Journal of Consulting and Clinical Psychology
1989, Vol. 57, No. 3, 388-395

0022-006X/89/$00.75

Stress Management and Coping Research in the Health Care Setting: An Overview and Methodological Commentary

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I argue that stress management and coping studies in the health care setting have not been sufficiently theoretically grounded. In particular, in formulating and evaluating intervention strategies, researchers have not adequately taken into account the nature of the stressor under study in terms of the degree to which it poses emotion-focused versus problem-focused coping demands for the individual. This theme is explored in examination of research in five essential areas: (a) effectiveness of problem- versus emotion-focused coping strategies, (b) effectiveness of interventions, (c) the role of individual difference variables, (d) timing of interventions, and (e) evaluation of treatment impact.

Stress and coping are inextricably tied to every aspect of involvement with the health care system. Exposure to stressful life events and dispositional coping style differences have been implicated in the onset of diseases ranging from ulcers to cancer. For persons receiving health care, the manner in which they deal with the stresses associated with chronic disease and with medical/surgical treatment plays a significant role in adjustment and recovery.

Each of the eight articles in this Special Series deals with the stresses of chronic disease and of medical procedures. These areas pose somewhat different problems and have generated largely separate research literatures, but they share underlying assumptions and implicit goals. Most behavioral research oriented around stressful medical, dental, or surgical procedures involves evaluation of the efficacy of interventions designed to enhance the short-term adjustment or recovery of patients who can reasonably expect return to previous levels of physical functioning after a brief recuperative period. The chronic disease patient, in contrast, must often deal not only with these transitory stressors but also with others in a context of continuing uncertainty and threat to well-being. Coping research with chronic disease patients is thus often not oriented around specific stressors or interventions, and it typically involves descriptive studies of the relation between coping-related variables and adjustment. Most intervention studies that have been conducted with chronic disease patients have examined how they cope with invasive treatments pertaining to their disease (e.g., Burish & Lyles, 1979; Johnson, Lauver, & Nail, 1989, in this issue). Despite these differences, the ultimate goal in research in both health care and illness-related stressors is ascertaining how to enhance patients' ability to cope effectively with the stressors they are encountering.

The present article provides an overview and methodological commentary on research pertaining to coping with health care and illness-related stressors. A major theme that shall be developed is that this research has been insufficiently theoretically grounded: The stimulus complex confronting the individual has rarely been conceptualized in terms of the nature of the coping demands it poses for that individual, and intervention strategies have often not been formulated to match those demands.

In order to exemplify this theme, five major research areas are addressed within the context of a cognitive appraisal model of stress coping (Lazarus, 1966; Lazarus & Folkman, 1984). In this model, the coping process is conceptualized as consisting of two broad categories: problem solving and emotion regulation. Problem-focused coping involves activities directed toward modification, avoidance, or minimization of the impact of a stressor or cognitive activity that leads to the belief that a stressor can be controlled. Emotion-focused coping denotes attempts to palliate or eliminate dysphoric emotions elicited by a stressor by using mechanisms such as denial and wishful thinking that avoid direct confrontation with the stressor. I have chosen this process-oriented framework as an integrative tool because of its heuristic power and broad applicability to essential questions pertaining to stress management and coping research in the health care setting, and because many of the articles in this Special Series grew out of this tradition of coping research. In applying the model to coping with stressors associated with illness and health care, I employ primarily the emotion-focused/problem-focused dichotomy without further differentiating among the specific coping strategies subsumed within these categories; future research will dictate whether the model is sufficiently robust to account for more refined distinctions.

Determination of which coping mechanisms are most useful logically should precede development and evaluation of intervention strategies that are designed to teach appropriate coping. Thus the question of the differential utility of problem-focused and emotion-focused coping strategies is considered first. This section deals largely with research on chronic disease patients. The four remaining topics (effectiveness of interventions, the role of individual difference variables, timing of interventions, and evaluation of treatment impact) deal directly with stress management procedures and focus on research on patients exposed to invasive medical, dental, or surgical procedures.

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Within each section, the status of research or methodology is summarized and recommendations are made for future research.

Effectiveness of Emotion- and Problem-Focused Coping Strategies

Most of us initially approach a problem with the attitude "If something is wrong, fix it." As Ellis (1971) noted, this is the "American way," a philosophy that is instilled in us in early childhood and that carries with it the need to view ourselves as competent and able to instrumentally control almost any situation. Accordingly, many prominent approaches to stress and coping emphasize rational mechanisms and environmental mastery (e.g., Bandura, 1977; Ellis, 1971), and in the mental health fields accurate reality testing is traditionally considered the "hallmark of mental health" (Lazarus, 1983), whereas coping oriented toward suppression of dysphoric emotions through denial and avoidant mechanisms is considered primitive and maladaptive (Eitinger, 1983). Some of the research findings on chronic disease patients presented in this Series are consistent with this viewpoint. For example, Revenson and Felton found that emotion-focused coping strategies (such as wish-fulfilling fantasy and self-blame) were associated with increased distress in rheumatoid arthritis patients, whereas information seeking tended to be associated with increased positive affect. In addition, Vitaliano, Katon, Maiuro, and Russo found that chest pain patients with psychiatric disorder used more wishful thinking and less problem-focused coping than did chest pain patients without psychiatric disorder. They also point out that similar relations have been observed between coping modes and emotional distress in a number of other chronic disease populations. Further, Peterson found that avoidant as opposed to active coping was consistently associated with less beneficial outcomes in children undergoing stressful medical and surgical procedures.

Nonetheless, stress management techniques designed to induce avoidant emotion-focused coping (e.g., relaxation, meditation, and biofeedback) are widely used clinically and accepted by patients, and emotion regulation is recognized as a key component of the coping process in most major theoretical formulations including Janis's (1958) emotional-drive theory, Leventhal and Johnson's (1983) self-regulation theory (see Johnson et al., in this issue; Leventhal, Leventhal, Shacham, & Easterling, in this issue), and Lazarus and Folkman's (1984) cognitive appraisal model (also see Suls and Wans's dual process preparation hypothesis in this issue). Further, there is evidence from laboratory research and studies involving transitory health care stressors for the utility of emotion-focused coping in short-term low-control situations (see sections titled Effectiveness of Interventions and Timing of Interventions; also Suls & Fletcher, 1985) as well as for coping with largely uncontrollable chronic diseases. Regarding the latter, in reviewing the literature on coping with cancer, Meyerowitz, Heinrich, and Schag (1983) concluded that denial is often an effective tool for adjusting to some aspects of the cancer experience and that some researchers have found denial to be adaptive for extended periods after diagnosis and treatment, not just in the short term.

Problem- and emotion-focused coping mechanisms are both useful under the appropriate circumstances in facilitating adjustment to stressors associated with disease and health care. However, the data obtained in most coping research with chronic disease patients have been of limited theoretical and practical value because chronic diseases are treated as unitary stressors rather than as complex situations subsuming multiple substressors, each with its own coping demands. For example, cancer patients face job discrimination, fears of death, and interpersonal difficulties as well as stressors pertaining directly to health care and disease management (Meyerowitz et al., 1983). Although diabetes mellitus patients must adhere to a wide range of self-care regimens (involving diet, physical activity, monitoring of blood and urine, and insulin administration) as well as deal with associated interpersonal and self-esteem problems, coping studies have been "global" and have not considered "specific threats and demands of living with diabetes," and thus "little is known about the nature of problems as perceived by the patient [or] the process of coping [with these problems]" (Turk & Speers, 1983, p. 210).

Miller, Leinbach, and Brody (in this issue) draw attention to the need for a more situational focus in their study of the relation between coping styles and adjustment in hypertensive patients. Among their conclusions is that one contributor to both the onset and exacerbation of the disorder may be the fact that hypertensive individuals tend to monitor and scan for threat-relevant cues, even when the situation is uncontrollable. In addition, though hypertensive patients were generally found to play an active role in their own care, other data (Miller, 1988) indicate that high-monitoring hypertensive patients play a more passive role in their own care than do high-monitoring normotensive patients and do a poor job of helping set their own treatment agenda. Thus, high-monitoring hypertensive patients sometimes use problem-focused strategies when they are not functional (i.e., they scan for cues and attempt to exert instrumental control in largely uncontrollable situations or with respect to stimuli that are not relevant to their condition) and do not use such strategies when they could be effective (i.e., participating in decisions pertaining to their own treatment). This suggests that the stressors to which high-monitoring hypertensive patients are erroneously responding need to be carefully identified and that these patients need to be taught to apply "blunting" and "monitoring" strategies selectively in those situations in which they will be most useful.

Research assessing coping processes in chronic disease patients needs to focus on identification of critical stress situations confronting patients along with analysis of the mix of coping demands posed by these situations. This is a logical first step prior to implementing and evaluating stress management interventions designed to teach the coping skills necessary to deal effectively with these stressors.

Effectiveness of Interventions

In the two to three decades following the influential investigations of Janis (1958) and Egbert, Battit, Welch, and Bartlett (1964), a substantial number of studies have been published in the psychological, nursing, and medical literatures evaluating the effects of procedures designed to help patients cope with stress associated with invasive medical or surgical procedures.

There have been several major reviews of this research literature or selected aspects of it (Anderson & Masur, 1983; Auerbach, 1979; Auerbach & Kilmann, 1977; Bradley & Kay, 1985; Gil, 1984; Kendall & Watson, 1981; MacDonald & Kuiper, 1983; Rogers & Reich, 1986; Schultheis, Peterson, & Selby, 1987; Suls & Wan, in this issue), and there is general agreement that several types of intervention techniques (notably informational, modeling, and cognitive–behavioral) have utility in promoting adaptation/recovery and/or minimizing negative outcomes. However, this conclusion is generally tempered by the admonition that these findings must be interpreted cautiously because of inadequate or insufficient use of control groups and/or confounding of treatment components in many studies, which prohibited isolation of essential components responsible for treatment effects. Two factors critical to the effectiveness question shall be considered: (a) the role of control groups in this setting and (b) the design of comparative studies.

Two types of control groups are used in situations in which interventions are delivered personally (rather than by mechanical means). "Routine hospital conditions" controls equate subjects for exposure to standard preparatory procedures as well as extraneous coping-relevant inputs from fellow patients, relatives, and so forth. Such control groups are of practical utility in that they provide baseline outcome data that enable evaluation of the extent to which interventions produce effects superior to what might be expected from normal hospital care. However, they are not meaningful theoretically. Attention-placebo controls ideally serve the function of ensuring that outcome differences result from the specific treatment components being manipulated rather than from nonspecific effects of the interpersonal encounter that provides the setting for the intervention. Patients in such groups should engage in what is intended as a "neutral" interaction that is "therapeutically inert from the standpoint of the theory of the therapy being studied" (Rosenthal & Frank, 1956, p. 229).

The viability of placebo control groups in psychotherapy research has been questioned by many writers (e.g., Parloff, 1986). Their utility as controls for nonspecific effects in stress management research in the health care setting is also doubtful. In order to create credibility and command attention in anxious patients comparable to that of face valid treatment conditions, the intervener must establish a fair degree of rapport with the patient. Thus, rather than being theoretically inert, such encounters are likely to stimulate emotion-focused coping processes—a theoretically important ingredient of coping. Empirically, attention alone has been shown to be equally effective as specific treatments in improving the recovery of heart surgery patients (R. H. Lucas, cited in Kendall & Watson, 1981), interpersonal perceptions of the intervener and primary health care provider have been shown to be significantly related to adjustment in oral surgery patients (Auerbach, Martelli, & Mercuri, 1983; Auerbach, Meredith, Alexander, Mercuri, & Brophy, 1984), and social support has been found to be a powerful stress buffer in a wide range of situations (Cohen & Wills, 1985). Thus, as in psychotherapy research, rather than using placebo controls, it is more informative to conduct comparative studies using treatments that are operationally and theoretically distinctive (Parloff, 1986) and are theoretically linked to the problem being treated.

In contrast to psychotherapy research, in stress management research the theoretical relevance of an intervention is closely tied to the nature of the particular stressor around which the intervention is oriented. As noted above, it is likely that problem-focused coping and interventions geared at stimulating such coping processes will be most effective with stressors perceived as possibly being ameliorated by action. In contrast, emotion-focused coping modes and congruent interventions are apt to be useful in stressful situations that largely have to be accepted (Lazarus & Folkman, 1984). Data from laboratory studies demonstrating the effectiveness of emotion-focused coping in low-control situations (Folkins, 1970; Monat, Averill, & Lazarus, 1972), from studies with blood donors showing the relative ineffectiveness of problem-focused coping in such situations (Kaloupek & Stoupakis, 1985; Kaloupek, White, & Wong, 1984), and from recent intervention studies provide tentative support for this hypothesis.

In an intervention study, Martelli, Auerbach, Alexander, and Mercuri (1987) found that among patients undergoing oral surgery with local anesthetic, those who had received a mixed-focus intervention designed to induce both emotion- and problem-focused coping showed better overall response to surgery than those who had received either a problem- or an emotion-focused intervention. The results of this study may be contrasted with those of a study involving abdominal surgery patients who underwent general anesthesia and remained in the hospital an average of 6 days after surgery (Wilson, 1981). In this study, a relaxation preparation was superior to two information conditions and to a mixed condition on a variety of outcome measures. Though these studies may be compared only tentatively, it may be conjectured that the mixed-focus intervention worked best in the Martelli et al. study because it provided patients with the mix of coping devices that was most congruent with the demands of the stressor (which produced some unavoidable emotional distress but did not involve loss of consciousness or hospitalization). Patients in the Wilson study, in contrast, were exposed to a stressor that involved the need to accept an uncomfortable, relatively low-control situation (hospitalization) for a prolonged period. It may be inferred that the relaxation condition was superior in this study because it promoted the type of coping processes (avoidant emotion focused) that most closely addressed the primary coping tasks associated with the specific situation.

In sum, there is a need for studies that evaluate the efficacy of interventions selected on the basis of their likely impact on the coping skills and processes necessary to deal with stressors confronted by patients. Such research would need to undertake independent assessment of the effects of specific interventions on the techniques patients actually use to cope with stressors, as well as of the degree to which given stressors allow for controllability or are perceived of as such by patients. The greatest potential difficulty in executing the latter task relates to the fact that many stressors that on a superficial level appear uniform, in fact subsume multiple and often heterogeneous coping tasks. For example, Johnson et al.'s study (in this issue) undertook the challenging task of developing an intervention to ease the negative effects of undergoing radiation treatment for cancer, which involves a sequence of stressors that unfold over time, including active involvement in discussion of treatment options

at planning sessions, the treatments themselves (during which the patient may not move and no one else may be present), and painful and highly disruptive side effects. Leventhal et al.'s study (in this issue) represents an unusual attempt to understand the effects of interventions (monitoring vs. no monitoring instructions) based on their differential applicability to components of the stressor (childbirth) that pose different coping demands. Their finding that monitoring (in contrast to not monitoring) had a strong positive effect during the period when subjects could most clearly actively cope ("active pushing") provides some support for the notion that interventions likely to stimulate problem-focused processes are particularly useful in situations in which there are opportunities for control.

The Role of Individual Differences

The question of the role of individual differences subsumes two broad research areas: (a) Can we identify characteristics of persons who in the absence of psychological intervention will experience negative outcomes when confronted with medical/surgical stressors? And (b) are there characteristics that identify persons who are more likely to respond favorably to particular types of interventions?

Stimulated by Janis's (1958) landmark investigation, a number of studies have evaluated the utility of preoperative anxiety level as a predictor of speed of recovery or ease of adjustment in surgical patients. Available data suggest that elevated levels of presurgical anxiety are fairly consistently related to more distress and slower recovery: Low-anxiety patients tend to do well postoperatively (Johnston, 1986; Mathews & Ridgeway, 1981). Thus current findings, on balance, do not confirm Janis's hypothesis of a curvilinear relation between the two variables. The best predictor of presurgical state anxiety level is trait anxiety (Auerbach, 1973). Women tend to respond to the threat of surgery with higher anxiety levels (Auerbach & Kendall, 1978; Johnston, 1986; Volicer & Burns, 1977), but perceived stress in both adults and children tends to be unrelated to diagnosis or severity of illness or surgery as determined by the medical staff (Auerbach, 1973; Bush, Melamed, Sheras, & Greenbaum, 1986; Janis, 1958; Volicer, Isenburg, & Burns, 1977).

A fair number of studies over the past decade have investigated possible interactions between coping-style-related individual-difference measures and patient response to prestress interventions varying in level of prestress information provision or stimulus exposure (Auerbach, Kendall, Cuttler, & Levitt, 1976; Auerbach et al., 1983; Goldstein, 1973; Martelli et al., 1987; Miller & Mangan, 1983; Shipley, Butt, & Horwitz, 1979; Shipley, Butt, Horwitz, & Farbry, 1978). Though the cumulative findings of this literature are complex and not entirely internally consistent, there is overall support for the conclusion that persons who are generally information seekers (copers, sensitizers, monitors, and internals) respond more positively to high levels of prestress information or stimulus exposure than those who tend to distract themselves from or avoid stress-relevant information (avoiders, repressors, blunters, and externals). This finding has been obtained most consistently when person differences have been based on a situation-specific measure (Krantz, Baum, & Wideman's, 1980, Health Opinion Survey) of desire for information about one's own medical treatment (Auerbach et al., 1983; Martelli et al., 1987).

In general, however, this line of research also has not addressed the question of how intervention–individual difference relations might be affected by the nature of the stressors. The stressors investigated in the above studies involved surgeries or medical examinations that likely involved some mix of emotion- and problem-focused coping demands; that is, high stress levels were elicited, but it may be inferred that patients appraised the situations as having at least some limited potential for instrumental control. In contrast, in a recent study in which extremely high stress levels were elicited in a situation in which subjects had very few options for instrumental control (simulated hostage captivity), emotion-focused preparation had uniformly positive effects on adjustment whereas individual differences in locus of control orientation played a relatively minor role in determining differential responsiveness to problem- versus emotion-focused treatments (Strentz & Auerbach, 1988).

Thus, whereas individual dispositional differences are significant determinants of response differences in situations that pose a mix of coping demands, they probably play a less important role when the demands are unambiguous and imposing. This hypothesis needs to be investigated further in health care settings. For example, it may be conjectured that extensive information or other interventions that likely induce primarily problem-focused coping processes would be of relatively little utility as a preparatory intervention for cancer patients about to have disfiguring surgery for a facial tumor, regardless of locus-of-control orientation or coping style. On the other hand, extremely internal patients, even in largely hopeless situations, may not respond well to interventions promoting only emotion-focused strategies. For this group, adjustment may be enhanced by including unusual strategies designed to induce a sense of control. These might include providing opportunity for involvement in one's own treatment in ways that are relevant but not crucial to medical status (see Cromwell, Butterfield, Brayfield, & Curry, 1977; Penberthy, 1982) or simply giving patients the opportunity to make choices about relatively mundane matters (comparable to the strategies used with nursing home patients to give them a sense of control in a largely uncontrollable environment; e.g., Langer & Rodin, 1976).

In summary, high trait anxiety appears to be a useful characteristic for identifying persons who are likely to experience poorer surgical outcome (from an adjustment/recovery standpoint) and thus should be targeted for psychological intervention (though it may be argued that depending on the nature of the treatment, it may be cost-effective to provide some form of intervention for everyone). However, considerable data have yet to be collected on whether, for whom, and for which stressors intervention will necessarily improve on unaided patient coping. Longitudinal studies assessing the coping processes engaged in by untreated patients, along with outcome data, would be useful in this regard (Kaloupek, 1987). Such research, by providing information on patient coping strategies over the course of exposure to a stressor, would facilitate studies of the utility of using different interventions with different patient types in situations that differ in their relative "pull" for emotion-focused versus problem-focused coping.

Timing of Interventions

An important determinant of the most effective coping mode and thus of the appropriate intervention to use in a given situation is the temporal relation between the individual and the stressor (Auerbach, 1986, in press). In some situations in which arousal is high and potential for control through direct action is low (e.g., being informed that your child is dying of leukemia), emotion-focused coping modes such as denial may be effective early but, as the coping demands of the situation change over time, may be counterproductive (Hofer, Wolff, Friedman, & Mason, 1972; Wolff, Friedman, Hofer, & Mason, 1964). In other situations, the relation between the most effective coping modes and temporal stage of the stressor is reversed. For example, in adult heart attack patients, it has been observed that after a heart attack denial and avoidance were relatively effective coping styles but were counterproductive during a heart attack because this situation demanded active problem-focused coping in the form of seeking medical help (Lazarus & Folkman, 1984).

Even within a temporal stage, coping demands change over brief periods of time. For example, Faust and Melamed (1984) found that children admitted to the hospital and prepared the night prior to elective surgery responded best after viewing a hospital-relevant presentation. On the other hand, children admitted on the day of surgery, who were likely too emotionally aroused to use the information for effective problem-focused coping, responded better to a distracting, low-information presentation.

Though clearly significant factors, with the exception of the Faust and Melamed (1984) study and a few others (e.g., Wolfer & Visintainer, 1975), time and timing of intervention in relation to the onset of the stressor have received little attention from researchers. In the majority of studies interventions are delivered during the prestress period just prior to confrontation with the stressor. Few studies have evaluated the effects of interventions delivered after exposure to the stressor. This is due to (a) the fact that research has focused on predictable procedures that may be anticipated and therefore prepared for, (b) a "prevention" philosophy that emphasizes that intervention take place as early as possible, and (c) the assumption that compared with the preexposure period the postexposure period is minimally stressful. This latter assumption may be valid when the stressor is an invasive examination (e.g., endoscopy or barium enema colonoscopy) or even routine major surgery where, following any decisions pertaining to patient's health status, this is likely a relatively low-threat period. However, for some planned procedures (e.g., orthognathic surgery or surgery producing disfigurement) there is an extended postoperative period requiring readjustment, and for emergency procedures with virtually no anticipatory period (e.g., surgery to remediate traumatic injuries) the postsurgical period can be highly stressful.

The need for increased attention to the postexposure periods is particularly notable in light of a growing body of findings suggesting that exposure to a range of circumscribed, time-limited stressors such as sexual assault, temporary physical disability, and natural disaster may produce both short- and long-term maladaptive psychological functioning and behavioral problems (Auerbach, 1986; Silver & Wortman, 1980). Posttraumatic stages of response, characterized by different forms of emotional expression and culminating in a final stage of adaptation or recovery, have been hypothesized for stressors such as these as well as those involving irrevocable loss (e.g., spinal cord injury resulting in permanent disability, amputation, or loss of a loved one as a result of disease), but the evidence for predictable patterns that constitute a "normal" response consists largely of subjective clinical observations not supported and sometimes contradicted by the limited empirical data available (Silver & Wortman, 1980; Wortman & Silver, in this issue). There is thus a need for systematic longitudinal research to identify any consistencies in patterns of emotional expression and use of adaptive coping strategies over time in patients experiencing traumatic injuries or loss or those exposed to medical or surgical procedures with stressful sequelae. Intervention studies could then evaluate the efficacy of stress management treatments designed to promote coping strategies appropriate to the coping needs of patients at different points in time.

Evaluating Treatment Impact

Treatment impact may be evaluated on two broad levels: (a) via intermediate "process" measures and (b) on the basis of end-point indicants of "outcome."

Process Measures

Process measures include indicants that are useful as validity checks of the independent variable, as well as those that evaluate intermediate outcomes consequent to specific interventions. The first group includes measures of the intervention's credibility to the patient (Anderson, 1987) and of whether interventions had their intended short-term effects (e.g., Did information result in an increase in knowledge? Did patients trained in skills actually use them? Klingman, Melamed, Cuthbert, & Hermecz, 1984; Did cognitive–behavioral intervention produce more positive self-statements? Kendall et al., 1979). Examples of the second group include measures of the immediate impact of interventions on state anxiety level and of whether the interventions influenced how patients perceived the intervener and the physician from an interpersonal standpoint (Auerbach et al., 1983). These measures provide not only data on the immediate impact of interventions, but also data (e.g., immediate prestress anxiety level) that may then be used as a patient individual-difference variable to evaluate in conjunction with an end-point outcome measure (e.g., relation between preoperative fear level and postoperative adjustment). Another important process measure, which is just beginning to be used with health care stressors, evaluates strategies patients actually used while coping with the stressor (e.g., Folkman & Lazarus's, 1980, Ways of Coping Checklist). Such measures may be used to track fluctuations in coping processes used by unprepared patients over the course of stressor exposure as a precursor to designing interventions (Wong & Kaloupek, 1986) or as an independent measure of the mix of problem- and emotion-focused strategies engaged in by subjects under stress after having been exposed to different intervention strategies (Strentz & Auerbach, 1988).

Outcome Measures

A wide range of outcome measures have been used. Some are idiosyncratic to a particular stressor and are not suitable elsewhere (e.g., time to insert the endoscope and gagging during an endoscopic examination; Shipley et al., 1979). Others are more broadly applicable to generic groups, such as recovering surgical patients (e.g., self-report and/or observational ratings of physical status, speed of recovery, anxiety, pain, compliance, and emotional adjustment during the postoperative period). However, variability is great even within a particular class of stressors, and multiple outcome measures are obtained in most studies. Studies using multiple subjective and objective outcome measures are potentially most informative, but a tendency to selectively interpret findings by some researchers has hindered objective assessment of treatment effects (Peterson, 1984). As Peterson noted, one solution to this problem is a priori selection of particular operationally defined outcomes as logical prime targets based on the nature of the stressful procedure. Thus, as with intervention procedures, outcome criteria should be logically and theoretically related to the primary coping tasks posed by the stressor.

Summary and Conclusions

From a conceptual standpoint, the effectiveness of stress management interventions is determined by the extent to which they teach those coping skills and strategies that address the primary demands on coping resources posed by the stressor complex confronting the individual. Intervention studies are needed in the health care setting that examine the interaction among specific interventions, individual differences in coping style, and the relative pull for emotion- versus problem-focused coping that characterizes the stressor in question. Further, though it is clear that persons who are high in trait anxiety tend to adjust poorly to surgical and medical stress, the issue of whether, for whom, and for which stressors interventions will necessarily improve on unaided coping needs to be addressed. Similarly, intervention studies need to evaluate stress management treatments and their component coping strategies as they relate to distinct coping needs of patients at different time periods over the course of the stress reaction. In particular there needs to be more emphasis on both assessment and intervention studies implemented during the postimpact period. Finally, assessment of treatment effects requires careful selection of outcome measures appropriate to the nature of the stressor and the stressful procedure involved.

Implementation of the intervention research strategies outlined above requires, in addition to outcome data, measures of (a) dispositional coping style, (b) the impact of interventions on coping processes, and (c) the nature of the coping demands posed by stressors. As noted above, a number of dispositional coping measures have been shown to be effective in predicting differential response to treatments, though measures specific to the health care setting are apt to be most useful. Although some controversy exists over the best way to measure active coping, especially in children (Peterson, in this issue), Folkman and Lazarus's (1980) Ways of Coping Checklist is the most widely used measure with adults, and in at least one study (Strentz & Auerbach, 1988) it has been shown to accurately reflect the differential use of emotion- versus problem-focused processes under stress by persons given preparatory interventions designed to induce such processes (deep breathing, thought stopping, relaxation, and directed fantasy vs. techniques to actively deal with or modify the stressor, respectively).

Regarding classification of stressors, many different taxonomies have been proposed, but little work has been done on dimensioning stressors in terms of continua that are directly relevant to how people cope with them. Such a process would involve first identifying from among the constellation of situations encompassing given stressors those that are perceived by patients as most stressful (reaction approach; Magnusson & Ekehammer, 1975). For example, in the transitory stressor area, Volicer and Bohannon (1975) developed a list, based on patient perceptions, of 49 events associated with hospitalization ranked according to their stressfulness. In the chronic disease area, Heinrich, Schag, and Ganz (1984) assessed patient perceptions of the specific problem situations and stressors associated with cancer. A second step would involve classifying specific stressors in terms of their coping demands (i.e., the degree to which important coping outcomes may be influenced by direct action by the patient). This could be done via rational analysis (e.g., Felton & Revenson, 1984; Leventhal et al., in this issue) or by obtaining data on subjective patient appraisals (perception approach; Magnusson & Ekehammer, 1975—see Edinger & Auerbach, 1978, for an application of this approach in a rehabilitative setting). The latter approach would likely be more useful because patients are not always aware of actual situational demands and opportunities for exercising control (Gil, 1984) and because perception of control may be as important in influencing patient adjustment as actual emission of behaviors that affect health status (see Cromwell et al., 1977).

When patient perceptions of and/or desire for instrumental control differ from their actual opportunities for exerting control over important outcomes, two areas would seem to particularly merit further investigation: (a) evaluating the effects of creating a sense of control by having the patient participate in his or her own treatment in ways that appear important but are actually only marginally relevant to health status (see Cromwell et al., 1977; Penberthy, 1982), and (b) evaluating the effects of attempting to bring patients' beliefs about control in line with what is likely to be their actual opportunities for exerting control in different aspects of the situation, prior to teaching appropriate coping strategies.

In conclusion, it is recognized that stressors are not static, time-bound entities; that coping is inherently a dynamic, sequential process; and that emotion- and problem-focused coping modes may thus sometimes overlap and become indistinguishable as people deal with complex situations. Thus differentiating among discrete techniques persons use to deal successfully with particular components of stressors at particular moments in time and teaching patients exactly when to use particular coping strategies indeed pose challenging tasks. It is my conviction, however, that given the current state of knowledge in the field, the analytic approach proposed herein will contribute to our understanding of the coping process and lead to useful intervention applications in the health care setting.

References

Anderson, E. A. (1987). Preoperative preparation facilitates recovery, reduces psychological distress, and reduces the incidence of acute postoperative hypertension. *Journal of Consulting and Clinical Psychology, 55,* 513–520.

Anderson, K. O., & Masur, F. T. (1983). Psychological preparation for invasive medical and dental procedures. *Journal of Behavioral Medicine, 6,* 1–40.

Auerbach, S. M. (1973). Trait–state anxiety and adjustment to surgery. *Journal of Consulting and Clinical Psychology, 40,* 264–271.

Auerbach, S. M. (1979). Preoperative preparation for surgery: A review of recent research and future prospects. In D. J. Oborne, M. M. Gruneberg, & J. R. Eiser (Eds.), *Research in psychology and medicine* (Vol. 2, pp. 344–350). London: Academic Press.

Auerbach, S. M. (1986). Assumptions of crisis theory and a temporal model of crisis intervention. In S. M. Auerbach & A. L. Stolberg (Eds.), *Crisis intervention with children and families* (pp. 3–37). Washington, DC: Hemisphere.

Auerbach, S. M. (in press). Temporal factors in stress and coping: Intervention implications. In B. N. Carpenter (Ed.), *Personal coping: Theory, research, and application.* Westport, CT: Praeger.

Auerbach, S. M., & Kendall, P. C. (1978). Sex differences in anxiety response and adjustment to dental surgery: Effects of general vs. specific preoperative information. *Journal of Clinical Psychology, 34,* 309–313.

Auerbach, S. M., Kendall, P. C., Cuttler, H. F., & Levitt, N. R. (1976). Anxiety, locus of control, type of preparatory information, and adjustment to dental surgery. *Journal of Consulting and Clinical Psychology, 44,* 809–818.

Auerbach, S. M., & Kilmann, P. R. (1977). Crisis intervention: A review of outcome research. *Psychological Bulletin, 84,* 1189–1217.

Auerbach, S. M., Martelli, M. F., & Mercuri, L. G. (1983). Anxiety, information, interpersonal impacts, and adjustment to a stressful health care situation. *Journal of Personality and Social Psychology, 44,* 1284–1296.

Auerbach, S. M., Meredith, J., Alexander, J. M., Mercuri, L. G., & Brophy, C. (1984). Psychological factors in adjustment to orthognathic surgery. *Journal of Oral and Maxillofacial Surgery, 42,* 435–440.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review, 84,* 191–215.

Bradley, L. A., & Kay, R. (1985). The role of cognition in behavioral medicine. In P. C. Kendall (Ed.), *Advances in cognitive–behavioral research and therapy* (Vol. 4, pp. 137–213). New York: Academic Press.

Burish, T. G., & Lyles, J. N. (1979). Effectiveness of relaxation training in reducing the aversiveness of chemotherapy in the treatment of cancer. *Journal of Behavior Therapy and Experimental Psychiatry, 10,* 357–361.

Bush, J. P., Melamed, B. G., Sheras, P. L., & Greenbaum, P. E. (1986). Mother–child patterns of coping with anticipatory medical stress. *Health Psychology, 5,* 137–157.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98,* 310–357.

Cromwell, R. L., Butterfield, E. C., Brayfield, F. M., & Curry, J. J. (1977). *Acute myocardial infarction: Reaction and recovery.* St. Louis: C. V. Mosby.

Edinger, J. D., & Auerbach, S. M. (1978). Development and validation of a multidimensional multivariate model for accounting for infractions in a correctional setting. *Journal of Personality and Social Psychology, 36,* 1472–1489.

Egbert, L. D., Battit, G. W., Welch, C. E., & Bartlett, M. K. (1964). Reduction of postoperative pain by encouragement and instruction of patients. *New England Journal of Medicine, 270,* 825–827.

Eitinger, L. (1983). Denial in concentration camps: Some personal observations on the positive and negative functions of denial in extreme situations. In S. Bresnitz (Ed.), *The denial of stress* (pp. 199–212). New York: International Universities Press.

Ellis, A. (1971). *Growth through reason.* Palo Alto, CA: Science and Behavior Books.

Faust, J., & Melamed, B. G. (1984). The influence of arousal, previous experience, and age on surgery preparation of same-day and in-hospital pediatric patients. *Journal of Consulting and Clinical Psychology, 52,* 359–365.

Felton, B. J., & Revenson, T. A. (1984). Coping with chronic illness: A study of illness controllability and the influence of coping strategies on psychological adjustment. *Journal of Consulting and Clinical Psychology, 52,* 343–353.

Folkins, C. (1970). Temporal factors and cognitive mediators of stress reactions. *Journal of Personality and Social Psychology, 14,* 173–184.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21,* 219–239.

Gil, K. (1984). Coping effectively with invasive medical procedures. *Clinical Psychology Review, 4,* 339–362.

Goldstein, M. J. (1973). Individual differences in response to stress. *American Journal of Community Psychology, 1,* 113–137.

Heinrich, R. L., Schag, C. C., & Ganz, P. A. (1984). Living with cancer: The cancer inventory of problem situations. *Journal of Clinical Psychology, 40,* 972–980.

Hofer, M. A., Wolff, E. T., Friedman, S. B., & Mason, J. W. (1972). A psychoendocrine study of bereavement, Parts I and II. *Psychosomatic Medicine, 34,* 481–504.

Janis, I. L. (1958). *Psychological stress.* New York: Wiley.

Johnson, J. E., Lauver, D. R., & Nail, L. M. (1989). Process of coping with radiation therapy. *Journal of Consulting and Clinical Psychology, 57,* 358–365.

Johnston, M. (1986). Preoperative emotional states and postoperative recovery. *Advances in Psychosomatic Medicine, 15,* 1–22.

Kaloupek, D. G. (1987). Recommendations for psychological intervention with patients undergoing invasive medical procedures. *Behavior Therapist, 10,* 33–39.

Kaloupek, D. G., & Stoupakis, T. (1985). Coping with a stressful medical procedure: Further investigation with volunteer blood donors. *Journal of Behavioral Medicine, 8,* 131–148.

Kaloupek, D. G., White, H., & Wong, M. (1984). Multiple assessment of coping strategies used by volunteer blood donors. *Journal of Behavioral Medicine, 7,* 35–60.

Kendall, P. C., & Watson, D. (1981). Psychological preparation for stressful medical procedures. In L. A. Bradley & C. K. Prokopp (Eds.), *Medical psychology: Contributions to behavioral medicine* (pp. 197–221). New York: Academic Press.

Kendall, P. C., Williams, L., Pechacek, T. F., Graham, L. E., Shisslak, C., & Herzoff, N. (1979). Cognitive–behavioral and patient education interventions in cardiac catheterization procedures: The Palo Alto medical psychology project. *Journal of Consulting and Clinical Psychology, 47,* 49–58.

Klingman, A., Melamed, B. G., Cuthbert, M. I., & Hermecz, D. A. (1984). Effects of participant modeling on information acquisition and skill utilization. *Journal of Consulting and Clinical Psychology, 52,* 414–422.

Krantz, D. S., Baum, A., & Wideman, M. (1980). Assessment of preferences for self-treatment and information on health care. *Journal of Personality and Social Psychology, 39,* 977–990.

Langer, E., & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. *Journal of Personality and Social Psychology, 34,* 191–198.

Lazarus, R. S. (1966). *Psychological stress and the coping process.* New York: McGraw-Hill.

Lazarus, R. S. (1983). The costs and benefits of denial. In S. Bresnitz (Ed.), *The denial of stress* (pp. 1–32). New York: International Universities Press.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Leventhal, H., & Johnson, J. E. (1983). Laboratory and field experimentation: Development of a theory of self-regulation. In P. J. Wooldridge, M. H. Schmitt, J. K. Skipper, Jr., & R. C. Leonard (Eds.), *Behavioral science and nursing theory* (pp. 189–262). St. Louis: C. V. Mosby.

MacDonald, M. R., & Kuiper, N. A. (1983). Cognitive–behavioral preparations for surgery: Some theoretical and methodological concerns. *Clinical Psychology Review, 3,* 27–39.

Magnusson, D., & Ekehammer, B. (1975). Perceptions of and reactions to stressful situations. *Journal of Personality and Social Psychology, 31,* 1147–1154.

Martelli, M. F., Auerbach, S. M., Alexander, J., & Mercuri, L. G. (1987). Stress management in the health care setting: Matching interventions with patient coping styles. *Journal of Consulting and Clinical Psychology, 55,* 201–207.

Mathews, A., & Ridgeway, V. (1981). Personality and surgical recovery: A review. *British Journal of Clinical Psychology, 20,* 243–260.

Meyerowitz, B. E., Heinrich, R. L., & Schag, C. C. (1983). A competency-based approach to coping with cancer. In T. G. Burish & L. A. Bradley (Eds.), *Coping with chronic disease* (pp. 137–158). New York: Academic Press.

Miller, S. M. (1988). *Coping style in hypertensives: Impact on role preferences.* Unpublished manuscript, Temple University, Department of Psychology, Philadelphia.

Miller, S. M., & Mangan, C. E. (1983). Interacting effects of information and coping style in adapting to gynecologic stress: Should the doctor tell all? *Journal of Personality and Social Psychology, 45,* 226–236.

Monat, A., Averill, J. R., & Lazarus, R. S. (1972). Anticipatory stress and coping reactions under various conditions of uncertainty. *Journal of Personality and Social Psychology, 24,* 237–253.

Parloff, M. B. (1986). Placebo controls in psychotherapy research: A sine qua non or a placebo for research problems? *Journal of Consulting and Clinical Psychology, 54,* 79–87.

Penberthy, A. R. (1982). Perceived control, interpersonal impacts, and adjustment to a long-term, invasive health care procedure (Doctoral dissertation, Virginia Commonwealth University, 1982). *Dissertation Abstracts International, 43,* 882B.

Peterson, L. (1984). A brief methodological comment on possible inaccuracies induced by multimodal measurement analysis and reporting. *Journal of Behavioral Medicine, 7,* 307–313.

Rogers, M., & Reich, P. (1986). Psychological intervention with surgical patients: Evaluation of outcome. *Advances in Psychosomatic Medicine, 15,* 23–50.

Rosenthal, D., & Frank, J. T. (1956). Psychotherapy and the placebo effect. *Psychological Bulletin, 53,* 294–302.

Schultheis, K., Peterson, L., & Selby, V. (1987). Preparation for stressful medical procedures and Person × Treatment interactions. *Clinical Psychology Review, 7,* 329–352.

Shipley, R. H., Butt, J. H., & Horwitz, E. A. (1979). Preparation to reexperience a stressful medical examination: Effects of repetitious videotape exposure and coping style. *Journal of Consulting and Clinical Psychology, 47,* 485–492.

Shipley, R. H., Butt, J. H., Horwitz, B., & Farbry, J. E. (1978). Preparation for a stressful medical procedure: Effect of amount of stimulus preexposure and coping style. *Journal of Consulting and Clinical Psychology, 46,* 499–507.

Silver, R. L., & Wortman, C. B. (1980). Coping with undesirable life events. In J. Garber & M. E. P. Seligman (Eds.), *Human helplessness: Theory and applications* (pp. 279–340). New York: Academic Press.

Strentz, T., & Auerbach, S. M. (1988). Adjustment to the stress of simulated captivity: Effects of emotion-focused vs. problem-focused preparation on hostages differing in locus of control. *Journal of Personality and Social Psychology, 55,* 652–660.

Suls, J., & Fletcher, B. (1985). The relative efficacy of avoidant and nonavoidant coping strategies. *Health Psychology, 4,* 249–288.

Turk, D. C., & Speers, M. A. (1983). Diabetes mellitus: A cognitive–functional analysis of stress. In T. G. Bradley & L. A. Burish (Eds.), *Coping with chronic disease* (pp. 191–217). New York: Academic Press.

Volicer, B. J., & Bohannon, M. W. (1975). A hospital stress rating scale. *Nursing Research, 24,* 352–359.

Volicer, B. J., & Burns, M. W. (1977). Preexisting correlates of hospital stress. *Nursing Research, 26,* 408–415.

Volicer, B. J., Isenburg, M. A., & Burns, M. W. (1977). Medical–surgical differences in hospital stress factors. *Journal of Human Stress, 3,* 3–13.

Wilson, J. F. (1981). Behavioral preparation for surgery: Benefit or harm? *Journal of Behavioral Medicine, 4,* 79–102.

Wolfer, J. A., & Visintainer, M. (1975). Pediatric surgical patients' and parents' stress responses and adjustment as a function of psychologic preparation and stress-point nursing care. *Nursing Research, 24,* 244–255.

Wolff, C. T., Friedman, S. B., Hofer, M. A., & Mason, J. W. (1964). Relationship between psychological defenses and mean urinary 17-hydroxycorticosteroid excretion rates, Parts I and II. *Psychosomatic Medicine, 26,* 576–609.

Wong, M., & Kaloupek, D. G. (1986). Coping with dental treatment: The potential impact of situational demands. *Journal of Behavioral Medicine, 9,* 579–597.

Received April 12, 1988
Revision received April 25, 1988
Accepted April 25, 1988 ■