with social support, to deeper spiritual beliefs, and/or to development of a new sense of self characteristic of PTG. In this conceptual review,

©2020 American Association of Critical-Care Nurses  
doi:<https://doi.org/10.4037/ajcc2020149>

“ This growth can be likened to the growth that occurs in a forest after a wildfire: the destruction does not render an end to the life of the forest. ”

we explore the concept of PTG in a critical care population, propose a role for critical care clinicians in the facilitation of PTG by using strategies to engage patients and informal caregivers, and suggest future directions for critical care PTG research.

### Differentiating PTS, Posttraumatic Stress Disorder, and PTG

Posttraumatic growth and PTS can coexist, and PTS can serve as a precursor to both PTG and posttraumatic stress disorder (PTSD).<sup>4</sup> Both PTS and PTG involve cognitive processing in the form of ruminating about the trauma and upended life assumptions.<sup>5</sup> Intensive care unit (ICU) survivors often face unwanted and excessive thoughts of the traumatic event (eg, ICU admission and stay), known as *intrusive rumination*; feeling out of control of one's thoughts and situation is characteristic of PTSD.<sup>6</sup> Survivors of the ICU eventually seek purpose and want to make sense

, of or find meaning in what has happened to them in the ICU, maturing from intrusive rumination to a more controlled and deliberate process.<sup>7</sup> This maturation and effort to find meaning and positively accommodate the experience of critical illness characterize PTG. Importantly, the theory of PTG does not suggest that trauma benefits life or is sufficient for growth but suggests that there is opportunity to understand trauma in such a way that worldviews grow and new perspectives develop.

### Critical Illness and ICU Admission as Sources of Trauma

Trauma is a highly stressful event that uproots a person's pretrauma assumptive world.<sup>1,4</sup> Intensive care unit admissions, whether the result of an injury (eg, vehicle collision) or illness, are disruptive in their often sudden and unplanned nature, with a potentially serious risk to health. Survivors of the ICU may experience trauma from multiple sources during an ICU admission, including sources that a person deems disturbing and confusing (eg, hallucinations of abuse or altercations, delirium, awake anesthesia, catheterization, traumatic intubation, disfigurement).<sup>1,8,9</sup> Previous trauma that violates a person's physical body (eg, sexual abuse, assault) can prime a patient to experience the physical care in the ICU as a traumatic event (eg, physical restraints can be a trigger).<sup>10,11</sup> The ICU admission has lasting impacts on the social, emotional, and physical domains of a person's life after hospital discharge. These impacts can affect both internal personal characteristics and how someone operates in their external world. Intensive care unit survivors experience high rates of PTSD, depression, and anxiety.<sup>12-16</sup> Ongoing psychological sequelae can make integrating or participating in social roles difficult.<sup>12</sup> Impairments in activities of daily living (eg, bathing, dressing)<sup>12,17</sup> may contribute to an inability to return to work.<sup>18</sup> One ICU survivor described life after intensive care as follows:

I honestly didn't realize just how many people give up after the traumatic experiences from ICU. The physical and psychological discomfort of cycling between pain and depression felt impossible to escape at times. [coauthor L.G.]

### About the Authors

**Abigail C. Jones** is a research assistant, School of Nursing, Vanderbilt University and the Critical Illness, Brain Dysfunction, and Survivorship Center at Vanderbilt, Nashville, Tennessee. **Rachel Hilton** is a research assistant, School of Nursing, Vanderbilt University. **Blair Ely** is a research assistant, Critical Illness, Brain Dysfunction, and Survivorship Center at Vanderbilt. **Lovemore Gororo** is an intensive care unit survivor and former patient at Vanderbilt University Hospital, Nashville, Tennessee. **Valerie Danesh** is an assistant professor, School of Nursing, University of Texas at Austin, Austin, Texas, and a research scientist, Center for Applied Health Research, Baylor Scott & White Health, Dallas, Texas. **Carla M. Sevin** is an assistant professor, Division of Allergy, Pulmonary, and Critical Care Medicine, Department of Medicine, Vanderbilt University School of Medicine and the Critical Illness, Brain Dysfunction, and Survivorship Center at Vanderbilt. **James C. Jackson** is a professor of medicine, Division of Allergy, Pulmonary, and Critical Care Medicine and Center for Health Services Research, Department of Medicine, Vanderbilt University School of Medicine; a professor, Geriatric Research, Education and Clinical Center Service and Clinical Research Center of Excellence, Department of Veterans Affairs Medical Center, Tennessee Valley Healthcare System; and a professor, Department of Psychiatry, Vanderbilt Medical Center. **Leanne M. Boehm** is an assistant professor, School of Nursing, Vanderbilt University, and the Critical Illness, Brain Dysfunction, and Survivorship Center at Vanderbilt.

**Corresponding author:** Leanne M. Boehm, PhD, RN, ACNS-BC, Vanderbilt University School of Nursing, 419 Godchaux Hall, 461 21st Ave South, 419 Godchaux Hall, Nashville, TN, 37240 (email: Leanne.boehm@vanderbilt.edu).

“ Fire, like trauma, may activate seeds and sprouts that bring new life to trees, trees that grow with thicker bark than before as an adaptation to the trauma. ”

The life-shattering nature of critical illness and ICU admission creates grounds for PTG to occur. Thus, there is a need to further understand the prevalence and experience of PTG in the critical care population.

## Overview of PTG

The current literature on PTG includes many populations with specific types of trauma or adversity.<sup>1</sup> Posttraumatic growth is well documented in the contexts of abuse,<sup>19,20</sup> disaster,<sup>21</sup> and combat.<sup>22,23</sup> Survivors of cancer,<sup>24-26</sup> HIV infection and AIDS,<sup>27</sup> and heart disease<sup>28</sup> also experience PTG. Moreover, some evidence indicates that PTG is present with acquired brain injury, an impairment prevalent in many ICU survivors due to physical trauma or delirium.<sup>29-31</sup>

Tedeschi and Calhoun described PTG as having 3 broad domains: personal, interpersonal, and existential.<sup>1,3</sup> People develop a new way of seeing themselves through their hardship, both in appreciating the strengths they have developed to help them through their struggle and accepting those once-blameworthy qualities that are out of their control. Interpersonally, those experiencing PTG may place increased value on family and friends, with newfound importance of empathy and goodwill toward others. Existentially, there are changes in perception of the world, spirituality, religion, and/or philosophy of life.

The extent to which different individuals (eg, ICU survivors, caregivers) experience PTG varies.<sup>6</sup> The Figure illustrates a proposed framework for growth after critical illness (domains informed by Tedeschi and Calhoun<sup>3</sup>). Traumatic experiences and posttraumatic states are highly varied, unique to the individual, and nonlinear, but some people experience positive growth in the aftermath of trauma. This growth can be likened to the growth that occurs in a forest after a wildfire<sup>32</sup>: the destruction does not render an end to the life of the forest. Fire, like trauma, may activate seeds and sprouts that bring new life to trees, trees that grow with thicker bark than before as an adaptation to the trauma. This is a protective evolution of the life of the tree, its roots, and the forest in which it lives. Similarly, people, having experienced trauma, may find that seeds of hope and development in their philosophy of life,

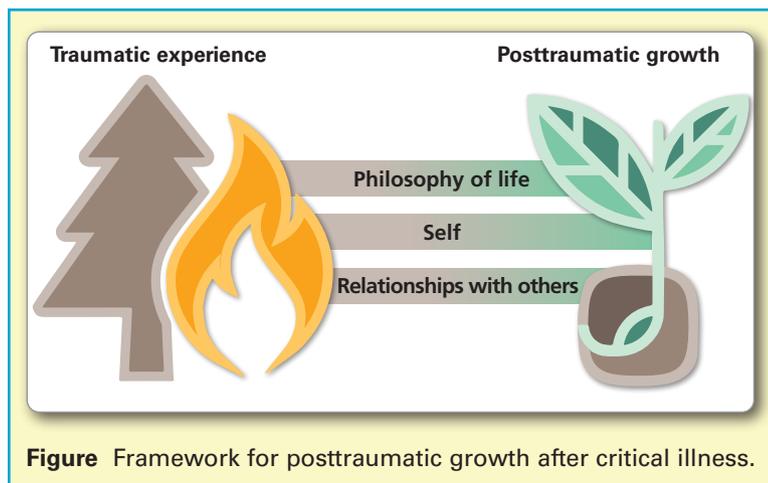


Figure Framework for posttraumatic growth after critical illness.

self, and relationships with others ultimately increase strength to withstand future trauma.

## Identifying PTG

The PTG Inventory is a validated measure for quantifying PTG outcomes by assessing 5 factors associated with the domains of PTG<sup>4</sup>: (1) greater appreciation of life, and a changed sense of priorities; (2) warmer, more intimate relationships; (3) greater sense of personal strength; (4) recognition of new possibilities or paths in life; and (5) spiritual development.

Because each person who experiences a trauma (eg, critical illness and ICU admission) is unique and brings their own set of pretrauma assumptions and understanding of the world, domains of growth and how much growth occurs will vary across individuals.<sup>33</sup> For each factor of the PTG Inventory, more specific growth outcomes are measured to understand the individual nuances for each person (eg, compassion toward others, wisdom in understanding the world).<sup>34</sup>

## Facilitating PTG

Little is known about PTG in survivors of critical illness. However, existing literature in other populations suggests that there is greater potential for PTG if a patient continually revisits and processes the trauma and attempts to accommodate it into their worldview.<sup>4</sup> Cognitively revisiting and processing

a traumatic event (eg, ICU admission) is known as *deliberate rumination*.<sup>4</sup> Critical care teams may be able to foster PTG by encouraging the process of deliberate rumination and appraisal of critical illness. Because starting points, end points, and trajectories of PTG are different for each individual,<sup>25,33</sup> a patient's PTG journey, with unique and varying characteristics, may be positively influenced by the critical care team. This idea is supported by the reflection of an ICU survivor:

The resiliency that can result from trauma cannot come without acknowledgement of loss. There is no single correct way to address trauma in each individual struggling to rise from the ashes. Different things will resonate with different people.  
[coauthor L.G.]

Thus, knowing characteristics of patients that signal a propensity for PTG can alert providers to those who will most likely benefit from facilitation efforts.

### Factors Contributing to PTG

Posttraumatic stress disorder has been shown to be the most significant factor predicting PTG; thus, patients exhibiting signs and symptoms of PTSD may be candidates for intervention targeting PTG.<sup>35</sup> The presence of social support strongly predicts PTG.<sup>24,35-37</sup> Younger people report higher levels of PTG; it has been hypothesized that younger individuals find trauma more disruptive to their assumed pretrauma world beliefs and thus have greater potential for PTG.<sup>19,38,39</sup> Similarly, higher PTG is reported by individuals who perceive an illness as more intrusive and intense.<sup>24</sup> Finally, spirituality, faith, and religion are factors associated with PTG across different populations, with openness to religious change as a specific marker of growth.<sup>40-43</sup> These observations may guide providers in prevention of distress and treatment of ICU survivors and encourage researchers to investigate if these findings persist in ICU populations.

### Implications for Practice

Post-ICU physical, emotional, and cognitive impairments require specific medical care. Intensive care unit clinicians can leverage inpatient and ICU recovery care models to provide relevant services that increase the likelihood of PTG after hospital discharge.

### Incorporating PTG Into the Inpatient Setting

Tedeschi and Calhoun laid the groundwork for incorporating PTG into clinical practice. These

strategies can be applied to integrating PTG into ICU treatment by critical care providers. The expert companion model suggests that a person aiming to facilitate PTG must approach the traumatized person with humility and remain open-minded to that person's unique journey as opposed to treating them like "symptoms just to be altered."<sup>44</sup> Trauma-informed care in the ICU is recommended for critical care providers to understand how patients handle difficult situations and involves inquiring about what the patient was like before the ICU or if the patient has experienced previous trauma.<sup>11</sup> This information can inform the interprofessional ICU team so they can address and aid deliberate cognitive processing of ICU-related trauma and help the patient mature past initial confusion and intrusive thoughts related to their critical illness. Likewise, summarizing the course of illness, outlining logistics of recovery, and suggesting potential therapies for informal caregivers are vital to helping the patient cognitively process a traumatic event.<sup>44</sup> The critical care team must actively listen to patients willing and able to discuss the nature of their condition and hospitalization, identify growth-related comments, and use those comments as examples while explaining PTG. Once the critical care team develops an established language for PTG, they can act as coaches for patients and informal caregivers and thus facilitate PTG.<sup>45</sup>

### Nurse-Led Inpatient Initiatives

As critical care professionals with the most patient-contact hours in the hospital, nurses are crucial in facilitating PTG. We suggest that nurse facilitation of ICU diaries, interacting and incorporating families into care, and motivational interviewing can encourage PTG. Nurses can also engage other interdisciplinary team members to participate in the following efforts to facilitate PTG.

*Intensive Care Unit Diaries.* Intensive care unit diaries containing details about hospitalization and daily progress can frame cognitive processing of a patient's trauma.<sup>46</sup> Such diaries are written for the patient by the critical care team or family and are associated with decreased anxiety, depression, and PTSD symptoms after critical illness.<sup>41,47</sup> Intensive care unit diaries can also serve as a source for deliberate rumination (ie, conscious thoughts to understand the harmful event and its impact), helping the patient understand what has happened and how it fits into their current life.<sup>4,6</sup> This enhanced understanding of the hospital course can facilitate positive incorporation of the patient's trauma and

contribute to PTG. The cost of ICU diary implementation is minimal compared with the potential benefit of improved quality of life for the patient.<sup>46</sup>

*Family Engagement and Addressing Caregiver Burden.* Nurse-led predischARGE coaching of family members creates a home environment more conducive to PTG. Support from psychologically healthy family and friends who have an understanding of the ICU experience can create a home environment where PTG can fully develop. Family members and loved ones, unlike an unconscious patient, are completely alert to all aspects of an active hospitalization. This experience can often be frightening and stressful, and it can have lasting effects on well-being (eg, depression, anxiety, PTSD).<sup>16,48-51</sup> Family members experience trauma alongside the patient in the hospital and are often required to quickly transition to caregiver upon hospital discharge. The critical care interprofessional team must note the probability and severity of caregiver distress and intervene when possible to optimize family members' transition to the caregiver role. Direct and frequent interaction with family members by nurses, as well as their dedication to patient advocacy, position them to identify stressors and influence the overall well-being of the family unit.

Questionnaires to evaluate caregiver anxiety, depression, stress, and family-specific needs are widely available.<sup>52</sup> Although not specific to critical illness, the findings from these questionnaires can be used by nurses to activate social work services for appropriate referrals and facilitate the caregiver's transition while still in the resource-rich setting of the hospital. Early recognition of family members' psychological symptoms (eg, depression, anxiety, uncertainty) can lead to improved caregiver support and, thus, enhanced patient PTG after discharge.

*Motivational Interviewing.* Motivational interviewing assesses a patient's goals and willingness to change prehospital assumptions to improve the chance of incorporating positive behavior change after discharge, thus facilitating PTG. Motivational interviewing theory dictates that patients are the ultimate influencers in their own healing.<sup>53</sup> The key tenets of motivational interviewing are assessing awareness and readiness to grow, accepting and accommodating a patient's ambivalence toward change, and maintaining composure during potential ambivalence.<sup>54</sup> One patient described his nurse-led motivational experience as follows:

Nurses may need to dial into what drives or motivates patients. Sometimes it can be much easier to have conversations

about PTG with someone the patient can identify with or who has similar values. When I was in the step-down unit, one of the nurses brought along another nurse who was a runner and understood how big a loss it would be for me if I couldn't run again. This example shows the importance of "matching" so patients can work with others who validate their loss instead of skipping ahead to attempts to engender positive growth. Patients may also need to develop new goal-setting skills, even if they are already in the habit of goal setting. [coauthor L.G.]

Rather than direct patients toward goals determined by clinicians, motivational interviewing techniques promote active listening to guide problem identification and to prompt the patient's motivation toward new goals and growth.<sup>54</sup> The aim for motivational interviewing of contemplating and producing behavior change directly addresses a changed sense of priorities after trauma.<sup>4</sup> Motivational interviewing has been used successfully to increase physical activity in cardiac patients, treatment adherence in psychiatric patients with dual substance abuse disorders, engagement in alcoholism treatment, and weight loss in patients with diabetes.<sup>54-57</sup> Motivational interviewing is a cost-effective and relevant intervention for nurses to use when communicating with patients in the ICU and can encourage change and contribute to a patient's sense of control in their healing strategy, thereby increasing the chance of PTG.

### **Incorporating PTG into ICU Recovery Services**

The effects of an ICU admission extend beyond discharge. Therefore, it is vital that patient care continues after ICU discharge to ensure a safer transition back to normal life and aid the facilitation of PTG. Intensive care unit clinicians building relationships with and referring patients to post-ICU recovery clinics can help transition a patient in an environment uniquely structured to cultivate PTG further.

Post-ICU clinics, where available, can be a comprehensive resource for patients living in the aftermath of critical illness. The clinic is uniquely able to administer neuropsychological tests, monitor mental and physical health status, and connect patients with resources.<sup>58,59</sup> Post-ICU clinics also help patients understand the physical and cognitive impairments that often occur after ICU discharge; they can enable recovery and thus can facilitate PTG.<sup>60</sup> Although there is no universally accepted structure for post-ICU clinics, integration of critical

**Table 1**  
**Post-ICU clinic services supporting domains of posttraumatic growth**

Provider category	Service type	Service effect	Supported PTG domain of growth
Case manager	Government assistance and DME referrals Referral to ICU support groups	Reduce caregiver burden Opportunity for disclosure	Fostering more intimate relationships
Pharmacist and ICU clinician	Optimize medication regimens and vaccinations Referral/coordination with primary care and specialists Referral to PT/OT services	Reduce readmission and reexposure to trauma Improve physical healing Reduce ADL dependency	Greater sense of personal strength
ICU nurse	ICU diary review	Opportunity for validation	Greater sense of personal strength
Psychologist/ social worker	Psychotherapy	Engage patient in deliberate rumination Incorporate the trauma into new life goals and outlook	Greater appreciation of life Changed sense of priorities Recognition of new possibilities or paths in life Spiritual development

Abbreviations: ADL, activities of daily living; DME, durable medical equipment; ICU, intensive care unit; PT, physical therapy; OT, occupational therapy; PTG, posttraumatic growth.

**Table 2**  
**Proposed research agenda for posttraumatic growth after critical illness**

Topic	Objective	Method
ICU recovery clinics	Do ICU recovery clinic services facilitate PTG from posttraumatic stress disorder? If so, how?	Quasi-experimental, qualitative
Self-help materials for PTG	Test and incorporate structured PTG training for critical care providers, ICU diaries, and patient/caregiver resources	Implementation, quality improvement, quasi-experimental
Epidemiology of PTG	PTG incidence/prevalence, timing, and trajectories	Cohort observational
Individual vs group intervention	Test delivery modalities Evaluate survivor/caregiver preferences	Qualitative, quasi-experimental, patient-centered
Unique profiles of growth in ICU survivors	Describe domains of growth specific to ICU survivors/caregivers Describe ICU caregiver burden trajectories with PTG	Cohort observational, qualitative, patient-centered
Therapeutic interventions	Develop and test interventions (eg, ICU diaries, peer support, motivational interviewing) Describe mechanisms of benefit	Quasi-experimental, experimental, patient-centered

Abbreviations: ICU, intensive care unit; PTG, posttraumatic growth.

care staff may help an ICU survivor make sense of their time in the ICU and engage in productive and deliberate rumination about their symptoms persisting after the ICU. The services (eg, case management, pharmacy, medicine, psychology, physical therapy, occupational therapy, palliative care) provided by many post-ICU clinics may directly support and assist ICU survivors in accessing the 5 factors of PTG (Table 1).<sup>61</sup>

### Proposed Research Priorities for PTG After Critical Illness

Survivors of ICU care can experience uniquely high levels of trauma and, we theorize, have the opportunity to build PTG. On the basis of what we

know from other populations and the limited information and research we have on ICU populations, additional research on post-ICU PTG has the potential to markedly improve care for ICU survivors. Table 2 details suggested priorities and areas for research. Pressing needs include understanding what PTG domains (ie, changes in self, relationships, and philosophy of the world) and trajectories are unique to ICU survivors living with chronic illness, which interventions can facilitate PTG in ICU survivors, and how to disseminate and implement new knowledge to critical care providers on the frontlines to better encourage PTG in their patients. The role of the caregiver in fostering PTG also deserves more study. Informal caregivers endure their own distress

from the critical illness, as well as from post-ICU changes in their loved one's personality and functional status.<sup>62,63</sup> The role of the informal caregiver and family in facilitation of PTG during and after the ICU stay is unknown, and empirical investigation could elucidate the impact of the caregiver on PTG.

## Conclusion

In this conceptual review, we describe an ICU stay as a traumatic experience that leaves patients with new impairments in cognitive, mental health, and physical functioning. In the wake of ICU-related trauma, amidst the uncertainty of recovery, opportunity emerges for personal growth, like fire-induced sprouting of seeds enables new life after a natural disaster. Because of the intensity and breadth of trauma that patients in the ICU experience, they are uniquely positioned to build PTG. Similarly, critical care nurses, physicians, and other medical staff are uniquely positioned and equipped to partner with patients and caregivers to cultivate PTG. Critical care providers and researchers have the opportunity to support ICU survivors as they engage with their trauma and to facilitate PTG from PTS during the transition to life after the ICU, ultimately, helping ICU survivors engage with life in new ways. Additional research is needed to better understand and foster PTG in critical care populations.

## FINANCIAL DISCLOSURES

Dr Boehm is receiving grant funding from NHLBI (K12HL137943-01) and the American Association of Critical-Care Nurses. The authors' funding sources did not participate in the planning, collection, analysis or interpretation of data or in the decision to submit for publication. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

## REFERENCES

- Joseph S, Linley PA. Growth following adversity: theoretical perspectives and implications for clinical practice. *Clin Psychol Rev*. 2006;26(8):1041-1053.
- Karstoft K-I, Armour C, Elklit A, Solomon Z. The role of locus of control and coping style in predicting longitudinal PTSD-trajectories after combat exposure. *J Anxiety Disord*. 2015;32:89-94.
- Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: measuring the positive legacy of trauma. *J Trauma Stress*. 1996;9(3):455-471.
- Tedeschi RG, Calhoun LG. Posttraumatic growth: conceptual foundations and empirical evidence. *Psychol Inq*. 2004;15(1):1-18.
- Greenberg MA. Cognitive processing of traumas: the role of intrusive thoughts and reappraisals 1. *J Appl Soc Psychol*. 1995;25(14):1262-1296.
- Brooks M, Graham-Kevan N, Lowe M, Robinson S. Rumination, event centrality, and perceived control as predictors of post-traumatic growth and distress: The Cognitive Growth and Stress model. *Br J Clin Psychol*. 2017;56(3):286-302.
- Morris BA, Shakespeare-Finch J. Rumination, post-traumatic growth, and distress: structural equation modelling with cancer survivors. *Psycho-Oncology*. 2011;20(11):1176-1183.
- Fink MR, Makic FMB, Poteet WA, Oman SK. The ventilated patient's experience. *Dimens Crit Care Nurs*. 2015;34(5):301-308.
- Dziadzko V, Dziadzko MA, Johnson MM, Gajic O, Karnatovskaia LV. Acute psychological trauma in the critically ill: patient and family perspectives. *Gen Hosp Psychiatry*. 2017;47:68-74.
- Raja S, Hasnain M, Hoersch M, Gove-Yin S, Rajagopalan C. Trauma informed care in medicine: current knowledge and future research directions. *Fam Community Health*. 2015;38(3):216-226.
- Ashana DC, Lewis C, Hart JL. Dealing with "difficult" patients and families: making a case for trauma-informed care in the intensive care unit. *Ann Am Thorac Soc*. 2020;17(5):541.
- Jackson JC, Pandharipande PP, Girard TD, et al. Depression, post-traumatic stress disorder, and functional disability in survivors of critical illness in the BRAIN-ICU study: a longitudinal cohort study. *Lancet Respir Med*. 2014;2(5):369-379.
- Parker AM, Sricharoenchai T, Raparla S, Schneck KW, Bienvenu OJ, Needham DM. Posttraumatic stress disorder in critical illness survivors: a metaanalysis. *Crit Care Med*. 2015;43(5):1121-1129.
- Patel MB, Jackson JC, Morandi A, et al. Incidence and risk factors for intensive care unit-related post-traumatic stress disorder in veterans and civilians. *Am J Respir Crit Care Med*. 2016;193(12):1373-1381.
- Nikayin S, Rabiee A, Hashem MD, et al. Anxiety symptoms in survivors of critical illness: a systematic review and meta-analysis. *Gen Hosp Psychiatry*. 2016;43:23-29.
- Rabiee DA, Nikayin DS, Hashem JM, et al. Depressive symptoms after critical illness: a systematic review and meta-analysis. *Crit Care Med*. 2016;44(9):1744-1753.
- Hopkins RO, Suchyta MR, Kamdar BB, Darowski E, Jackson JC, Needham DM. Instrumental activities of daily living after critical illness: a systematic review. *Ann Am Thorac Soc*. 2017;14(8):1332-1343.
- Kamdar BB, Suri R, Suchyta MR, et al. Return to work after critical illness: a systematic review and meta-analysis. *Thorax*. 2020;75(1):17.
- Woodward C, Joseph S. Positive change processes and post-traumatic growth in people who have experienced childhood abuse: understanding vehicles of change. *Psychol Psychother*. 2003;76(Pt 3):267-283.
- Lev-Wiesel R, Amir M, Besser A. Posttraumatic growth among female survivors of childhood sexual abuse in relation to the perpetrator identity. *J Loss Trauma*. 2005;10(1):7-17.
- Siqveland J, Nygaard E, Hussain A, Tedeschi RG, Heir T. Posttraumatic growth, depression and posttraumatic stress in relation to quality of life in tsunami survivors: a longitudinal study. *Health Qual Life Outcomes*. 2015;13:18.
- Tedeschi RG. Posttraumatic growth in combat veterans. *J Clin Psychol Med Settings*. 2011;18(2):137-144.
- Tedeschi RG, McNally RJ. Can we facilitate posttraumatic growth in combat veterans? *Am Psychol*. 2011;66(1):19-24.
- Danhauer SC, Case LD, Tedeschi R, et al. Predictors of post-traumatic growth in women with breast cancer. *Psycho-oncology*. 2013;22(12):2676-2683.
- Danhauer SC, Russell G, Case LD, et al. Trajectories of post-traumatic growth and associated characteristics in women with breast cancer. *Ann Behav Med*. 2015;49(5):650-659.
- Stanton AL, Bower JE, Low CA. Posttraumatic growth after cancer. In: Calhoun G, Tedeschi RG, eds. *Handbook of Post-traumatic Growth: Research & Practice*. Lawrence Erlbaum Associates Publishers; 2006:138-175.
- Barskova T, Oesterreich R. Post-traumatic growth in people living with a serious medical condition and its relations to physical and mental health: a systematic review. *Disabil Rehabil*. 2009;31(21):1709-1733.
- Sheikh AI. Posttraumatic growth in the context of heart disease. *J Clin Psychol Med Settings*. 2004;11(4):265-273.
- Rogan C, Fortune DG, Prentice G. Post-traumatic growth, illness perceptions and coping in people with acquired brain injury. *Neuropsychol Rehabil*. 2013;23(5):639-657.
- Grace JJ, Kinsella EL, Muldoon OT, Fortune DG. Post-traumatic growth following acquired brain injury: a systematic review and meta-analysis. *Front Psychol*. 2015;6:1162.
- Pandharipande PP, Girard TD, Jackson JC, et al. Long-term cognitive impairment after critical illness. *N Engl J Med*. 2013;369(14):1306-1316.

32. Mullen L. How trees survive and thrive after a fire. *Your National Forests Magazine*. National Forest Foundation; 2017:Summer/Fall.
33. Frazier P, Conlon A, Glaser T. Positive and negative life changes following sexual assault. *J Consult Clin Psychol*. 2001;69(6):1048-1055.
34. Tedeschi RG, Park CL, Calhoun LG. *Posttraumatic Growth: Positive Changes in the Aftermath of Crisis*. Routledge; 1998.
35. Dekel S, Mandl C, Solomon Z. Shared and unique predictors of post-traumatic growth and distress. *J Clin Psychol*. 2011;67(3):241-252.
36. Oginska-Bulik N. The role of social support in posttraumatic growth in people struggling with cancer. *Health Psychol Rep*. 2013;1(1):1-8.
37. Swickert R, Hittner J. Social support coping mediates the relationship between gender and posttraumatic growth. *J Health Psychol*. 2009;14(3):387-393.
38. Manne S, Rini C, Rubin S, et al. Long-term trajectories of psychological adaptation among women diagnosed with gynecological cancers. *Psychosom Med*. 2008;70(6):677-687.
39. Marshall EM, Frazier P, Frankfurt S, Kuijer RG. Trajectories of posttraumatic growth and depreciation after two major earthquakes. *Psychol Trauma*. 2015;7(2):112-121.
40. Calhoun LG, Cann A, Tedeschi RG, McMillan J. A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *J Trauma Stress*. 2000; 13(3):521-527.
41. Danhauer S, Russell G, Tedeschi R, et al. A longitudinal investigation of posttraumatic growth in adult patients undergoing treatment for acute leukemia. *J Clin Psychol Med Settings*. 2013;20(1):13-24.
42. Linley PA, Joseph S. Positive change following trauma and adversity: a review. *J Trauma Stress*. 2004;17(1):11-21.
43. Currier JM, Mallot J, Martinez TE, Sandy C, Neimeyer RA. Bereavement, religion, and posttraumatic growth: a matched control group investigation. *Psychol Relig Spiritual*. 2013; 5(2):69-77.
44. Calhoun LG, Tedeschi RG (eds). *Handbook of Posttraumatic Growth : Research and Practice*. Psychology Press; 2009.
45. Joseph S (ed). *Positive Psychology in Practice : Promoting Human Flourishing in Work, Health, Education, and Everyday Life*. 2nd ed. Wiley; 2015.
46. Jones C, Backman C, Capuzzo M, et al. Intensive care diaries reduce new onset post traumatic stress disorder following critical illness: a randomised, controlled trial. *Crit Care*. 2010;14(5):R168.
47. Ullman AJ, Aitken LM, Rattray J, et al. Intensive care diaries to promote recovery for patients and families after critical illness: a Cochrane Systematic Review. *Int J Nurs Stud*. 2015;52(7):1243-1253.
48. Anderson WG, Arnold RM, Angus DC, Bryce CL. Posttraumatic stress and complicated grief in family members of patients in the intensive care unit. *J Gen Intern Med*. 2008;23(11):1871-1876.
49. Breitbart W, Gibson C, Tremblay A. The delirium experience: delirium recall and delirium-related distress in hospitalized patients with cancer, their spouses/caregivers, and their nurses. *Psychosomatics*. 2002;43(3):183-194.
50. Cameron JI, Chu LM, Matte A, et al. One-year outcomes in caregivers of critically ill patients. *N Engl J Med*. 2016;374(19): 1831-1841.
51. Pochard F, Azoulay E, Chevret S, et al. Symptoms of anxiety and depression in family members of intensive care unit patients: ethical hypothesis regarding decision-making capacity. *Crit Care Med*. 2001;29(10):1893-1897.
52. Kentish-Barnes N, Lemiale V, Chaize M, Pochard F, Azoulay E. Assessing burden in families of critical care patients. *Crit Care Med*. 2009;37(10 Suppl):S448-456.
53. Brodie DA, Inoue A. Motivational interviewing to promote physical activity for people with chronic heart failure. *J Adv Nurs*. 2005;50(5):518-527.
54. Rollnick S, Miller WR. What is motivational interviewing? *Behav Cogn Psychother*. 1995;23(4):325-334.
55. Brown JM, Miller WR. Impact of motivational interviewing on participation and outcome in residential alcoholism treatment. *Psychol Addict Behav*. 1993;7(4):211-218.
56. Swanson AJ, Pantalon MV, Cohen KR. Motivational interviewing and treatment adherence among psychiatric and dually diagnosed patients. *J Nerv Ment Dis*. 1999;187(10):630-635.
57. West DS, DiLillo V, Bursac Z, Gore SA, Greene PG. Motivational interviewing improves weight loss in women with type 2 diabetes. *Diabetes Care*. 2007;30(5):1081-1087.
58. Calvo-Ayala E, Khan BA, Farber MO, Ely EW, Boustani MA. Interventions to improve the physical function of ICU survivors: a systematic review. *Chest*. 2013;144(5):1469-1480.
59. Volk B, Grassi F. Treatment of the post-ICU patient in an outpatient setting. *Am Fam Physician*. 2009;79(6):459-464.
60. Jackson JC, Ely EW, Morey MC, et al. Cognitive and physical rehabilitation of intensive care unit survivors: results of the RETURN randomized controlled pilot investigation. *Crit Care Med*. 2012;40(4):1088-1097.
61. Sevin CM, Bloom SL, Jackson JC, Wang L, Ely EW, Stollings JL. Comprehensive care of ICU survivors: development and implementation of an ICU recovery center. *J Crit Care*. 2018;46:141-148.
62. Thomsen IV. Late outcome of very severe blunt head trauma: a 10-15 year second follow-up. *J Neurol Neurosurg Psychiatry*. 1984;47(3):260-268.
63. Marsh NV, Kersel DA, Havill JH, Sleight JW. Caregiver burden at 6 months following severe traumatic brain injury. *Brain Inj*. 1998;12(3):225-238.

To purchase electronic or print reprints, contact American Association of Critical-Care Nurses, 27071 Aliso Creek Road, Aliso Viejo, CA 92656. Phone, (800) 899-1712 or (949) 362-2050 (ext 532); fax, (949) 362-2049; email, reprints@aacn.org.