PTSD in the Combat Veteran: Using Roy’s Adaptation Model to Examine the Combat Veteran as a Human Adaptive System

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Posttraumatic stress disorder (PTSD) is the most prevalent mental disorder arising from combat and is poised to be a considerable health risk for our military veterans. To date, there is a paucity of nursing research that examines PTSD in this vulnerable population. The purpose of this article is to demonstrate how Roy’s Adaptation Model can be an effective framework for nurses to understand the phenomenon of posttraumatic stress disorder in the combat veteran population. Current research conducted on PTSD across other disciplines is highlighted within the context of Roy’s model to elucidate the idea of the combat veteran as a human adaptive system and to identify gaps for future nursing research.

To date, there is a paucity of nursing research conducted on the phenomenon of posttraumatic stress disorder (PTSD) in the military veteran population. It is the most prevalent mental disorder developing in response to the combat experience and, in considering the current military conflicts in Iraq and Afghanistan with approximately 1.5 million soldiers serving in theater since 2001 (Shane, 2006), it has the potential to become a considerable health risk for America’s military veterans. While actual PTSD epidemiologic studies of this conflict are absent from the literature, the Veterans Administration estimates that as of the end of 2006, one in four veterans discharged from service have filed disability claims; over 60,000 for mental health issues (The National Security Archive [NSA], 2006). Secondary analysis of the National Vietnam Veterans Study report current and lifetime PTSD prevalence of 15% and 31%, respectively (Kulka et al., 1990), whereas studies of veterans from Operation Iraqi Freedom estimate PTSD prevalence rates of 5.4–12.1% (Kang, Natelson, Mahan, Lee, & Murphy, 2003).

According to the Diagnostic and Statistical Manual- IV (American Psychiatric Association [APA], 2000), PTSD is a psychiatric disorder that can occur following the experience of witnessing life-threatening events such as military combat, natural disasters, terrorist incidents, serious accidents, or violent personal assaults like rape. Those suffering from its effects experience three symptom clusters: (1) avoidance through emotional numbing, anxiety, and depression; (2) hyperarousal symptoms such as irritability, impaired concentration, hypervigilance, and increased startle response; and (3) reliving the trauma through dissociation, flashbacks, and nightmares. The presence of these symptoms has a tremendous influence on the individual’s ability to perform their occupational, social, and family responsibilities. Furthermore, the mental health of military service members can impact military organizational productivity and effectiveness and is critical to issues of retention, readiness, and mission capability (Riddle et al., 2007).

In light of nursing’s orientation toward the promotion of holistic health and the care of people throughout the wellness-illness continuum, nurses are in a unique position to help this vulnerable population in both civilian and military health care settings, through community outreach and intervention programs and research initiatives. Nurses in all settings should consider their patients at risk for trauma, PTSD, and associated comorbidities and need to be familiar with the risk factors, interventions, and resources available (Gill & Page, 2006). Moreover, nursing as a profession has a “social mandate to develop, disseminate, and use knowledge” (Fawcett, 1989, p. 692). Nursing theories and frameworks provide the guiding principles to develop research that can accomplish this goal. The purpose of this article is to demonstrate how Roy’s (1989) Adaptation Model can be an effective framework for nurses to understand the phenomenon of posttraumatic stress disorder in the combat veteran population. Moreover, it will highlight the philosophical foundation and advantages to using Roy’s model, as compared to philosophies used by other disciplines, to frame and explicate a review of literature on PTSD in this population. According to Roy (1989, p. 109), “nursing’s concern with the person as a total being in the areas of health and illness is a socially significant activity.” Current research conducted across other disciplines such as medicine, psychiatry, sociology, and psychology is highlighted within the context of...
ROY’S ADAPTATION MODEL

Philosophic and Scientific Perspectives

Roy’s Adaptation Model (RAM; 1989) reflects two major philosophic foundations, humanism and what Roy calls veritavity, and two scientific perspectives, systems theory and adaptation-level theory. As the basis for her model, Roy (1989) defines humanism as a broad movement within philosophy and psychology that assumes the individual shares in creative power, acts purposefully, possesses intrinsic holism, and strives to maintain integrity through interpersonal processes. The philosophic basis of holistic nursing mirrors the philosophy of Humanism inherent in Roy’s Adaptation Model. Roy (1989) also coined the philosophic principle of veritavity, which reflects the notion that there is purposefulness to human existence; a unity of purpose in all of mankind; activity and creativity that exists to serve a common good; and the presence of inherent value and meaning in life. In Roy’s scientific application of systems theory, the individual, group, family, community, or society is viewed as a holistic, interdependent, complex living system that is continually interacting with, adapting to, and creating changes within the environment (Roy & Andrews, 1999).

For the purpose of framing the current literature on PTSD, each of the key concepts within Roy’s Adaptation Model will be explained and then relevant literature will be presented to explain how the concept could potentially manifest within the combat veteran. Roy and Andrews (1999) describe the individual person as a Human Adaptive System with thinking and feeling capacities that are rooted in consciousness and meaning. The individual functions as a whole to express meaningful human behavior that effectively adapts to changes within the environment, and in turn, changes the environment. With this in mind, the key concepts within Roy’s Model to be reviewed are Stimuli, Coping Processes, Adaptive Modes, and Behavior.

Stimuli

According to RAM, the individual is an adaptive system that involves the complex interaction of both internal stimuli (originating from within the self) and external stimuli (originating from the environment) that provoke a response. These stimuli form the environmental circumstances within which the individual effectively adapts. Roy and Andrews (1999) describe common stimuli: the individual’s culture, socioeconomic status, ethnicity and belief system, age, gender, and heredity; the structure and tasks of a family or aggregate that influence the individual; the integrity of the individual’s adaptive modes and their perception and knowledge of the stressor; and environmental considerations, including changes in the internal or external environment, medical management, use of drugs, alcohol, and tobacco, and political or economic stability.

Research findings on PTSD support Roy’s concept of key internal and external stimuli that influence whether the combat veteran is effectively able to adapt with his or her wartime experience or whether he or she develops PTSD. Ultimately, these stimuli affect the person’s adaptation level, which is “a changing point influenced by the demands of the situation and the internal resources . . . that makes humans constantly move towards mastery” (Roy & Andrews, 1999, p. 33). The literature on PTSD identifies a number of internal and external stimuli that influence a soldier’s likelihood of developing and sustaining PTSD.

A meta-analysis of the risk factors for PTSD demonstrated significant correlations between lower military rank, educational level, and socioeconomic status and greater symptoms of PTSD (Brewin, Andrews, & Valentine, 2000). Additionally, primary and secondary analysis of the National Vietnam Veterans Readjustment Study suggests a relationship between race and PTSD due to a greater predisposition towards developing PTSD among Hispanic and Asian Americans (The Management of Post-Traumatic Stress Working Group, 2004). Further research suggests this may be secondary to more severe warzone exposure experienced by minorities or to the presence of adverse race-related events while these individuals served in the military (Loo, Fairbank, & Chemtob, 2005; Ortega & Rosenheck, 2000).

Additionally, gender has emerged as a substantial risk factor for the development of PTSD in the military veteran. Rates of clinically diagnosed PTSD are twice as common in women as in men (Breslau, 2002). This may be the result of a woman’s penchant for seeking professional help more often than men and the result of higher rates of rape, childhood sexual abuse, and sexual harassment among women as associated risk factors. Research has shown that a woman’s exposure to sexual stress such as rape or sexual harassment accounted for a four-fold increase in risk in the development of PTSD over exposure to duty-related stress alone (Fontana & Rosenheck, 1998). A retrospective study of a sample of women in the United States diagnosed with chronic PTSD who also reported a history of sexual or physical assault had a four to five times greater likelihood of having chronic PTSD over those who were victims of nonviolent crimes without prior assault (Nayback, 2008; Resnick, Kilpatrick, & Dansky, 1993). Moreover, women who experienced major trauma reported worse quality of life outcomes, earlier psychiatric morbidity, and higher medical service utilization than men exposed to similar levels of trauma (Holbrooke & Hoyt, 2004).

The individual’s family and community environment can significantly impact the development of PTSD as well. In the current conflicts in Iraq and Afghanistan, repeated deployments of service members have placed incredible burdens on military families by way of compromised relationships with spouses and children; gender shifts in role responsibilities as greater numbers of women deploy to combat, leaving behind their male spouse as the primary family caretakers; concerns with finances; and changes in social support networks with subsequent...
deployments (Baum, 2004; Paulson & Krippner, 2007). Several studies demonstrate that post-deployment social support and the absence of ongoing life stressors have been shown to be the greatest protective factors against the development of PTSD in the post-deployment period (Brewin et al., 2000; Litz, Gray, Bryant, & Adler, 2002).

Several pre-military family and community factors also have been linked to greater PTSD morbidity. Several environmental factors experienced during childhood, such as a family belief-system consistent with a lack of perceived control, emotional and physical abuse, early separation from parents, economic deprivation, and familial history of mental illness such as anxiety disorder, depression, and antisocial personality disorder, demonstrate a strong predictive relationship in the development of PTSD (Cabrera, Hoge, Bliese et al, 2007; Gahm, Lucenko, Retzlaff, & Fukuda, 2007; Nayback (in press); Paulson & Krippner, 2007).

Moreover, the military community espouses an identity with its own informal codes, values, and traditions. This military cultural framework within which soldiers are immersed stresses discipline, unit cohesion and bonding, and personal self-control. This can often shape their perceptions and recollections of war-zone experiences (Tick, 2005). Strong unit cohesion and high unit morale, as well as adequate training and resources in the combat environment, have been identified as measures to promote resiliency against PTSD (Armfield, 1994). Additionally, the influence of media perception, coverage, and support for the war or soldier can either promote or lower a soldier’s resistance to developing PTSD symptoms (Paulson & Krippner, 2007).

A number of trauma related factors contribute to the development of PTSD as well. Both the greater the severity of war-zone stressor exposure and the nature of interpersonal trauma experienced (i.e., rape, torture, atrocity exposure, or prisoner of war status) more strongly predicted the development and maintenance of PTSD symptoms (The Management of Post-Traumatic Stress Working Group, 2004). In addition, soldiers who sustained physical injury as a result of combat have a two- to threefold increased risk of PTSD (Grieger et al., 2006). Even in studies conducted on soldiers involved in peacekeeping operations, military combat hospital personnel, and civilians who experienced little or no combat exposure, high perceived threat to life was positively associated with development of PTSD symptoms (Bolton, Gray, & Litz, 2006; Dirkzwager, Bramsen, & Van der Ploeg, 2005).

In a meta-analysis by Brewin et al. (2000), a number of studies reported a significant relationship between veterans who develop PTSD and the presence of comorbid psychiatric disorders, most notably depression, substance abuse, and personality disorders. Behavioral genetic studies demonstrate heritable traits that can account for variances in how sensitive individuals are to trauma and their predispositions toward mental disorders and substance abuse (Tharpar & McGuffin, 1996).

Coping Processes

Roy and Andrews (1999, p.46) define coping processes as the “innate or acquired ways of interacting with the changing environment.” Roy classifies individual coping processes in two ways: innate coping processes, which are genetically determined and automatic, or acquired coping processes, which are learned strategies for managing stimuli. The concept of coping also includes two individual coping dimensions, which are categorized as the regulator coping subsystem, which is the body’s automatic neural, chemical, and endocrine response to stress, and the cognator coping subsystem, which is the individual’s cognitive-emotive coping resources comprising judgment, perceptual and information processing, learning, and emotion.

Within the stress and coping literature, the two predominant classifications that characterize coping efforts are problem-focused and emotion-focused. Problem-focused coping attempts to deal directly with the stressor while emotion-focused coping attempts to alleviate the emotional distress that is a consequence of the stressor (Sharkansky et al., 2000). Another effort to classify coping describes the method of coping as either approach-based or avoidance-based. Approach-based coping seeks to directly resolve the stressor whereas avoidance-based coping tries to avoid thinking about the stressor or its effects (Moos, 1990).

Poor coping resources or capacities increases the risk for posttraumatic pathology (Ruzek et al., 2004). For instance, individuals who used higher percentages of approach-based coping strategies to manage their combat-related stress reported fewer psychological symptoms (Sharkansky et al., 2000). Similarly studies of civilian hospitalized burn victims who used emotion-focused and avoidance-based coping reported more PTSD symptoms (Fauerbach, Richter, & Lawrence, 2002). There are also significant associations between dispositional difficulty forgiving others and oneself and negative religious coping, which includes interpersonal religious discontent, questioning God’s powers, and appraisal of a problem as God’s punishment, with difficulties in mental health for veterans with PTSD (Witvliet, Phipps, Feldman, & Beckham, 2004).

Adaptive Modes

Roy’s model has four adaptive modes in which the behaviors of individuals, in response to coping activities, can be observed. These four adaptive modes include: Physiological/Physical Mode, Self-Concept Mode, Role Function Mode, and Interdependence Mode.

The Physiological Mode pertains to the individual and is the sum of all physical and chemical processes involved in the functions and activities of a living organism (Roy & Andrews, 1999).

In response to a traumatic stress reaction, the human body undergoes a number of physiologic responses, more specifically, neurologic and endocrine adaptations. PTSD-affected
individuals demonstrate reduced plasma beta-endorphin concentrations, which results in a diminished pain threshold and a naloxone-reversible analgesic response to combat-related stimuli (Pittman et al., 1991). These findings point to the likelihood of an opioid system hyperregulation. Endorphins are part of the body’s adaptive response to stressful stimuli and are released into a person’s bloodstream during a “fight or flight” response to produce a calming, tranquilizing effect.

Additionally, evidence points to hypocamal-pituitary-adrenal and thyroid axis dysfunctions since PTSD-affected individuals also demonstrate low levels of serum and urine free cortisol, increased plasma norepinephrine levels, increased secretions of neuronal corticotropin-releasing factor (CRF), and elevated total triiodothyronine (T3) levels (Pittman et al., 1991). In response to fear or trauma, the amygdala of the brain, which is also responsible for hyperarousal, determines whether a sensory experience is harmful and initiates a biochemical and behavioral response to the perceived threat that affects all of these processes (Yehuda, 2004). In the PTSD-affected individual, the brain’s hippocampus, despite its function in helping to remember traumatic events through specific cues, no longer stimulates the amygdala in the response to stress. This disconnection between the hippocampus and amygdala accounts for the dissociative symptoms experienced by patients with PTSD. Neuroimaging studies demonstrate marked reductions in hippocampal volume in a population of Gulf War veterans with PTSD (Vythilingam et al., 2005) and reduction in anterior cingulate cortex volume, which regulates fear in the amygdala (Woodward et al., 2005). This destabilization of the autonomic nervous system and amygdala results in symptoms of anxiety, agitation, and diminished inhibitions (Paulson & Krippner, 2007, p.6).

Roy’s second dimension is the Self-Concept Mode. This is the composite of the beliefs and feelings an individual possesses about him- or herself at a given time (Roy & Andrews, 1999). According to Paulson and Krippner (2007), one of the most challenging aspects of overcoming a traumatic emotional experience is the loss of one’s individual perspective or personal mythology that ensures security and safety in the world. Research on cognitive processes in victimization indicates that major changes occur in an individual’s basic life assumptions that one’s environment is physically and psychologically safe; that events are predictable, meaningful, and fair; and that one’s own sense of self-worth is positive in relation to experiences with other people and events (Hunter, 2004). Many victims harbor personal myths that God is punishing them for their impiety (Richards & Bergin, 1997). A study by Barrett et al. (2002) demonstrated a significant positive relation between PTSD and self-reported lower ratings of overall health status and health quality of life especially in the physical, emotional, and social domains.

Roy’s third dimension of Adaptive Modes is the Role Function Mode. This mode focuses on the roles that the individual occupies in society (Roy & Andrews, 1999). One of the common dynamics seen in combat veterans with PTSD is that a number of PTSD symptoms that detach themselves from their families because of uncomfortable feelings with giving and receiving emotional closeness (Scrufield, 2006). Additional issues include severe spousal aggression, occupational instability, marital problems, and divorce, and difficulties with parenting (McCarroll et al. 2000; Meagher, 2007; Peebles-Kleiger & Kleiger, 1994). Veterans who reported discomfort in disclosing their experiences in Vietnam to family and friends demonstrated an increased risk for developing PTSD (Koenen, Stellman, Stellman, & Sommer, 2003).

Roy’s fourth and final adaptive mode is the Interdependence Mode. The individual focus for this mode pertains to the giving and receiving of love, respect, and value. Not everyone who experiences trauma or acute stress reactions will go on to develop PTSD. Of those who do, they often engage in “emotional numbing” so that they will not have to share feelings with their trauma experience with anyone (Brown, 1994). This numbing is often taken to extremes and leads the veteran to avoid responsibilities, even important ones relating to the maintenance of friendships, marriage, children, and long-term employment (Tedeschi & Calhoun, 1995). Encouraging veterans to maintain social support groups and to reconnect with loved ones is critical for helping the individual cope with the traumatic event (The Management of Post-Traumatic Stress Working Group, 2004).

Behavior

The observable outcome of the adaptation process is behavior. Roy and Andrews (1999, p. 63) describe behavior as “all responses of the human adaptive system including capacities, assets, knowledge, skills, abilities, and commitments.” Behavior includes both internal and external actions and reactions that are formulated as adaptive responses or ineffective responses. According to Roy (1989), adaptive responses are those behaviors that promote the integrity of the human system, whereas ineffective responses are those that neither promote integrity nor contribute to the adaptive processes of survival, growth, reproduction, or mastery.

Examples of ineffective responses demonstrated by veterans in response to their war-zone experience include chronic debilitating PTSD symptoms with higher rates of substance abuse, drug abuse and dependence, nicotine use, somatofrom disorders, obesity, and suicidality among veterans diagnosed with PTSD (Beckham et al., 1995; Boccarino, 2006; Price, Risk, Haden, Lewis, & Spitznagel, 2004; Vieweg et al., 2006). Examples of adaptive responses include seeking mental health services, resolution of PTSD symptoms, posttraumatic growth, and mastery of the experience.

PHILOSOPHIC PERSPECTIVE OF RELATED RESEARCH

The majority of the research conducted by other disciplines on PTSD, although not explicitly stated, emerged from the Empiricist and Logical Positivist perspectives. Empiricism is
rooted in the ideology that all knowledge stems from experience and is explicated from information that is gathered through the senses (Rodgers, 2005). The philosophy of Logical Positivism, in which the purpose of science was to “predict, explain, and control events,” (Rodgers, 2005, p. 89) provided an additional foundation on which to study PTSD. The majority of the studies of PTSD thus far have focused on identification of diagnostic criteria, risk factors, and intervention evaluation so as to be able to explain, diagnose, and intervene with a patient with PTSD. Future research into PTSD addressed through Roy’s Humanistic philosophy would further the body of nursing knowledge by examining the veteran’s individual experiences in coping with PTSD. Appropriate nursing interventions could be developed and implemented to treat the patient from a holistic perspective, and allow them to participate in the creative process of healing.

DISCUSSION

This article highlighted a number of research findings on PTSD in the combat veteran placed in the context of Roy’s Adaptation Model. Roy’s model demonstrates how each individual responds to the internal and external stimuli that shapes their environment. The individual manifests the adaptation process through four modes: physiological, self-concept, role function, and interdependence modes of adaptation. Through the application of regulator and cognator coping mechanisms, the individual exhibits either adaptive or ineffective responses, which then impact the stimuli, thus closing the loop of this systems-based model (see Figure 1). Because of its Humanistic philosophic underpinnings and systems-based scientific approach, which view the individual as a holistic, creative, purposeful entity seeking to adapt to both internal and external stimuli, Roy’s model provides an effective framework within which to understand how the military veteran functions as a human adaptive system when confronted with the stress of PTSD.

Current research into PTSD reflects philosophic underpinnings consistent with empiricism in which researchers are attempting to quantify and measure the phenomenon of PTSD. Future nursing research directions for PTSD to be studied using Roy’s model as a guiding framework include: the effects of coping during combat and upon return home; the impact of training soldiers in more active approach-based coping styles; the role of forgiveness; interventional research to examine ways to mitigate modifiable risk factors, such as levels of social support and resilience and to determine whether suggested interventions significantly decrease human suffering and institutional costs; longitudinal studies to document the illness course and progression; the impact of the disorder on the family structure and function; and identification of demographic factors that influence the success of one intervention over another. Nursing is a discipline committed to protecting vulnerable populations against stressors that impact health and illness. Nurses in every health care setting must educate veterans on the symptoms and course of PTSD, instill hope, facilitate recovery, and dialogue with the patient in planning care and interventions. Moreover, mental health nurses are in an exceptional position to implement current study findings and interventions and have the expertise to make a positive impact on the lives of traumatized military veterans through practice and research.

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