Chapter 11
Couples' Psychosocial Adaptation to Combat Wounds and Injuries

Hoda Badr, Trina M. Barker, and Kathrin Milbury

Abstract Almost half of all service members are married at the time of their deployment, and spouses play a key role in their rehabilitation after being wounded in combat. This chapter reviews the literature on couples' psychosocial adaptation to combat wounds and injuries and is divided into three parts. First, we review studies on the impact of physical and psychological wounds on service members' spousal relationships. Next, given the relative paucity of research in this area, we review the major theoretical frameworks that have guided an understanding of how spousal relationships promote adaptation to health-related stress in the civilian population and discuss how these frameworks can be used to help military couples cope with the unique challenges and implications of combat wounds and injuries. Finally, we discuss some of the challenges of doing research in this area and propose directions for future research.

Between October 2001 and November 2009, 1.9 million U.S. troops completed almost 3 million deployments for Operations Enduring Freedom and Iraqi Freedom (OEF/OIF). Although the U.S. Central Command confirmed in 2008 that over 5,000 service members have died in these campaigns as part of the global war on terror, it is difficult to quantify the number who have been wounded or injured. Estimates vary widely from 35,000 (O'Hanlon & Campbell, 2007) to 53,000 or more (Marchione, 2007).

Military personnel in Iraq and Afghanistan are surviving their physical injuries in numbers far greater than previous wars (Gawande, 2004). This is largely due to advances in body armor, combat medicine, and the rapidity of evacuation. Despite this, wounded OEF/OIF veterans commonly experience traumatic brain injury (TBI), blindness, spinal cord injuries, burns, and damage to their limbs resulting in

H. Badr (✉)
Department of Oncological Sciences, Unit 1130, Mount Sinai School of Medicine,
One Gustave L. Levy Place, New York, NY 10029, USA
e-mail: hoda.badr@mssm.edu

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amputation. These physical injuries require sophisticated, comprehensive, and often lifelong care. They also exact a psychological toll. Indeed, the unique nature of the current conflicts, which include multiple and lengthy deployments, urban warfare, and roadside bombs, places special burden on military service members. Psychological injuries are often not included in estimates of the number wounded; but one-third of all the veterans of OIF/OEF are expected to experience serious psychological disorders (i.e., mood disorders, anxiety disorders, and/or adjustment disorders) within 3–4 months of returning from deployment (Seal, Bertenthan, Miner, Saunak, & Marmar, 2007). Many must thus cope with both physical and psychological injuries.

The physical and emotional scars of war have practical and emotional repercussions for not only the wounded but also for their families. Family members often provide practical assistance by accompanying veterans to their clinic appointments and hospital stays, assisting with household responsibilities, interacting with health care providers, and offering input with important medical decisions. They are also important providers of medical care. More importantly, throughout the treatment and rehabilitation process, family members are crucial providers of emotional and practical support.

It is estimated that about 50% of OIF/OEF service members are married at the time of deployment. Because marriage is a primary relationship in adulthood, affords a central role identity, and provides a fundamental source of social support, much research has focused on the associations between relationship quality, relationship processes, and physical and mental health in the context of marriage (Lyons, Sullivan, Ritvo, & Coyne, 1995). For example, among couples coping with chronic health-related stress, higher levels of marital satisfaction have been shown to buffer the effects of patients' physical impairment on their partners' distress (Fang, Manne, & Pape, 2001) and the effects of one person's distress on that of the other (Carmack Taylor et al., 2008). Greater marital satisfaction has also been related to decreases in patient distress (Ptacek, Ptacek, & Dodge, 1994). With regard to social support, patients report better emotional adjustment after an illness diagnosis if their partners are highly supportive (Kayser & Sormanti, 2002; Manne et al., 2004b; Northouse, Templin, & Mood, 2001), and support from family members and friends does not appear to compensate for a lack of intimate partner support (Pistrang & Barker, 1995).

Due to the central role that they play, this chapter will focus on the role of intimate partners in the psychosocial adaptation of wounded service members. We divide our chapter into three parts. First, we will review the existing literature on the impact of physical and psychological wounds on the spousal relationships of military personnel. Given the relative paucity of research on this subject, we will next review some of the major theoretical frameworks that have guided an understanding of the role of relationship processes in couples' psychosocial adaptation to health-related stress in the civilian population, highlighting their potential utility for use with military populations along the way. Finally, we will discuss some of the challenges of doing research in this area and propose directions for future research.

Traditional Approaches to Understanding Combat Wounds and Injuries in the Marital Context

Traditional approaches to understanding the psychosocial impact of combat wounds and injuries have sought to describe the pain and distress experienced by injured veterans (Adler, Vaitkus, & Martin, 1996; Clark, Bair, Buckenmaier, Gironda, & Walker, 2007). Over the years, however, researchers and clinicians have begun to recognize the importance of viewing the veteran's health condition in the family context (Harris & Fisher, 1985; Williams, 1987). This realization has lead to studies assessing partners' distress levels (Alessi, Ray, Ray, & Stewart, 2001; Mikulincer, Florian, & Solomon, 1995; Rosenbaum & Najenson, 1976) and the psychological impact of caregiving (Calhoun, Beckham, & Bosworth, 2002). Studies show that the healthy partner is often the primary caretaker and assumes greater responsibility for household tasks (e.g., finances, time management, chores) and the maintenance of relationships (e.g., children, extended family) after the wounded service member returns home (Verbosky & Ryan, 1988). Caregiver burden includes the objective difficulties of this work (e.g., financial strain) as well as the subjective problems associated with caregiver demands (e.g., emotional strain) (Pearlin, Mullan, Semple, & Skaff, 1990). Not surprisingly, wives of wounded veterans often report higher levels of distress than wives of non-injured veterans; their experience of caregiver burden also tends to increase with the severity of their husbands' symptoms (Beckham, Lytle, & Feldman, 1996; Calhoun et al., 2002).

A second focus has been to evaluate the impact of combat injuries on the general quality of the marriage. Active component military personnel and reservists must often go on long deployments and this physical separation can induce marital stress (Galovski & Lyons, 2004), communication difficulties, and the loss of a sense of closeness and connection with their partners (Faber, Willerton, Clymer, MacDermid, & Weiss, 2008). Duck (1995) postulated that one of the key characteristics of close relationships is the regular, ongoing communication between partners that allows them to fuse different perspectives and create a shared sense of meaning. Thus, couples who are unable to connect and communicate regularly may be at greater risk for conflict and distress. Fortunately, this "disconnect" appears to dissipate for many couples as they are reunited and begin to reestablish old routines or create new ones (Faber et al., 2008).

When service members return home injured, there are two adjustments that the couple must make – one is to adjust to the physical and emotional sequelae of the injury itself and the other is to readjust to marital life following separation. Little is known about how couples negotiate this process or about the social, behavioral, and relationship factors that may increase or decrease the likelihood of making a successful adjustment in terms of psychological well-being and martial functioning. What we do know is that different injuries pose different challenges, and some may be more difficult for couples to cope with than others.

Traumatic Brain Injury (TBI)

The major cause of injury in OEF/OIF has been from blasts, especially from improvised explosive devices. According to the (carlock, 2007), explosive devices are responsible for 65% of the casualties resulting from these campaigns. Due to its prevalence, TBI has been called the "signature injury" of these wars (de Riesthal, 2009). TBI can cause attention, memory, and language problems as well as headaches, sleep disturbances, and personality changes. Whereas those with mild TBI usually recover within a year, those with moderate and severe TBI may never fully recover (Okie, 2005).

We are unaware of any published studies examining the impact of traumatic brain injuries incurred during OEF/OIF on marital functioning, per se. However, studies of the effects of TBIs from previous conflicts on couples' adjustment do exist. One study followed 123 TBI veterans after their injuries and found that 15% were divorced within the first year (Kersel, Marsh, Havill, & Sleigh, 2001). Some have postulated that couples may experience more difficulty maintaining satisfying relationships in the face of TBI compared to other conditions (Blais & Boisvert, 2005). Indeed, in addition to dealing with profound role changes in their relationships and the financial, physical, and emotional toll of caregiving, partners of TBI veterans must come to terms with the likelihood that their partners and their relationships may never return to normal. Compounding this stress, partners often lose their major source of emotional support and companionship, and experience decreases in parenting support, sexual intimacy, and open, empathic spousal communication. In a qualitative study, Rosenbaum and Najenson (1976) found that wives of Israeli soldiers reported high levels of distress and irritability over the loss of shared partnership with regard to household responsibilities and social activities and were distressed over the loss or decrease in sexual activity with their husbands. Other qualitative studies have suggested that wives of TBI veterans report feeling more like parents than spouses and experience distress over this loss of perceived equality in their relationships (Gosling & Oddy, 1995).

Couple-focused interventions that involve approaching the recovery process as a joint endeavor may help TBI veterans and their partners to better define and adjust to the "new normal" of their lives. Even though there are a number of psychosocial interventions reported in the heath needs to be a health psychology literature designed to alleviate distress and caregiver burden in the face of illness or injury, researchers need to critically evaluate whether these interventions can be effectively adapted and implemented with wounded veterans and their caretakers. Indeed, most studies that have examined coping with the loss of cognitive and physical functioning have been conducted with elderly populations. While it is true that TBI veterans experience numerous cognitive and physical challenges, they and their spousal caretakers are often much younger and unprepared for a future of coping with the ramifications of this type of enduring disability. Additionally, even though all chronic health conditions tend to be associated with a change in

social and functioning roles, changes may be even be more pronounced in young, wounded service members who are likely grieving the loss of their identity as healthy, fully functioning, independent members of society. Thus, before couple-focused interventions can be implemented in this population, researchers need to first identify the specific TBI-related stressors that adversely affect couples' marital and psychological adjustment. Given the cognitive and physical challenges faced by TBI veterans and the increased need for caregiving, researchers should also investigate the larger context of the family as a support system for both the patient and the spouse caregiver.

Post-Traumatic Stress Disorder

Post-traumatic stress disorder (PTSD) is a mental health condition commonly experienced by combat veterans, rape victims, and others who have endured a traumatic event. It is characterized by hypervigilance, avoidance, emotional numbing (the inability to feel love or happiness), as well as the reexperience of the traumatic event (Friedman, 2006). Among veterans, PTSD is associated with lower ratings of general health, more sick calls and missed workdays, and higher somatic complaints. Rates of PTSD symptoms among OIF/OEF veterans are as high as 16% (Hoge, Terhakopian, Castro, Messer, & Engel, 2007).

Partners of veterans with PTSD have a greater likelihood of developing mental health problems compared to the partners of veterans without PTSD (Solomon, Waysman, Avitzur, & Enoch, 1991). Many partners experience distress and other mental health problems that warrant clinical attention (Manguno-Mire et al., 2007). Some of these cases can be attributed to secondary traumatization (Mikulincer et al., 1995). Secondary traumatization refers to the indirect impact of trauma on those in close contact with the victim. Partners who experience mental health problems may thus be less able or equipped to provide adequate practical or emotional support to the injured veteran. Likewise, the distress of one or both partners can also increase the likelihood for distress in the couple. Factors contributing to marital distress include the healthy partner having difficulty coping with the veteran's condition, one or both partners feeling that their emotional needs are not being met, substance use, and the experience of physical and/or emotional abuse (Savarese, Suvak, King, & King, 2001). All of these are concerns for couples coping with PTSD (Galovski & Lyons, 2004; Nelson & Wright, 1996).

One of the strongest predictors of recovery following trauma in the wake of PTSD symptoms is social support. Talking to one's spouse, for instance, may facilitate successful processing of the traumatic event by allowing the disclosure of emotions, helping the individual to learn to tolerate aversive feelings, providing support for adaptive coping, and providing direct assistance in finding meaning and benefit in the experience. Conversely, not being able to talk about a traumatic experience because one's partner is perceived as critical, unreceptive, or uncomfortable with the topic may place individuals at higher risk for adverse psychological reactions

(Lepore, 2001). Supporting this idea, combat veterans who disclose their thoughts and experiences to supportive others, particularly spouses, show greater psychological adjustment (e.g., less anxiety and depressive symptoms) compared to those who keep their thoughts and feelings to themselves (Egendorf, Kaduschin, Laufer, Rothbart, & Sloan, 1981).

One reason why veterans may hold back from disclosing concerns is that they may feel that their partners will not understand or empathize with their experience. Many may thus prefer to disclose their deepest emotions to other veterans who have had similar experiences. Compounding the problem from a couples' perspective, individuals suffering from PTSD experience symptoms (i.e., emotional numbing, detachment, hostility, aggression, and a general distrust of others) that can result in emotional distancing and reduced social support from their partners (Orth & Wieland, 2006) and greater marital distress for both partners over time (Solomon et al., 1991).

Research reveals severe and pervasive negative effects of PTSD on the marital adjustment and general family functioning of combat veterans. Importantly, martial adjustment is a multidimensional construct, and studies have operationalized adjustment in terms of martial satisfaction, cohesion, consensus, and affectional expression as well as the absence of criticism, hostility and spousal aggression and violence. For example, in a study of Vietnam veterans, those with PTSD reported less verbal involvement, less self-disclosure, and less dyadic satisfaction, consensus, and cohesion compared to veterans without PTSD (Carroll, Rueger, Foy, & Donahoe, 1985). PTSD veterans also report higher levels of general hostility and physical aggression towards their partners (Carroll et al., 1985), more problems establishing and maintaining physical and emotional intimacy (Riggs, Byrne, Weathers, & Litz, 1998), and more sexual problems compared to those who do not have PTSD (Cosgrove et al., 2002). Decreased marital adjustment is an important concern, not only because it is related to lower levels of social support (Unger, Jacobs, & Cannon, 1996) and an increased risk for divorce (Spanier, 1989), but also because it is associated with compromised parenting, family violence, and caregiver burden in military families (Calhoun et al., 2002; Jordan et al., 1992; Kulka et al., 1990; Silverstein, 1996; Waysman, Mikulincer, Solomon, & Weisenberg, 1993).

PTSD symptoms like anger, irritability, and emotional numbing may account for the association between PTSD and relationship dissatisfaction. For example, veterans who experience emotional numbing may have difficulty achieving emotional intimacy or behaving in a loving manner toward their partners. Alternatively, relationship discord may facilitate the development or exacerbate the course of PTSD. Riggs et al. (1998) examined the connection between PTSD symptom clusters and relationship problems. They found that avoidance symptoms, specifically emotional numbing, interfere with intimacy (for which the expression of emotions is required), and contribute to problems in the relationship. Thus, a cycle of distress may exist whereby the lack of emotional intimacy and open communication in couples coping with PTSD may impede future self-disclosure and emotional expression. This in turn may lead to increased partner distress and

impede veteran's ability to emotionally process his or her traumatic experience, leading to the maintenance of PTSD symptoms.

Based on the patterns of PTSD symptoms and their well-documented association with marital dysfunction, effective treatment may require a dyadic component. Indeed, there is evidence that self-disclosure particularly to the veteran's spouse is associated with better psychosocial adjustment for the veteran (Egendorf et al., 1981). Moreover, even though the spousal relationship can prove a tremendous coping resource in times of stress and readjustment, the dissociative symptoms of PTSD can lead to social isolation, cutting off the veteran communicatively and emotionally from his or her spouse. A dyadic approach to treatment may facilitate effective communication, enhance intimacy, and help to address the secondary victimization of the spouse by enhancing mutual understanding and emotional validation. Before developing couples' interventions that focus on improving adaptive communication and cognitive processing in the wake of PTSD symptoms, it is important to determine how the veteran's disclosure of war-related trauma may affect or adversely affect his or her partner who may not have any combat or military experience.

Spinal Cord Injuries

Causes of spinal cord injuries (SCIs) during OIF/OEF range from gunshot wounds to explosive devices and vehicle accidents. Although normal cognitive function and intellectual ability usually remain, depending on the severity of the injury, SCI can produce not only an inability to move and feel limbs, but also the inability to control the function of internal organs and breathe independently (Cleveland Clinic, 2003). In addition to its physical consequences, the emotional consequences of living with SCI can be devastating. SCI veterans may experience impaired body image, self-esteem issues, and feelings of inadequacy. They may also develop more serious mental health conditions including substance use disorders, mood disorders such as depression and anxiety, and PTSD (North, 1999). While clinical lore suggests that depression and other mental health conditions are an inevitable consequence of SCI, there is no evidence to support this contention; however, it is estimated that about 30% of individuals with SCI will develop a mood disorder (North, 1999).

SCI can also be challenging from a couple's perspective. Although there are no real estimates of the divorce rate among SCI veterans, studies in the civilian population have yielded some interesting, albeit inconclusive results. Some studies suggest fewer marriages and a greater number of divorces following SCI compared to the general population (DeVivo & Fine, 1985); others suggest no difference (El Ghatit & Hanson, 1975). However, the divorce rate for women with SCI does appear higher than the rate for men (DeVivo & Fine, 1985).

The lack of a fulfilling sex life has been linked to psychological and marital distress (Althof, 2002; Couper et al., 2006; Cowan & Mills, 2004; Neese, Schover, Klein, Zippe, & Kupelian, 2003; Schwartz, Covino, Morgentaler, & DeWolf, 2000).

Although sexuality after SCI has received increased attention in recent years, there is as yet a sparse literature comparing the sexuality of persons with SCI to those in the general population. In one study, researchers examined whether the factors associated with marital adjustment among SCI and non-SCI couples were similar (Urey & Henggeler, 1987). They found that dissatisfied couples in both groups reported more negative communication patterns and were less satisfied with their sexual relationships. However, SCI husbands were less sensitive to their wives' sexual preferences and reported less pleasure from sexual relations. Distressed SCI couples also reported fewer shared activities. In another study, researchers found that even though sexual activity and satisfaction was lower among persons with SCI compared to healthy controls, the emotional quality of their relationships did not differ. The most important correlates of sexual fulfillment in both groups were the use of a varied repertoire of sexual behaviors (including the expression of nonsexual forms of intimacy such as kissing, hugging, and caressing one another) and the patient's perception that his or her partner enjoyed and was satisfied with their sex life (Kreuter, Sullivan, & Siösteen, 1996). Taken together, research on couples coping with sexual dysfunction in the face of SCI suggests that maintaining relationships by sharing activities and exploring other sexual and nonsexual ways of expressing intimacy may help to facilitate both partners' adaptation.

Amputations and Burns

Few studies exist on the impact of amputations and burns on couple's psychosocial adaptation. Protective gear worn in OEF/OIF has prevented many fatal abdominal and chest wounds but has shifted the pattern of injury to limbs, which are largely unprotected (Potter & Scoville, 2006). Psychological adjustment problems including anxiety, social isolation, decreased sexual activity, and depression are common among amputees (Akesode & lyang, 1981; Reinstein, Ashley, & Miller, 1978; Shukla, Sahu, Tripathi, & Gupta, 1982; Thompson & Haren, 1983). Rates of clinical depression in outpatient settings range from 23 to 35% (Kashani, Frank, Kashani, & Wonderlich, 1983; Rybarczyk et al., 1992), and women are more likely than men to experience depression following amputation (Kashani et al., 1983). High levels of perceived spousal support are associated with better adjustment following amputation (Rybarczyk et al., 1992); solicitous spouse responses (e.g., taking over chores or duties) are associated with poorer adjustment and increased levels of phantom limb pain (Jensen et al., 2002).

It is estimated that 5% of evacuations from OEF/OIF are due to burns as the primary source of injury (Kauvar et al., 2006). Of these, roughly half are due to explosive devices such as IEDs or car bombs. Because they are often unprotected, the hands and head are the most common burn sites. Although these burns are often small in size, they are difficult to treat and can lead to functional impairment (Kauvar et al., 2006). From an adjustment (e.g., depression, agitation, anger, distress) perspective, burns are particularly difficult to cope with because they

adversely affect appearance, making social integration difficult. In fact, some researchers have described burn injuries as continuous traumatic stressors because they induce physical and emotional challenges that begin with the traumatic nature of the injury itself, continue through patients' hospitalizations (which are often lengthy and repeated), and persist indefinitely after discharge (Gilboa, Friedman, & Tsur, 1994).

Most studies that have examined the impact of burn injuries on marital relationships have been in the civilian population and have focused almost exclusively on rates of divorce. Reports vary from no divorce after burn injuries (Andreasen & Norris, 1972) to rates of up to 26% (Chang & Herzog, 1976). Studies also suggest a decline in sexual satisfaction, especially among women, regardless of the size or location of the burn (Andreasen & Norris, 1972). Based on the paucity of research on amputations on burns on marital functioning, much research is needed to identify the primary obstacles to marital satisfaction and functioning. This information can then be used to guide programs that promote coping and successful adaption for both partners. For instance, if appearance related concerns are truly the primary stressors for couples with burn injuries, interventions may focus on using the marriage (e.g., spousal support and acceptance) to adjust to appearance changes and disfigurations and eventually reestablish positive body image.

Summary

The few studies that have examined psychosocial adjustment (e.g., depression, distress, aggression, PTSD symptoms, and substance abuse) following combat wounds and injuries have made strides in describing the experiences of veterans and in describing the impact of these injuries (albeit to a lesser degree) on their partners and relationships. While the above review is certainly not exhaustive, it does highlight the idea that, from a couples' perspective there are some commonalities across conditions. For example, wounded and injured persons often experience difficulty reconnecting and reestablishing intimacy with their partners, and couples who maintain their relationships by engaging in open communication, shared activities, and engage in sexual and nonsexual methods of expressing intimacy appear to have better martial adjustment such as satisfaction, cohesion, and stability over time.

Although traditional approaches have been informative, they often treat members of the couple as independent and fail to acknowledge that partners' distress levels are interdependent (Segrin et al., 2007). To move this field forward, we believe it is important to adopt a couple-level perspective whereby the veteran's condition is viewed in relational terms so that the dyad is the unit of analysis. Implicit in this perspective is that the physical and emotional injuries of war affect the couple, and that a focus on the veteran and his or her partner separately may not be as beneficial from a theoretical and clinical perspective as a focus on the relationship (Manne & Badr, 2008). Another important assumption is the

belief that the marital relationship is a resource for partners to draw on during difficult times, but that it is equally important to study the ongoing contributions that partners make to preserve and improve relationship quality. Thus, the veteran's injury can serve as an opportunity for couples to forge a more intimate bond.

Viewing the physical and emotional scars of war as a potential relationship opportunity as opposed to a challenge for individual partners entails a refocusing of scholarship and attention onto couples' interactions and how these interactions affect both partners' sense of closeness and adaptation to stressors and life changes. From this perspective, relationship processes, or the ties that bind patients and partners together as they cope together, are key (Manne & Badr, 2008). We believe that identifying and targeting key relationship processes (e.g., supportive communication) can facilitate the design of efficacious couple-focused interventions aimed at improving psychosocial adaptation. Because models of couples' adjustment to combat wounds and injuries currently do not exist, we will next review some of the major theoretical frameworks that have guided an understanding of the role of relationship processes in couples' psychosocial adaptation to health-related stress in the civilian population.

Couple-Level Models of Psychosocial Adaptation

Couple-level models for understanding adjustment to health-related stress include dyadic stress and coping models (Bodenmann, 1997, 2005) and relationship process models (Manne & Badr, 2008). Unlike traditional models, these models focus on both members of the couple and nature and frequency of their communication with each other.

Dyadic Stress and Coping Models

Because combat wounds and injuries affect both partners in a relationship, they are considered dyadic stressors. Dyadic stressors are common in everyday life but are challenging to study because they can affect people on both an individual and a couple level. At the individual level, each person's experience of the dyadic stressor is filtered by his or her own unique needs and concerns. Thus, veterans may be more concerned about the emotional, physical, and practical consequences of having a terminal illness; their partners may be preoccupied with caregiving and worry about how the veteran's condition will affect them. At the couple level, veterans and their partners must coordinate how they cope with illness-related stressors. This may include practical efforts (e.g., managing household responsibilities), and engaging in more emotionally laden coping tasks such as managing emotional reactions and reacting to one another's distress.

Although dyadic stressors affect both persons individually and collectively as a couple, most research on couples' coping has been guided by Lazarus and Folkman's (1984) transactional model of stress, the focus of which is largely on the sick or injured spouse. This model views social support as a form of coping assistance (Thoits, 1986) and conceptualizes one person (usually the healthy partner) as the support provider and the other (usually the patient, or, in this case, the wounded veteran) as the support recipient. Research emanating from this model has shown that even though the spousal relationship can be a tremendous coping resource, partners can sometimes be negative or unsupportive. Unsupportive partner behaviors such as hiding worries, criticizing the patient's coping efforts, avoiding discussions about the illness or injury, and providing unsolicited advice are of concern because they can reduce the patient's ability to cope effectively and exacerbate psychological and marital distress (Badr & Carmack Taylor, 2009; Manne, Dougherty, Veach, & Kless, 1999, Manne, Taylor, Dougherty, & Kerneny, 1997; Manne et al., 2003, 2007). Generally, this model does not take stressors that couples face together into consideration. Given this, developing a better understanding of the ways that wounded veterans and partners support each other and adaptively cope together may aid in the development of couple-focused interventions.

The Systemic-Transactional Model (STM) posits a model of dyadic coping in which, faced with a shared stressor, relational partners cope both individually and collectively as a unit (Bodenmann, 1997, 2005). At the individual level, stress appraisals are shaped by the individual's own unique needs and concerns. Based on these appraisals, a stress communication process is triggered whereby each partner communicates his or her own stress to the other in hopes of receiving support and coping feedback. The other partner can then respond in either a supportive or unsupportive fashion. Supportive coping responses include providing advice and practical help with daily tasks, showing empathy and concern, expressing solidarity, and helping one's partner to relax and engage in positive reframing. Unsupportive coping responses include showing disinterest, conveying a reluctance to provide support, providing support that is accompanied by criticism, distancing, or sarcasm, and minimizing the severity of the stressor. This coping is considered "dyadic" because both partners are involved; however, each person's involvement is confined to helping the other partner manage his or her own stress. STM thus describes responses at this level as supportive and unsupportive (dyadic) coping.

At the couple-level, relational well being is affected by the couple's ability to work together to manage aspects of the dyadic stressor that affect both of them. This coordinated effort has both positive and negative forms. Common positive dyadic coping involves joint problem solving and the coordination of everyday demands, mutual calming, mutual sharing, mutual expressions of solidarity, and relaxing together. Common negative dyadic coping involves mutual avoidance and withdrawal.

In sum, the STM involves multiple interactive components: (1) the degree to which both partners communicate their own stress (i.e., stress communication); (2) the degree to which both partners respond to each other's stress communications

(i.e., supportive or unsupportive coping); and (3) the degree to which both partners work together to manage dyadic stress and restore a sense of balance in their relationship (i.e., common positive or negative dyadic coping). Although we are unaware of published studies that have evaluated this model in wounded service members and their spouses, a recent meta-analysis of 13 studies of healthy civilian couples and couples in which one partner had a psychiatric diagnosis provided convincing evidence for the association between dyadic coping and marital functioning (d = 1.3; Bodenmann, 2005). Couples suffering from PTSD (Kramer, Ceschi, Van der Linden, & Bodenmann, 2005) appear to lack dyadic coping, and a study of community-dwelling adults found that couples who reported low levels of common positive dyadic coping at study entry were more likely to divorce or separate 5 years later (Bodenmann & Cina, 2000). Regarding physical health stressors, in a study of 191 couples coping with metastatic breast cancer, Badr and colleagues found that using more common positive dyadic coping strategies was associated with less distress for partners and was mutually beneficial for wives and partners in terms of greater dyadic adjustment over a 6-month assessment period. Taken together, these findings may be relevant to military couples coping with the psychological and physical wounds of OIF/OEF. Supporting this contention, studies have found that Vietnam veterans who suffered from PTSD had lower coping quality than veterans without PTSD – particularly in relationship dimensions such as consensus-finding and intimate-relationship cohesion (Carroll et al., 1985).

Relationship Process Models

Whereas communicating support to one's partner to reduce his or her distress and joint problem solving are important components of dyadic coping, relationship processes models (i.e., relationship resilience and intimacy process models) focus on communication processes in terms of how couples disclose concerns and communicate support as well as the ways in which they communicate to resolve stress.

Relationship resilience models. Marital resilience refers to the strategies partners engage in to strengthen and/or maintain the stability of their relationship and promote positive accommodation to challenges (Canary, Stafford, & Semic, 2002). Stafford and Canary (1991) identified five such strategies: (1) positivity, or interacting with one's partner in a cheerful and optimistic manner; (2) openness, which refers to discussing and disclosing information about the relationship with one's partner; (3) assurances, which are messages of commitment and love; (4) social networks, which entails relying on or interacting with common relatives/friends; and (5) shared tasks, which involves engaging in everyday activities such as housework together. These relationship maintenance strategies promote important relational characteristics (i.e., liking, commitment) that motivate people to engage in other pro-relationship behaviors over time (Canary et al., 2002)

and prevent the relationship from decaying (Dindia & Baxter, 1987; Guerrero, Eloy, & Wabnik, 1993).

Patterson (2002) has argued that understanding resilience depends on the identification of processes that potentially buffer the relationship between a family's exposure to risk and their ability to maintain competence and accomplish family functions. Because couples coping with war wounds must deal with the initial trauma of the injury and the daily challenges of living with the aftermath of the veteran's condition, understanding the strategies that allow couples to adapt and reachieve a sense of normalcy is important. No studies have examined the use of maintenance strategies among couples coping with combat injuries; however, Badr and colleagues prospectively examined their effects among couples coping with another health-related stressor – cancer. Specifically, 158 lung cancer patients and their spouses completed questionnaires within 1 month of treatment initiation (baseline) and 3 and 6 months later. Multilevel modeling with the couple as the unit of analysis showed that, regardless of gender or social role (i.e., whether the individual was a patient or spouse), individuals who engaged in the strategies of positivity, networks, and shared tasks reported less distress at baseline than other subjects. Over time, the effects of providing more assurances and experiencing a partner's increased reliance on social networks differed: patient distress was exacerbated, and spouse distress was alleviated. Couples where both partners engaged in more frequent maintenance behaviors reported greater dyadic adjustment at baseline and over time. The authors concluded that the initial treatment period may be an important time that sets the tone for future spousal interactions and that engaging in relationship maintenance during this period may help mold more resilient relationships and facilitate adjustment (e.g., decreased depression and distress) as the disease progresses. Given these findings, it may also be useful to prospectively examine wounded veterans over time to determine whether engaging in relationship maintenance strategies close to the time of injury is similarly beneficial.

A related construct to relationship maintenance is relationship awareness, which is defined as the focusing of attention on the relationship (Acitelli, 2002) by incorporating the relationship into one's self-concept (couple identity) (Acitelli, Rogers, & Knee, 1999) and talking with a partner specifically about the relationship (relationship talk) (Badr & Acitelli, 2005). Greater relationship awareness is associated with higher levels of happiness, commitment, and love between married couples (Fletcher, Fincham, Cramer, & Heron, 1987), as well as the psychological adjustment of individual partners (Badr, Acitelli, & Carmack Taylor, 2008). For example, couple identity has been shown to facilitate cooperative patterns of behavior that benefit the relationship (Garrido & Acitelli, 1999) and has been shown to minimize negative effects of a chronic illness on spouse mental health (Badr, Acitelli, & Carmack Taylor, 2007). Badr and colleagues recently demonstrated that lung cancer patients and their partners who engaged in more frequent discussions of their relationship within 1 month of treatment initiation reported greater marital adjustment and less psychological distress up to 6 months later (Badr, Acitelli, & Carmack Taylor, 2008). They also demonstrated that relationship-talk may take on

a variety of forms in the cancer context including talking about relationship memories, plans for the future, and problem solving about cancer-related issues that have impacted the relationship (Badr & Carmack Taylor, 2006).

In sum, relationship resilience research would suggest that viewing the aftermath of combat wounds and injuries as a "we" experience and making efforts to maintain the relationship and enhance closeness may play an important role in couples' psychological and marital adaptation. Understanding the behaviors that help military couples maintain or reestablish relationship homeostasis and quality and that allow them to enhance their marriage is important – particularly for those who must cope with wounds and injuries and who will likely have to consider a "new normal" for their relationship.

Intimacy process models. Reis and Shaver's Interpersonal Process Model defines intimacy as a process whereby one person expresses important self-relevant feelings and information to his or her partner, and, as a result of the partner's response, comes to feel understood, validated, and cared for (Reis & Shaver, 1988). The model emphasizes two components of intimate interactions: self-disclosure and partner responsiveness. Self-disclosure is the communication of personally relevant and revealing information to another person. That person then responds by disclosing personally relevant facts, thoughts, or feelings. The process then proceeds to the perceptions and appraisals by the speaker regarding what the listener has said. For the interaction to be intimate, the speaker needs to interpret the listener's statements as responsive. That is, the speaker needs to perceive that the listener has understood the content of the person's disclosure and, as a result, feel accepted and cared for. Laurenceau and colleagues expanded the Interpersonal Model of Intimacy to include perceived partner disclosure as well as self-disclosure (Laurenceau, Barrett, & Peitromonaco, 1998). According to their model, both self- and partner-disclosures contribute to the development of intimacy through the degree to which the speaker feels that their partner is responsive.

Evidence supporting the Intimacy Process Model in couples coping with health-related stress comes from recent studies conducted by Manne and colleagues. For example, in an observational study, 98 couples coping with early stage breast cancer participated in two discussions and then rated perceived self-disclosure, partner disclosure, partner responsiveness, and intimacy experienced during the discussion (Manne et al., 2004a). Results showed that, for patients, perceptions of greater partner disclosure were associated with greater perceived partner responsiveness, which in turn was associated with greater intimacy. The authors surmised that one reason why partner disclosure predicted patient feelings of intimacy was because this type of disclosure was associated with greater feelings of acceptance, understanding, and caring. For partners, greater self-disclosure was associated with greater perceived patient disclosure, which in turn was associated with greater perceived intimacy. Interestingly, patient disclosure was not associated with greater intimacy for either patients or their partners.

In a subsequent cross-sectional study, Manne and Badr (2009) examined intimacy processes in couples coping with head and neck and lung cancers. Multilevel analyses using the Actor–Partner Interdependence Model (Kenny, Kashy, & Cook,

2006) showed that intimacy fully mediated associations between self- and perceived partner disclosure and distress. Evidence for moderated mediation was found; specifically, lower levels of distress were reported as a function of intimacy, but these associations were stronger for partners than for patients.

Taken together, research on intimacy process models in the context of health-related stress may have important implications for future research on wounded veterans and their spouses. Studies have shown that Vietnam veterans and their partners often experience problems reestablishing intimacy after deployment and more recent data from OIF/OEF suggests a similar trend (Erbes, Polusny, Macdermid, & Compton, 2008). Given this, psychological interventions that promote spouse acceptance and validation may improve feelings of closeness for both the veteran and his or her spouse. A focus on the degree to which the healthy partner discloses his or her own feelings and concerns may also prove beneficial for the couple.

Summary

Relationship process models posit that couples manage the challenges associated with serious life stressors together by discussing concerns and feelings, engaging in joint problem solving, and by talking about aspects of their relationship that are separate from the health condition in order to maintain a sense of normalcy and connection. They also suggest that from a couples' perspective, successful adaptation may not be as dependent upon the specific characteristics of the service member's injury per se, but rather on how well the couple integrates the health condition into their lives.

Challenges and Future Directions

As our review suggests, there are a number of unexamined issues with regard to couples' adaptation to combat wounds and injuries. Most research to date has focused on the effects of war-related injuries on the individual outcomes of wounded veterans and, to a lesser degree their spouses and family members. We believe much can be achieved by adopting a more dyadic focus by examining couples' interaction patterns as well as how they cope and adjust together. Because social support is an interpersonal process, relationship process models including dyadic coping and relationship resilience models offer much promise for evaluating the role of intimate relationships in adaptation to these injuries. One advantage of these models is that support is viewed as arising out of an ongoing relationship with a history of interactions and accompanying expectations, as well as being influenced by personal characteristics that each individual brings to the interaction that color both the quality of the interaction and the perception of others' responses.

However, it is important to keep in mind that these models were developed largely in the context of cancer and other chronic diseases. Like couples coping with combat wounds, couples coping with diseases such as cancer must often cope with physical debilitation and/or disfigurement, traumatic stress, a long recovery process and late effects, and changes in roles and responsibilities, life plans, and patterns of relating. However, the experiences of military couples are also unique in a number of ways. For example, military couples are generally younger than couples coping with cancer and must endure long intervals of separation, wearing on the relationship before the wounded service member comes home. In addition, spouses may not be the primary or best source of emotional support for service members who have been in combat. Some veterans may feel more comfortable disclosing concerns to other veterans who have been through similar experiences, and this may add additional stress to already stressed relationships. More research is needed to determine whether these differences contribute significantly to couples' adjustment and whether they should be included in models of couples' adaptation.

Research in civilian populations suggests that it is important for couples to maintain a sense of normalcy and identity separate from illness. More research is needed however, to determine whether this is the same for couples coping with combat-related injuries. A related issue is that models should be expanded to consider the possibility that a veteran's injury may help to bring couples closer together, both in terms of attending to a previously unsupportive relationship or deepening intimacy in an already supportive one. Finally, understanding why some veterans do not get the support they want or need from their partners and why certain couples are at risk for poor psychosocial outcomes will help clarify the role of intimate relationships in both partners' adaptation.

From a methodological perspective, it is important to note that dyadic-level analyses have not been used to examine military couples' adjustment, as data are typically collected only from the veteran. In addition, measures of couples' communication often involve self-reports that assess the quantity rather than the quality or nature of such discussions and the relative paucity of quantitative, prospective studies limits our understanding of the support needs of veterans and their partners and how those needs may change over time.

A number of moderators of the support–adaptation relationship have been identified by previous work and suggest that existing models may need refinement. For example, individuals dealing with disfiguring injuries may benefit most from emotional support. The degree of match between the type of support provided and the type and amount of support preferred is another potential moderator of the degree of effectiveness of social support. Sociodemographic variables such as age, education, and culture may also be important. For example, couples at different stages of the life cycle may experience different relationship stressors as a function of the veteran's injury and therefore have different expectations regarding not only social support but also interaction with their partners. Likewise, most do not report the ethnic or cultural background of the service members they study, which has not allowed us to examine the role of culture in support-related interactions. It is also unclear whether couples where both partners are in the military differ in adjustment

or experience the same difficulty adjusting as couples comprised of one military service member and one civilian. Pre-illness relationship factors such as marital intimacy, commitment, and satisfaction may influence both partners' motivations to use the injury as an opportunity to enhance their relationship. Finally, individual factors such as personality and interpersonal skills that partners bring to this situation may also influence relationship processes. Some couples may thus need to work harder to maintain their relationships and enhance intimacy.

Because most studies examining social support processes in military couples have focused on male veterans and female partners, it remains unclear whether gender differences in adjustment or the efficacy of certain types of social support exist. More studies are needed that include both members of the couple and include wounded veterans of both genders so we can disentangle the effects of gender and social role. Marital quality may be an important moderator or proxy for social support. Individuals who are more maritally satisfied may perceive greater support, may explain away partner unsupportive behaviors, and may benefit more from the support that they do receive. Finally, because combat wounds affect both members of the couple, when treating married or partnered veterans, intervention strategies may need to involve both members of the couple and address each of their unique needs and concerns.

In conclusion, intimate relationships appear to exert a strong influence on veterans' psychosocial adaptation. Given this, future research may benefit from an increased focus on couples' interactions to address ways that partners can adaptively cope together.

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