

Chapter 6

A PSYCHOLOGICAL MODEL OF COMBAT STRESS

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Manuel Bromberg

Soldiers Resting on Omaha Beach, Normandy

1945

Manuel Bromberg was a member of the War Artist Unit for England and Ireland during World War II and was present during the invasion of Normandy. He does an exceptional job of visualizing the variables of combat stress (the individual, the unit, and the battlefield) in this watercolor of three exhausted soldiers from World War II trying to rest amidst the destruction about them.

Art: Courtesy of US Center of Military History, Washington, DC.

INTRODUCTION

The model presented in this chapter is a blend of theory and practice. The theoretical approach stems primarily from the cognitive theories of stress and coping, which emphasize the role of cognitive appraisal and active coping in the individual's response to stressful conditions.¹⁻⁴ The practical ideas are derived from the combat experiences of the senior author and those of his colleagues in the

Israeli Defence Forces (IDF) and the junior author's combat experiences in Vietnam. These ideas were subsequently discussed and elaborated with well-seasoned IDF field commanders. The model has been used in lectures given at various senior command courses in the Israeli military and has been a useful tool for approaching the complexity of human behavior in groups under stress.

BACKGROUND TO THE MODEL

A number of studies related to World War II,^{5,6} to the Korean and Vietnam conflicts,⁷⁻⁹ and to the Arab-Israeli wars¹⁰⁻¹² have delineated variables that prevent or promote the individual's ability to cope with combat stress. These studies and the salient coping variables have been summarized by several authors.^{10,13,14} Although these variables do not lack face validity, a coherent scheme of their interactions and their impact on subsequent combat stress reactions has been lacking. There have been attempts at a dynamic interpretation of the simple relation between nature, nurture, and combat stress, beginning as early as Salmon¹⁵ and extending as recently as Shaw¹⁶ and Milgram.¹⁷ Yet the complexity of the combat situation calls for a multi-variable and rather complex, interactive model to account for the multitude of factors involved in the generation of, and consequent coping with, the stress of combat.

The proposed model is interactional in that it posits a number of antecedent variables acting through mediating variables to affect the individual's appraisal of the combat situation and subsequently result in the combatant's modes of response and coping with the realities of combat (Figure 6-1). Furthermore, the model is also dynamic wherein the individual's preferred coping behavior in turn affects his reappraisal of the situation and thus may further alter his combat responses.

The *antecedent variables* pertain to the individual, group, and environmental aspects and may conveniently be categorized as follows:

- Individual factors—personality, nonmilitary stress (family, etc), prior combat exposure, role in combat.

- Unit factors—cohesion and morale, training, leadership, and commitment.
- Battlefield factors—type of battle, surprise and uncertainty, environmental factors (weather, terrain, etc).

These antecedent variables, according to the proposed model, do not directly determine the soldier's appraisal of the combat situation; rather, they are mediated by other variables—the *mediating variables*—in an interactive manner. Of paramount importance in the soldier's expectation or interpretation of the immediate situation is the role his commanders (or persons in leadership positions) play in providing the information concerning the impending military operation. Thus, the way in which he is briefed and the way in which orders are given, interacting with the antecedent variables, will strongly color his evaluation (ie, appraisal) of both the nature of the stress and his ability to handle it. The role of the commander, then, becomes that of a *lens*, that is, either magnifying or minimizing the impact of the (objective) antecedent variables on the soldier's (subjective) cognitive appraisal.

The *appraisal process*, which is the central notion in this model, may vary along a wide range of alternatives: the exact situation may be assessed by different individuals or at different moments as a terrifying, benign, or challenging situation—depending upon the interactive consequences of the given antecedent and mediating factors. The individual's initial modes of response to and coping with a combat situation will reflect his own process of cognitive appraisal. *Response patterns* may be divided into the traditional categories of physical, emotional, cognitive, and social. These immediate, somewhat universal patterns of response will in

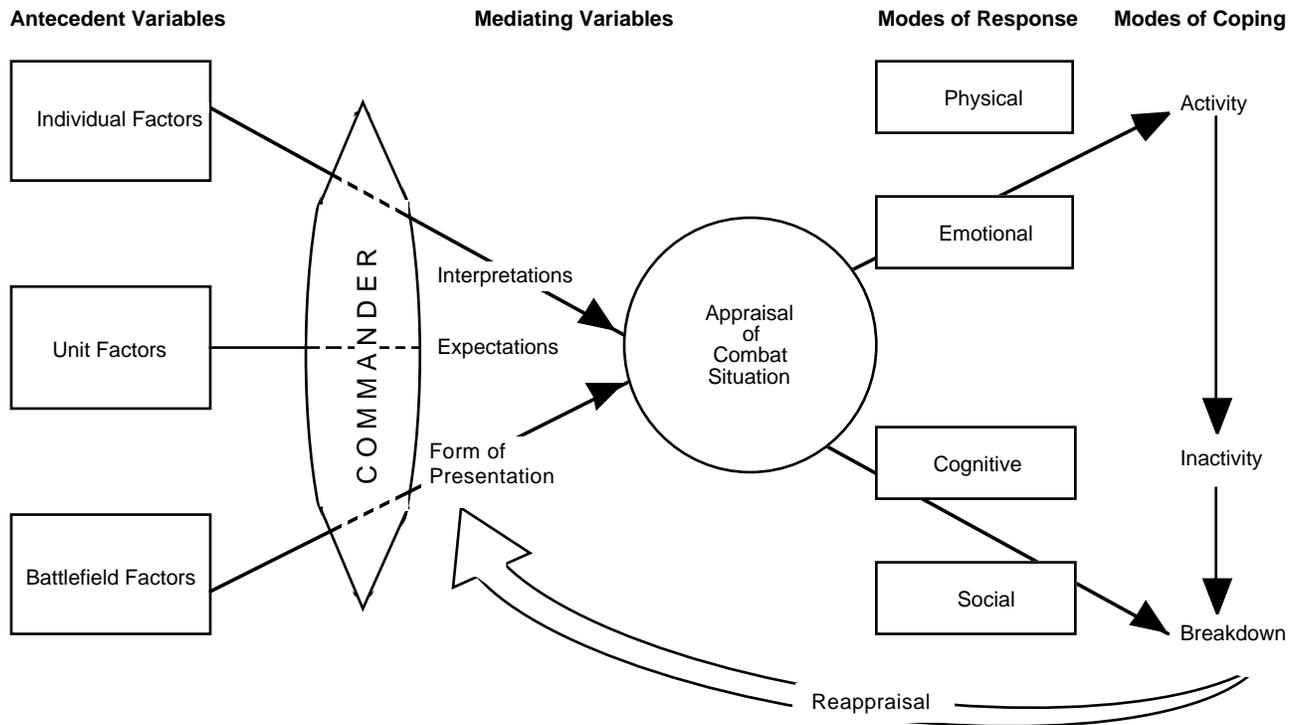


Fig. 6-1. A model of soldier behavior in combat stress conditions. This model is interactional in that it posits a number of antecedent variables acting through mediating variables to affect the individual's appraisal of the combat situation and subsequently result in the combatant's modes of response and coping with the realities of combat. The model is dynamic in that the individual's preferred coping behavior in turn affects his reappraisal of the situation and thus may further alter his combat responses. The role of the commander becomes that of a lens, magnifying or minimizing the impact of the (objective) antecedent variables on the soldier's (subjective) cognitive appraisal.

turn produce individual *modes of coping* ranging from an optimal mode (normally involving a high, goal-oriented level of activity) to limited coping (frequently characterized by passivity) to grossly disturbed coping (breakdown).

The modes of coping actually utilized will influence, in a feedback manner, the individual's *reappraisal* of the newly perceived situation and of his already tested capabilities to cope with it. Thus, the cognitive appraisal processes are in a state of dynamic flux, originally affected by the antecedent

factors but consequently reflecting also the initial reactions made by the individual. The new appraisal will then lead to different modes of response leading to different modes of coping and a further new and different appraisal.

The following sections will further detail each of the components of the proposed model and will attempt to empirically substantiate the proposed relationships between them. This analysis will involve direct combat experience as well as relevant research.

ANTECEDENT VARIABLES

Two main groups of variables, antecedent and mediating, lead to the initial appraisal of the stress situation. The antecedent variables comprise those factors that are in the background of the combat situation; they may be categorized as individual factors, unit factors, and battlefield factors.

Individual Factors

Among the individual factors that any combatant brings along with him to the battlefield are his personality dispositions and his general well-being. These, together with his previous combat exper-

ience and his role in combat, determine the first category of the antecedent variables.

Personality Dispositions

Notwithstanding the almost obvious expectation that behavior in the face of battle should be somehow linked to the warrior's personality, very little empirical evidence has been found linking individual personality factors and combat behavior, either in terms of outstanding performance or breakdown.¹⁸ One extensive study,¹⁹ however, did find several characteristics that distinguish "fighters" (soldiers who had received, or had been recommended for, a decoration for valor in combat or were evaluated by peers as high performers) from "nonfighters" (soldiers who were evaluated by peers as poor performers, or admitted themselves as such). Among the differences revealed in that study, the "fighters" tended to be more intelligent, "masculine," and socially mature; and showed greater emotional stability and stronger leadership potential.

Indeed, military organizations tend to consider personality variables in selecting personnel for combat roles, particularly leadership roles and special operations. This preselection procedure may, in fact, by virtue of restricting the range for study, account for the difficulties in establishing empirical correlations between personality dispositions and combat performance. Gal,²⁰ for example, in a study of soldiers awarded medals for bravery in the 1973 Yom Kippur War found only a few differences in personality characteristics between the decorated soldiers and a matched sample of combat soldiers not so recognized. These personality characteristics were part of the officer selection process that many of the soldiers awarded medals had gone through. Medal recipients, as compared with their peers, showed higher scores in leadership, devotion to duty, decisiveness, and perseverance under stress. Sociability, social intelligence, and emotional stability did not distinguish the two groups.

With regard to psychiatric breakdown among members of combat units, Noy²¹ found that while personality characteristics did not predict such breakdown, they were significant in recovery after breakdown. Men with massive repression of hostility or anxiety, particularly if coupled with situational stress at home, had a poorer prognosis. It is quite evident, then, as concluded by Glass in his summary of the "lessons learned" from World War II, that "the frequency of psychiatric disorders [in

combat] seemed to be more related to the characteristics of the group than to the character traits of the involved individuals."^{13(p995)}

Individual's Well-Being

While personality dispositions refer to long-standing traits of the individual himself, well-being refers to relationships between the individual and his environment.²² Such relationships may directly affect combat behavior as shown in the Israeli experience of the 1973 Yom Kippur War.²¹ In a group of 40 Israeli soldiers who suffered battle shock, 80% had prior or ongoing civilian stresses. About one half had pregnant wives or were new fathers during the year preceding the war and about one fourth of them had experienced a recent death in the immediate family. Other relevant civil stresses consisted of being newly married or separated and economic or family problems.

A world War II study²³ reported that 20% of psychiatric cases complained of "homesickness" as a significant stress. An even more striking difference between those who became psychiatric casualties and a nonafflicted comparison group was found when variables such as family, school, work, and social, recreational, and community adjustments were examined. Soldiers with impairments in these areas were found to have about a two to four times greater likelihood of breaking down.²³

More recent studies have shown high levels of self-reported well-being to be a distinct characteristic of elite combat units.²⁴ Whether operating as a causal factor in facilitating volunteering to elite units, or emerging as a concomitant of belonging to such units, personal sense of well-being is evidently an important antecedent factor for any combatant facing the impending stress of combat.

Previous Combat Experience

The effect of previous experience on fear reactions was demonstrated in studies conducted with combat-like performance. Epstein²⁵ and his colleague²⁶ have demonstrated that experienced parachutists showed different patterns of subjective fear and physiological reactions as compared to novice jumpers.

Actual combat experience obviously has an even stronger effect. Indeed it has been recognized, at least since World War II, that initial exposure to combat on the one hand and cumulative combat stress on the other hand result in higher rates of

psychiatric breakdown. Units with high percentages of “green” soldiers tended to have higher numbers of psychiatric casualties.²⁷ Clearly the soldier with prior combat experience has less chance of breakdown in subsequent exposure, until the point (about 30 combat days, defined as days in which a company suffered at least one wounded in action [WIA] or killed in action [KIA]) that cumulative stress begins to produce combat inefficiency.²⁸

Apparently even the soldier who has broken down, if properly treated with “forward treatment,”¹⁵ has no greater chance of breakdown again than his combat peers. Looking at Israeli soldiers who had become psychiatric casualties in 1973 and who subsequently served in the 1982 Lebanon War, Solomon, Oppenheimer, and Noy²⁹ found no significant increased recurrence of psychiatric breakdown among those with prior breakdown if they had been found fit for combat. It should be recognized, however, that a significantly smaller percentage of soldiers who had had psychiatric breakdowns were found fit for combat compared to those who had not (40% versus 75% in nonpsychiatric controls) but this may have been a result of lack of “forward treatment” in 1973.

It might be summarized, then, that previous combat experience may have an enhancing or an inhibiting effect on the soldier’s reactions to subsequent exposure to combat—depending on whether the previous experience had been a traumatic or a nontraumatic one.

Role in Combat

One’s role in combat, whether formally assigned or assumed during the vicissitudes of combat, plays a crucial role in his appraisal of the situation and thus in his method of coping. In general, engaging in an assigned role that involves some form of mission-oriented tasks will create a sense of mastery and control as well as distract the soldier from his impending danger.⁴

The leadership role in a combat situation is particularly important for coping behavior. Bourne, Rose, and Mason,³⁰ for example, in studies conducted during the Vietnam conflict, have shown significantly different patterns of hormonal responses (normally associated with stress) between officers and enlisted men of a 12-man group who were anticipating engagement in combat. The chronic levels of steroid excretion of officers were higher than those of their enlisted men and rose even higher on the day of anticipated attack. The senior radio operator’s steroid excretion also rose;

indeed, his role was closer to that of the officers, and reflected again the importance of his role assignment in combat.

Unlike Bourne and his colleagues, who equate steroid excretion with levels of psychological stress in combat, the authors believe that the level of steroid excretion reflects physiological arousal and that the leadership role may actually be less psychologically stressful because the leaders are better prepared for combat and have more control over combat situations. Support for this hypothesis may be seen in the work of Miller,³¹ and Miller and colleagues,³² with pilots and their radar intercept officers during stressful aircraft landing procedures. They found that while the radar intercept officers had lower levels of steroid excretion, the pilots, who had active control over the flights, reported fewer somatic complaints and significantly lower levels of anxiety than the radar intercept officers.

In support of these studies there are numerous personal observations that show that the leadership role supports superior combat performance and protects the leader from disabling psychological stress. The senior author both personally observed and had many communications from Israeli field commanders describing the mastery, confidence, and even daring they have derived, under fire, from the awareness of their leadership role and the expectations of their men.

During the 1973 Yom Kippur War, Israeli commanders were under the greatest combat danger, being in the forefront of the engagement. This danger is reflected in the fact that a commander had four times the chance of being killed compared with his men.³³ Despite the presumed increased risk of battle stress, Levav and others³⁴ showed that the rate of psychiatric breakdown among officers was one fifth that of enlisted men. On the other pole of battlefield performance, that of bravery in battle, the number of Israeli combat officers awarded medals for extraordinary acts of bravery was much higher (64% of the total) than their proportion in the line units.²⁰ When noncommissioned officers are included with commissioned officers, the percentage of medals for bravery rises to 88% awarded to persons in leadership roles, thus inverting the ratio of leaders-to-led.³⁵

In conclusion, under battlefield conditions, perceived role is a critical factor in both combat effectiveness and resistance to breakdown. Perceived role serves adaptive coping purposes through the interplay of three psychosocial mechanisms: (1) the expectations attached to the role (especially the leadership role), (2) the sense of mastery and con-

trol associated with the role, and (3) concentration on the tasks required by the role distracts attention from the realistic dangers of combat.

To summarize, one can see that while there are only limited data to show that personality dispositions predict combat behavior, there is good evidence for the importance of background conditions such as the individual's well-being, his previous combat experience, and his perceived role in combat.

Unit Factors

In most cases the individual will not operate alone but will be part of a group in combat. The group's size (significant for the individual combatant) may vary from three or four (as in a fire team or tank crew) to larger formations such as companies or even battalions. These group characteristics, similar to individual characteristics, have important implications for combat behavior. Since the 1973 Yom Kippur War, the IDF has deployed field psychologists to all of its line brigades to survey morale factors at various organizational levels and report back to unit commanders. Systematic analysis³⁶ of these surveys revealed four general factors important in determining unit climate. These consisted of unit cohesion and morale; confidence in commanders; confidence in weapons and in oneself as a combatant; and ideology, values, and commitment.

Unit Cohesion and Morale

Unit cohesion and morale have repeatedly been found important in supporting individual coping behavior and unit performance both in wartime⁵ and in peacetime.^{37,38} Among other variables, they were found to affect critically the rates of psychiatric breakdown in combat.¹³ In the words of Glass:

Repeated observations indicated that the absence or inadequacy of such sustaining influences [which he termed "group identification," "group cohesiveness," "the buddy system," and "leadership"] or their disruption during combat was mainly responsible for psychiatric breakdown in battle. These group or relationship phenomena explained marked differences in the psychiatric casualty rates of various units who were exposed to a similar intensity of battle stress.^{13(p995)}

In recent studies based on Israeli experiences during the 1973 Yom Kippur War, the relationship between unit cohesion and morale and coping behavior was reconfirmed. In a retrospective exami-

nation of 40 IDF soldiers who suffered psychiatric breakdown in that war, Noy²¹ found that 40% of these casualties reported minimal group affiliation in contrast to only 10% in a control group of noncasualties. Similarly, Steiner and Neumann³⁹ found the following characteristics in 74 reserve soldiers presenting with acute or late onset of post-traumatic combat reactions after the 1973 Yom Kippur War: low morale, with little or no identification with their unit or team; lack of trust in leadership; frequent transfer or rotation; feelings of loneliness and not belonging to their units; and low self-esteem concerning their military performance.

Thus, a low level of morale and weak bonds with comrades and leaders may elevate the perceived stress of combat and ultimately result in severe combat reactions. This indeed happened in units with low cohesion and low morale. At the other end of the spectrum, elite units, famous for their high degree of cohesion and morale, have consistently had low psychiatric casualty rates despite frequent exposure to high-intensity battle stress.

Confidence in Commanders

The paramount importance of the role of leadership in combat has been recognized since antiquity. The history of battle has always been the history of leaders building their subordinates' confidence to achieve victories. Whether the fighting unit is a small band of warriors with spears or a vast army with laser-aimed rifles and bombs, their confidence in the leader is essential.

Contemporary studies⁴⁰⁻⁴² confirm the crucial role of unit commanders in preparing troops for combat, enhancing troop morale, and leading them courageously in battle. The soldier's confidence in the commander is also critical in protecting him from overwhelming battle stress. In Israeli studies during the 1982 Lebanon War, Kalay⁴³ found three elements that inspired confidence in the commander: (1) belief in the professional competence of the commander, (2) belief in his credibility, and (3) the perception that he cares about his troops. While in garrison all three components are equally important; in combat, trust in the commander's professional competence becomes primary.

In reviews of Israeli morale surveys during both the 1973 Yom Kippur War and the 1982 Lebanon War, the senior author¹² compared the levels of confidence soldiers had in commanders at various command levels, from platoon to division. While assessments before combat showed an almost linear increase in the confidence of troops in their

commanders with increasing levels of command (ie, lowest at the platoon leader and highest at the division commander levels), after combat the trend was generally reversed with the highest levels of confidence shown in the more immediate commanders (platoon, company, battalion) and relatively lower confidence at the more remote levels of command (brigade, division). This difference may be accounted for on the basis that prior to battle the soldier perceives his welfare and success as being dependent on higher command plans and decisions; but, in actual combat, he finds that his very survival depends mainly on the actions of his more immediate leaders.

It is apparent, then, that despite marked changes in the configuration and technology of the battlefield, the confidence troops have in their commanders at all levels is a critical ingredient in the soldiers' process of coping with the stresses of battle.

Confidence as a Soldier

As described earlier, "green troops" suffer higher rates of psychiatric casualties than battle-experienced troops. This may well reflect the importance of increased confidence of the soldier in his own battle skills.

Confidence in one's weapons and in one's proficiency as a combatant has been shown to be important for the soldier's morale. In a morale survey among Israeli soldiers anticipating combat, Gal³⁶ reported high correlations between their personal level of morale and both confidence in themselves as combatants and confidence in the unit's weapons system.

Furthermore, Steiner and Neumann,³⁹ studying the combat experiences of Israeli veterans of the 1973 Yom Kippur War, examined among other variables the relationship between self-confidence in military performance and the development of post-traumatic stress disorders. They found that 46% of 74 soldiers suffering traumatic reactions evaluated their military performance and knowledge as poor. In contrast, only 3% of 100 soldiers in a nonafflicted control group reported such lack of self-confidence.

Another source of the soldier's confidence is his familiarity with his mission, with the operational terrain, and with the exact location of friendly and enemy forces.³⁶ Because one of the well-established sources of anxiety is fear of the unknown and the unfamiliar, introducing the soldier to the details of his mission, the terrain, and the deployment of forces will ultimately reduce his anxiety level.

These aspects of a soldier's self-confidence—trust in one's own combat skills, in weapons systems, and familiarity with missions and terrain—are all created within the unit framework during training periods. Knowledge of missions and terrain is not learned during training in the United States as it is in Israel because of the wider range of scenarios. The more realistic the training, the better prepared the soldier will be. However, the growing sophistication (and expense) of modern weaponry has resulted in the increasing use of training by simulation devices, which may act against the accomplishment of such realistic training. Simulation training, while usually accurate in its technical aspects, is quite dissimilar from the arduous and horrifying conditions of combat.⁴⁴ Military training, therefore, must aim not only at producing technical proficiency with one's weapon but also at developing soldierly skills and proficiency to serve the soldier as a psychological defense mechanism against the strenuous conditions of the battlefield.

Ideology, Values, and Commitment

It is commonly believed that a strong ideological conviction plays a significant role in combat motivation. Obviously, when a soldier believes that he is defending his homeland, he may derive additional strength to face the horrors of battle. However, while it is evident that such ideological convictions foster the joining of a military organization, there is little empirical data supporting the position that such feelings enhance performance or prevent breakdown in the midst of a combat situation. In fact, observations by acknowledged military experts have deemphasized the importance of ideology when survival on the battlefield is at stake. For example, S.L.A. Marshall, after visiting Israel and discovering the importance of nationalist feelings to its citizens, gave his own judgment:

But for my own part, I reject finally the idea that the extraordinary elan of that Army in combat comes from self-identification of the individual with the goals of his nation in the hour when his life is in danger. That is not the nature of man under battle; his thoughts are as local as is his view of the nearest ground cover, and unless he feels a solidarity with the people immediately around him and is carried forward by their momentum, neither thoughts about the ideals of his country nor reflections on his love for his wife will keep him from diving toward the nearest protection.^{45(p304)}

In a similar vein, Field Marshall Montgomery, in referring to patriotic feelings and historical roots of combat motivation, deliberately downplayed these factors: "[I]n the crisis of battle the majority of men will not derive encouragement from the glories of the past but will seek aid from their leaders and comrades of the present."^{46(p21)}

Despite this discounting of idealistic feelings as a factor in actual combat, there is evidence that a soldier's perception of the legitimacy of his side's participation in war is important for his morale. A morale survey conducted among IDF troops prior to the Israeli incursion into Lebanon found a positive correlation between the soldiers' morale level and their belief that invading Lebanon was justified.³⁶

A similar relationship between morale and perceived legitimacy of one's side in a war probably could have been found in Vietnam. Renner⁴⁷ and Gabriel and Savage⁴⁸ have argued that after 1968, soldiers' perceptions that the U.S. presence was not legitimate led to unit disintegration as evidenced by "fragging" (assassination of one's leaders), desertion, drug abuse during combat, and combat refusals.

It was reported⁴⁹ that Soviet soldiers stationed in Afghanistan during the mid-1980s invasion suffered low morale and engaged in widespread drug abuse and some fragging similar to U.S. soldiers in the late phases of the Vietnam conflict. Defecting soldiers in Afghanistan related this to loss of belief in the legitimacy of the war: "It's a stupid war, not useful to anyone."⁴⁹

Ideological concerns thus seem most important when legitimacy is questionable, or in wars of low intensity with intermittent combat, and in the anticipation before battles or during lulls between battles. In the heat of battle, however, ideological motivation is replaced by other unit factors such as leadership, unit cohesion, and combat skillfulness.

Battlefield Factors

The third group of antecedent variables, battlefield factors, may play a decisive role in promoting combat stress because they include the nature of the threat and the environment of the battlefield. Most battlefields have unique features that generate different levels of stress. The World War II U.S. battles on Okinawa and Normandy, for example, both beginning as amphibious invasions, had vastly different characteristics and quite different rates of psy-

chiatric casualties: very high in Okinawa and overall relatively low in Normandy. The Israeli 1967 Six-Day War and 1973 Yom Kippur War were both brief and of high intensity but differed markedly in the impact on troop morale and psychiatric casualties: almost none in the former and relatively high in the latter.

The main components in this last category of antecedent variables are the type of battle, its length and intensity, the uncertain elements of battle, and the physical characteristics of the battlefield.

Type of Battle

Offensive and defensive operations differ in generating stress reactions. In defensive operations, especially with impending danger but without active engagement to break the tension, the soldier is subjected to an enforced passivity and experiences a feeling of helplessness. By contrast, in offensive operations, even though the risk may be greater, the soldier is active, has a vicarious sense of control over the situation, and is distracted from personal concerns.⁴ Similarly, during static situations such as being pinned down for long periods, perhaps by artillery fire or similar situations of immobility, stress casualties are higher than in mobile situations such as advancing or even retreating.⁵⁰

Day vs night operations may also generate different stress reactions in synergy with other situations. For example, at nighttime the soldier in a defensive posture may have his feelings of isolation accentuated by darkness. On the other hand, daytime operations with active engagement of the enemy may allow the soldier to see his wounded and dead comrades, adding to his battle stress. Unfortunately, no clear data indicating increased pathogenicity for either situation exist.

Length and Intensity of Combat

Length of exposure to combat has been correlated with cumulative stress^{28,51} while intensity of combat is more related to acute stress.⁵⁰ In furthering this distinction, some authors refer to the consequences of cumulative stress as "combat exhaustion" or "fatigue" and of acute stress as "battle shock."

Several authors have attempted a predictive model of breakdown based on duration of combat exposure^{28,51} or intensity of combat.⁵²⁻⁵⁴ Swank and Marchand²⁸ found that most psychiatric casualties occurred after 30 to 45 days of exposure to combat.

Beebe and Appel, on the other hand, predicted that "the breaking point of the average rifleman seems to have been reached at about 88 days of company combat [days in which a company casualty occurred]." ^{51(p163)}

A number of authors ^{10,13,50,52-55} have observed the relationship between combat intensity, as indicated by wounded and killed in action (WIA and KIA), and combat breakdown. Normally, the rate of psychiatric casualties will fluctuate in proportion to the WIA. In prior wars this ratio has ranged from 1:3 to 1:1; however, in low-intensity, intermittent combat, psychiatric casualties are less directly related to combat and take different forms. ^{47,56,57}

To summarize what is known about the relationship between duration of exposure to combat and the likelihood of combat stress breakdown, it appears that some minimum amount of exposure to combat is necessary to enhance soldiers' confidence and decrease their vulnerability to breakdown. Beyond that exposure threshold, increased exposure to combat eventually weakens the soldiers' defenses against breakdown.

Battle Anticipation, Uncertainty, and Surprise

As alluded to earlier, the anticipation of battle may be more stressful than actual battle. ⁴ A well-known syndrome described by World War II physicians as the "precombat syndrome" ⁵⁸ consisted of vague complaints without identifiable physical findings among those scheduled for combat, for example, air crews awaiting a bombing run. Furthermore, Jones ⁵⁹ noted that there were numerous psychiatric complaints in the 25th U.S. Army Division in the several months when deployment to Vietnam was uncertain, but fewer when it became definitive.

Generally, troops prefer to avoid impending threats of combat; however, long periods of anticipation may result in paradoxical positive feelings concerning impending combat. The first author has monitored the feelings of combat anticipation of a group of infantrymen stationed in a combat zone for 3 weeks. He found an inverted U-shaped curve peaking at 10 days measuring strong anticipation of actual engagement with the enemy. This response pattern reflects the mounting anticipation during the ascending limb and a growing desire to relieve the anticipatory anxiety with action. The descending limb may reflect a desire to avoid combat altogether because relief was becoming imminent.

Breznitz, ⁶⁰ among others, has discussed this reac-

tion pattern in his study of "incubation of threat." According to Breznitz, two conflicting tendencies may operate simultaneously in an anticipatory period. On the one hand, the person gradually relaxes after the initial introduction of the threat. On the other hand, there is increasing excitation as actual occurrence of the threatening event approaches. In cases where a U-shaped curve is exhibited by stress reactions, this curve may be the net result of these two processes.

Uncertainty can take two forms: temporal uncertainty in which the time when an event will occur is unknown and event uncertainty in which the time is known but the nature of an event is unknown. Situations involving both types of uncertainty are common in combat. In general, the greater the uncertainty, the greater the stress. ^{61,62}

Although anticipation and uncertainty create high levels of stress, a surprise aversive event is even more stressful. The initial phase of a surprise attack may maximize panic and psychiatric breakdown. According to senior Egyptian Army psychiatrists, this was reflected in high psychiatric casualties among Egyptian soldiers in the early period following the 1967 surprise attack by Israel. ⁶³ Likewise numerous psychiatric casualties among Israeli troops occurred in the first hours and days following the surprise attack by Arab forces in the 1973 Yom Kippur War. ¹¹

Environmental Conditions

Some of the antecedent factors are not necessarily born in combat, but they affect combat performance. For example, when combatants are rapidly transported to a new and unfamiliar environment, they must first adjust or acclimate before performing at their optimum. ⁶⁴ Furthermore, harsh environments such as arctic or tropical climates, wet, or other inclement weather increase combat stress casualties, probably through the increased physiological stresses added to the psychological stresses of combat. Numerous authors have commented on the deleterious effects of adverse environmental conditions on morale ⁵ (ie, strange terrain such as that found in the desert, the jungle, the steppes—lacking usual landmarks) and on the soldier's ability to cope in combat. ⁶⁵

Masked psychiatric conditions ranging from frostbite or immersion foot in cold or wet climates to dehydration in hot or dry climates exemplify the relationship between combat breakdown and adverse environments. ⁶⁶

MEDIATING VARIABLES

While antecedent variables are important in the soldier's appraisal of the combat situation, their impact on the individual's response and coping behavior is determined by mediating variables. These variables are, in the first place, cognitive in their nature, involving cognitive interpretations of the antecedents, a logical evaluation of the situation, and a buildup of expectations both of one's behavior and of the consequences of the entire situation.

A second characteristic of these mediating variables is that they are largely controlled by the commander who may give them a positive or negative connotation. For example, a determined, confident commander, who conveys to his troops his optimistic view, will actually increase the chances of success, assuming that the optimism is realistic. On the other hand, an unenthusiastic, subdued, or frightened presentation will create uncertainty or fear and result in less resolute, more pessimistic appraisals, increasing the possibility of failure.

The commander plays a central role in creating the individual's appraisal of the situation by acting as a lens (see Figure 6-1) that focuses the antecedent variables into a unified interpretation of the situa-

tion. Like in a telescope, this "lens" works (with regard to the stress of combat) to amplify the perceived threat or to reduce it, make it closer or more remote, better focused or more blurred. Though it may not be possible to modify many of the antecedent variables, the commander can be trained to present and interpret information regarding these antecedents in an optimal manner and hence create an expectation of success.

A third characteristic of the mediating variables is their dynamic quality. While the antecedent factors may change or remain the same, the interpretation given to them may vary as new information becomes available or as behavior changes as a consequence of the appraisal. A heroic or cowardly act by oneself or a comrade, for example, will change the initial interpretation of the situation and lead to changed responses.

It must be realized that there are not clear-cut distinctions between the antecedent and mediating variables. Interpretations and expectations may stem directly from the individual's predispositions or be part of a unit characteristic. These antecedent and mediating variables are schematically presented separately in the model for purposes of clarity only.

THE APPRAISAL PROCESS

The appraisal is the bridge between the external conditions and the soldier's response. It is the combination of the soldier's perception and evaluation of both the situation and his own capability to cope with it. The same situation may result in a whole spectrum of appraisals by various individuals or by the same individual at different times. Thus, a given combat situation may appear lethal, hazardous, adventurous, or auspicious, while the individual reaction to it may range from being terrified or threatened to challenged or excited.

The appraisal process further determines the course of action that an individual might take when faced with a stressful situation. This is reflected directly, for example, in the work of Grinker and Spiegel on combat stress in World War II. As these authors noted, "appraisal of the situation requires mental activity involving judgment, discrimination and choice of activity."^{6(p122)}

Lazarus and his colleagues^{3,67} have empirically demonstrated the dominance of the cognitive ap-

praisal process in determining the emotional and behavioral responses of groups and individuals to stress. In a series of studies³ in which audiences viewed highly distressing films, the responses of the audience were clearly determined by a narrative voice that interpreted the ordeal as ranging from traumatic to neutral, intellectualized, or benign (through denial-like processes). Though the subjects all saw exactly the same film, their reactions were drastically different as a function of the sound track the introduction provided before the film. Using the neutral group as a reference, the trauma group showed marked elevation of physiological and psychological distress while the intellectual and denial groups showed reduction in distress. Subsequent experiments using the same paradigm revealed different stress reactions as a function of the conditions (ie, length of anticipatory time, level of uncertainty) on which the appraisal process depended, the type of cognitive activities (ie, detachment or involvement) required

from the subjects, and as a function of individual differences.

Thus, the same situation may generate different responses depending on the type of interpretation or expectation suggested prior to or during the situation. Likewise, an individual or group reac-

tion to battlefield conditions can be determined by the mediating variables (interpretations, expectations, form of presentation), which are primarily controlled by the commander. From these different appraisals will result the different modes of response or coping.

MODES OF RESPONSE

The modes of response to stressful combat situations may be categorized as follows:

- *Physical*: includes autonomic changes (tachycardia, vasoconstriction, sweating, increased gastrointestinal motility), musculoskeletal changes (increased tonicity and perfusion of blood to muscle), and glandular changes (release of medullary and cortical hormones from the adrenal glands producing many of the foregoing effects).
- *Emotional*: includes a variety of affective reactions varying from enthusiastic excitement to apprehensive fear, anxiety, or depression.
- *Cognitive*: includes distortion of perception with narrowing of attention span, hyper-alertness to certain stimuli, and increased utilization of automatic or overlearned responses.
- *Social*: includes increased dependency on leadership and need of affiliation, sometimes

expressed by seeking reassurance and physical clustering. Negative aspects may be an increased tendency to make demands and irritability.

These reactions are universal. Alerting the soldier to their anticipated appearance under stress by reassuring him that they are normal and are preparing the body for combat will serve a preventive and therapeutic purpose. The appraisal plays a lesser role in eliciting or controlling these responses than it does with the coping responses, which will be discussed next.

While the modes of response (in this model) are relatively involuntary or automatic, immediate, and brief, the individual's modes of coping are more flexible, voluntary, and may be delayed and prolonged. The former may only to some extent be conditioned through training; the latter are highly influenced by training and strongly determined by the instant conditions of combat.

MODES OF COPING

The individual's appraisal of the situation and the variety of modes of response are incorporated into an integrated or holistic mode of coping, ranging from various levels of activity through passivity to actual breakdown. The active mode of coping may take various forms. During combat anticipation (almost always present on the battlefield), activity may take the form of preparation—checking gear, plans, or last minute details. Activity may not necessarily be directly related to the threat, and can include card playing, book reading, letter writing, and so forth. These activities, nonetheless, serve as successful coping behavior because they distract the individual from considering the death or wounding that may await him in battle, and sustain and promote cohesion and resolve. This behavior, particularly when it takes the form of combat preparations, also gives the soldier a sense of mastery over the situation, diminishing anxiety.⁴

During combat, the active-coping mode is seen in controlled aggression by the combat soldier: seeking shelter, firing weaponry, scanning or scouting the terrain, etc. Similarly, the combat-support soldier will stay active in his respective duties. The consequences of this active mode are usually greater initiative, innovation, bravery, and successful accomplishment of the mission. Rarely, this activity is not mission-oriented and results in inefficiency in combat.

Relative inactivity or even passivity in the combat situation is manifested by decreased movements, relative apathy to the surroundings and mission, and lack of initiative. The observation during World War II and the Korean conflict that only a small percentage of soldiers fired their weapons⁶⁸ probably applies to this group of combatants. A consequence of this unsuccessful coping mode is not only a failure to perform effectively but also a be-

ginning of a psychological collapse, exhibited by increasing fatigue, mounting anxiety, and a sense of burnout. The ultimate result of a passive mode of coping may be a complete breakdown, whether labeled combat fatigue, battle shock, or war neurosis. This breakdown occurs when the soldier's preoccupation with his own anxieties leads to removal from battle, shutdown, immobility, and erratic behavior.

Whatever mode of coping is utilized by the individual, it is not only an outcome of the combat appraisal and modes of response but also serves as an input into the ongoing reappraisal of the situation. Based on his own mode of coping, the soldier may now reinterpret the combat situation. This in turn may generate new modes of response and

coping that further modify the appraisal. Typically, if a successful active-coping mode took place, the reappraisal process tends to be in the direction of optimism. Conversely, passive coping usually will lead to a pessimistic appraisal, resultant less-effective modes of response and coping, and increasingly negative appraisals. Thus, the behavior of the soldier in combat is an ongoing process of appraisals and reappraisals (largely unconscious appraisal and reappraisal) that are affected by his perception of the situation on one hand and his initial responses and coping on the other hand. The leader can optimize his own coping by good training, keeping himself functioning, and taking care of junior leaders, and by intervening at key times and places with his troops.

SUMMARY AND CONCLUSION

This model of combat stress is complex in that there are multiple interacting variables in its application and, furthermore, the variables interact in an ongoing, circular fashion. Despite its complexity, the model is operationally applicable. A combat leader who is aware of the multiple variables mediating stress in battle can understand and anticipate both the behavior of troops and of himself, and take preventive measures to diminish the stress. Understanding the ongoing, circular nature of these variables, he can intervene to reduce the stresses, the anxiety, and ultimately the potential for breakdown.

This model can be taught in varied types of leadership training. For example, in the Israeli Defence Forces Staff and Command School, officers

who were combat veterans were presented with the model and encouraged to test it against their personal experiences. Almost unanimously, these officers gave positive evaluations of the validity of the model for combat. The best didactic approach seemed to be through an initial presentation of the model followed by small-group interaction in which instructors guided the discussion. The small-group participants explored the applicability of the model to their own experiences.

Students of war and combat agree that the most precious commodity in battle is not armaments but people. The understanding and application of this model may conserve and increase the efficiency of the vital human resource.

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