

The Nature of Personal and Vicarious Coping Resources in Attenuating the Impact of Life Stress on Depression

CHON, KYUM KOO

Sung Kyun Kwan University

The present study, based upon a control theoretical (cybernetic) approach, examined the role of personal, social, and religious coping resources as mediators of the relation between life stress and depression. 314 (cross-sectional) and 104 (longitudinal) participants reported on life stress, coping resources, and depression. The data were analyzed using multiple regression analyses. The results indicate, in both cross-sectional and longitudinal analyses that (1) personal coping resources and social coping resources buffered the effects of life stress on depression; (2) personal coping resources demonstrated their effectiveness as mediators for controllable life stress, while social coping resources for uncontrollable life stress; (3) when personal coping was subdivided into two different kinds of control perception (capacity vs. contingency), depression was only moderated by capacity control (defined as the perception that a person has the ability to control desired outcomes); (4) the "specificity hypothesis" of social support (i.e., social coping resources), that a particular kind of social support is effective only in relation to a corresponding kind of life stress, was not confirmed; and (5) religious coping resources (i.e., the perception of God as benevolent) were shown to be mediators only for believers. The discussion of these results highlights the need for a comprehensive model of coping resources, and illustrates the value of a control theoretical framework.

For the past two decades, research on the stress-illness model has primarily focused on the relation of life stress (e.g., divorce, unemployment, etc.) to both physical and mental illness (Kessler, Price, & Wortman, 1985; Thoits, 1982). Although a relation between life stress and illness has been consistently observed (Dohrenwend & Dohrenwend, 1974, 1981), recent evidence suggests that life events account, at best, for around .10 of total variance in predicting illness (Rabkin & Struening, 1976). This weak relation between life stress and illness suggests the importance of coping mechanisms as mod-

erating variables (Aldwin & Revenson, 1987).

Chon (1989; Chon & Kim, 1989) has attempted to delineate the role of coping mechanisms from a control theoretical perspective; in essence, coping is analogous to the functions of effectors in a control system. From this perspective, there are three aspects of coping mechanism to take into account in understanding its role as a moderator, namely, coping resources, coping modes, and coping styles. In brief, the proposed model posits that (1) human coping resources consist of *personal* and *vicarious*¹ (e.g., social support, God's grace), that

(2) coping mode can be either *cognitive* or *behavioral*, and that (3) coping style can be divided into *active* and *passive* (see Chon, 1989; Chon & Kim, 1989, for detailed analysis).

As a comprehensive theory, a test of the validity of control theory requires a very complicated body of research. Given limited time and resources, the present study is confined to *the role of coping resources* (instead of coping modes or coping styles) in attenuating the impact of stressful life events on depression; Operationally, the various roles of *personal control*, *social support*, and *religiosity* will be explored in this study.

Personal Control

The role of personal control in attenuating (or possibly accentuating) stress has been widely studied (see Averill, 1973; Folkman, 1984; Miller, 1979; Thompson, 1981, for reviews). The importance of personal control in relation to depression has also been the key concept in many theories (Abramson, Seligman, & Teasdale, 1978; Bibring, 1953; Hyland, 1987; Rehm, 1977; Wortman & Brehm, 1975). Although the role of personal control as a moderator variable has been explored by a number of researchers, research on the issue thus far have revealed inconsistent and inconclusive findings. For example, within the context of locus of control, some of the findings support the hypothesis that externals, in comparison with internals, are more prone to depression (e.g., Johnson & Sarason, 1979; Lefcourt, 1981). On the other hand, Nelson and Cohen (1984) reported no significant moderating effect of locus of control on the relation between life stress and depression. (See Chon, 1989, for a review on the inconsistent findings of personal control constructs). According to our view, the ambiguous findings may, in part, result from the lack of an exact definition of personal control.

The concept of personal control in psychosocial literature has been used in two different ways. One way, here referred to as *contingency control*, concerns whether a certain outcome is contingent upon a person's re-

sponse. The other way, here referred to as *capacity control*, concerns whether a person has the ability to control desired outcome. For example, if a woman strongly believes that a certain event (e.g., rape) occurred due to her own behavior, she may be said to have a strong perception of contingency control. On the other hand, if she believes that she has the ability to alter an adverse situation, she may be said to have a strong perception of capacity control. From a control theoretical perspective, contingency control is more related to the detector's function, whereas capacity control is more related to the effector's function (see Chon, 1989). Control theory, then, implies that the moderating effect of personal control is more associated with capacity control than with contingency control.

Although many researchers seem to assume these two types of personal control as the same (Weisz, 1983; Brickman, Rabinowitz, Karuza, & Coates, 1982), a group of researchers have proposed a similar conceptual distinction to the one mentioned above, emphasizing the need to distinguish different types of personal control. For example, according to Weisz and his colleague (Weisz, 1983, 1986a, 1986b; Weisz & Stipek, 1982; Weisz, Weiss, & Rintoul, 1987), control belief consists of two kinds of judgments: contingency judgment ("the degree to which outcome in the situation are contingent on people's behavior") and competence judgment² ("one's own competence to produce the necessary behavior") (Weisz, 1983, p. 234). Furthermore, this kind of distinction has also been proposed by researchers from various theoretical backgrounds: self-efficacy (Bandura, 1977); stress and coping (Folkman, 1984); action-theoretical framework (Skinner & Chapman, 1984; Skinner, Chapman, & Baltes, 1988; Skinner & Connell, 1986); locus of control (Graybill & Sergeant, 1983); and attributional studies (Brickman et al., 1982; Pettersen, 1987). (See Chon, 1989, for a detailed analysis of this issue).

The function and nature of personal control, when differentiated, has also been empirically examined by

researchers (Gatz, Siegler, George, & Tyler, 1986; Weisz, 1986a; Weisz et al., 1987; Wiegel, Wertlieb, & Feldstein, 1989). For example, Weisz et al. (1987) reported that childhood depression scores were significantly and negatively correlated with competence beliefs (e.g., "When I have problems at home, I am better than most kids at helping to solve the problems."), and control beliefs--analogous to capacity control here--(e.g., "When I have problems at home, I can solve them if I try"). But depression scores were not associated with contingency beliefs--analogous to contingency control here--(e.g., "When kids have problems at home, solving the problem depends on the kids and what they do").

The aforementioned theoretical and empirical arguments lead us to consider the need to distinguish different kinds of personal control. Further, this kind of distinction may help us understand some of the inconsistent findings on the role of personal control in relation to depression. Stated differently, personal control could be a powerful moderating variable if we successfully redefine the concept of personal control with a more precise concept, such as *capacity control*, instead of contingency control.

Social Support

The past decade has witnessed an explosive interest in the study of social support. To date, there are numerous excellent papers on social support. For example, the array of issues regarding social support in general has been reviewed (e.g., Cohen & Wills, 1985), as has the role of social support as a moderator between stress and health (e.g., Leavy, 1983). Critical papers attempting to resolve some controversies or to advance the understanding of the complex nature of social support can be found (e.g., Shumaker & Brownell, 1984), as can some papers which review the measurement of social support, comparing the strengths and weaknesses of different measures (e.g., Heitzmann & Kaplan, 1988).

Despite this considerable amount of research in recent

years, the nature and function of social support are still unclear, and some old controversies are still unresolved. Among the controversies, the most fundamental one has been the main vs. buffering effect of social support. To date, research has shown inconsistent findings on the effect of social support; some studies are consistent with the hypothesis that social support functions regardless of the level of stress (main effect) (e.g., Bell, LeRoy, & Stephenson, 1982; Lin, Simeone, Ensel, & Kuo, 1979; Williams, Ware, & Donald, 1981), while other findings support the idea that social support functions only when the level of stress is high (buffering effect) (e.g., Cobb, 1976; Fleming, Baum, Gisriel, & Gatchel, 1982; Kessler & Essex, 1982; Wilcox, 1981).

In order to resolve these inconsistent findings, Cohen and McKay (1984) have proposed a so-called "specificity model of social support." In brief, they argue that a stressor creates particular need(s) for the person. Therefore, social support can be effective only when it meets the needs of the person under stress. According to this proposal, then, part of the reason why there have been inconsistent findings about the buffering effect is that researchers have not confined the role of social support within specific domains; they have failed to arrange the specific match between types of social support and the types of needs elicited by stress.

In this regard, the specificity model is consistent with the fact that one of the basic functions of a control system is matching-to-standards (Carver, 1979): the whole system tries to be consistent with standards (or needs). Thus, the efficacy of the effector (here the vicarious effector, namely, social support) depends on whether or not it functions to match with the standards (or needs) of the system.

A couple of studies have directly examined the validity of the specificity model, and have yielded mixed results. Brownell (1982) examined the specificity model of social support, using two types of social support (emotional and tangible social support) and three types of stressors (emotional occupational, tangible occupa-

tional, and physical health stress). The findings were partially supportive of the model. For example, tangible social support revealed a buffering effect for tangible stress, but did not for emotional occupational or physical health stress. Tatzloff and Barrera (1987) also explored the relationships among three types of social support (parenting, emotional, and tangible) and three types of stressors (parenting, social, and tangible). They found, however, that the specificity model was not confirmed as a whole. The only significant effect, using BDI as a criterion, was found between parenting support and parenting stress. Moreover, the overall pattern indicated that social support showed a main effect, as opposed to a buffering effect, between stress and psychological distress.

There is some indirect evidence supporting the specificity model of social support. For example, some studies have shown that social support may have adverse effects on the receiver under certain circumstances, presumably because the types of support are incongruent with the types of stress of the receiver (Fiore, Becker, & Coppel, 1983; Rook, 1984).

In sum, the specificity model suggests that the efficacy of social support necessitates a consideration of the nature and/or type of stress. If the social support matches the type of stress, then social support will be effective. On the other hand, if there is a mismatch between the types of stress and the types of social support, then social support may fail to reduce the adverse effect of stress or even increase its deleterious effect.

Religiosity

A major limitation of research on coping resources seems to be a lack of attention given to religious factors that might mediate the effects of stressful life events on psychopathology. Although several investigators have suggested the possible role of religiosity as a moderating variable (e.g., Jackson & Coursey, 1988), little detailed empirical research has been done on the

topic.

Furthermore, these limited studies have resulted in contradictory findings on the role of religion in relation to mental health; some studies show a positive relation between religiosity and mental health; other studies show a negative relation; and still other reveal no relation (Bergin, 1983). The role of religion in depression is also thought to be "a two-edged sword. It can be either a useful means of overcoming the depression or a source feeding the depression" (Andreassen, 1972, p. 163).

One line of research attempting to clarify contradictory findings differentiates groups on the basis of intrinsic versus extrinsic religious orientation. According to this distinction, those with an intrinsic orientation regard religion as an *end*, while those with an extrinsic orientation consider it as a *means*. Indeed, when employing the intrinsic vs. extrinsic differentiation, religiosity functions differently. For example, intrinsic religious orientation tends to be associated with low levels of trait anxiety, whereas extrinsic orientation tends to be associated with high levels of anxiety (Donahue, 1985).

The way a person conceives of God also influences the relation between religiosity and mental health. The basic assumptions for this line of research are: (1) the concept of God is fundamental to an understanding of religiosity in people (Elkind, 1970); (2) the concept of God, at least in Judeo-Christianity, may be different from person to person (e.g., "loving & benevolent" vs. "angry & punitive"). In fact, Benson and Spilka (1973) found that self-esteem was positively related to images of a loving God and negatively related to images of a vindictive God. Thus, the study suggests that if a person conceives of God as loving, then he or she has high self-esteem (which is in general considered to be a meaningful moderator to depression).

The foregoing discussion suggests that both lines of research (Intrinsic-Extrinsic studies and God concept studies) can be promising approaches to unravelling the role of religiosity in mental health. Of more relevance

to the present study, however, is the concept of God (e.g., benevolent vs. vindictive), since this is more directly connected to the coping mechanism. If God is conceived of as positively available, religion can be a possible coping resource. On the other hand, if God is conceived of as negatively available (e.g., vindictive), religion cannot be a coping resource in adverse situations (see Chon, 1989).

Interrelations among Coping Resources

The majority of studies on coping resources has explored either personal or vicarious (especially social) coping resources, neglecting to examine both of them simultaneously (Kobasa & Puccetti, 1983; Sandler & Lakey, 1982). Some recent studies, however, have begun to examine both personal and vicarious coping resources in one study (e.g., Billings & Moos, 1981; Dean & Ensel, 1982; Hobfoll & Leiberan, 1987; Hobfoll & Walfisch, 1984; Holahan & Moos, 1986; Husaini, Neff, Newbrough, & Moore, 1982; Lefcourt, Martin, & Saleh, 1984).

To date, the interrelations among personal coping resources, vicarious coping resources, and psychopathology are not well understood. Some critical issues raised by researchers but still unresolved are: What is the underlying mechanism by which each coping resource reduces the impact of adversity on symptomatology? Which coping resource, personal or vicarious, is a more powerful moderator in general? Under what circumstances will each coping resource, personal or vicarious, be most effective?

Among these issues, the present study particularly concerns the third inquiry: the relative efficacy of each coping resource in relation to the context of life events. The reasonable question to ask, then, is which context of life events? One important contextual variable proposed by researchers is the *controllability* of life events (Dohrenwend & Dohrenwend, 1974; Thoits, 1983). Thus, the present study investigates the relative efficacy of personal vs. vicarious coping resources in relation to

controllable vs uncontrollable life events.

The relation between the types of coping resources (personal vs. vicarious) and the nature of life events (controllable vs. uncontrollable life events) has not been examined directly yet. There is, however, indirect evidence relevant to this issue. For example, Pearlin and Schooler (1978) analyzed the effectiveness of (personal) coping resources and strategies in four role domains: marriage, parenting, economic, and occupational. The most salient pattern in their study suggests that (personal) coping resources are not effective in the occupational area (e.g., reward system). This result was later interpreted by Caplan, Naidu, & Tripathi (1984) to mean that personal coping resources may be ineffective for uncontrollable events; instead, personal coping resources could be effective for controllable events. In fact, when Caplan et al. (1984) employed a controllable event (i.e., academic annual exam) in their study, personal coping resources showed significant moderating effects. Pargament and his colleagues (1988) also suggested that a self-directing coping (analogous to personal coping) may be most useful for "personally controllable situations" while a collaborative coping (analogous to religious coping) may prove more helpful for "uncontrollable events" (p. 102).

The above evidence and suggestion are in line with the implication of control theory in that controllable stressor(s) by definition can be regarded as disturbance(s) which intrinsic effectors (analogous to personal coping) can sufficiently moderate. By contrast, uncontrollable stressors, in narrow terms, can be thought of as stressors which the intrinsic effector cannot moderate; uncontrollable stressors, however, may possibly be moderated by other forces such as vicarious effector(s). Stated differently, personal coping resources may be more effective with respect to controllable events, whereas vicarious coping resources (e.g., social support) may be more effective with respect to uncontrollable events. In a sense, personal coping resources can be thought of as a "first line of defense" against adverse

circumstances; if this line of defense is unable to master the disturbances, then the individual may need other resources as "a secondary defense" (Hobfoll & Walfisch, 1984).

Issues to be tested

The purpose of this paper is twofold. First, previous studies on coping resources are limited in that they have focused either personal or social coping resources. A more comprehensive analysis of coping resources should cover at least three domains: personal, social, and religious. Thus, the first purpose of the present study is to test all three coping resources simultaneously in one study.

Secondly, within the framework of the aforementioned coping resources, the literature on each coping resource presents ambiguous or contradictory findings. Thus, the second purpose of this paper is to resolve the inconsistencies in each domain of coping resources. In general, inconsistencies may be resolved if we redefine the target variables more exactly or specify their context of applicability more precisely (Thoits, 1987).

One final point; the present study is based on a control theory framework. It should be emphasized, however, that control theory may or may not provide explicit hypotheses on every aspect of stress-illness relations. Control theory is not an omnipotent theory. Rather, the usefulness of control theory is that (1) some hypotheses can be directly derived from it, and (2) it provides certain guidance or direction.

Based on the foregoing analysis, the following hypotheses were proposed and tested:

1) personal control, social support, and religiosity are important moderating variables in the relation between life stress and depression;

2) personal coping resources (e.g., personal control) are effective for controllable life stress, whereas vicarious coping resources (e.g., social support) are effective for uncontrollable life stress;

3) capacity control is a meaningful moderating vari-

able, while contingency control is not;

4) social support is effective only when it meets the demands of a particular kind of life stress (for example, belonging social support which lends a sense of belonging is effective in alleviating affiliation-related life stress);

5) the preception of God as benevolent, as opposed to the perception of God as vindictive, is an important moderating variable.

METHOD

Overview

The present study consisted of two sets of data, namely, cross-sectional data ($N = 314$) and two waves of panel data ($N = 104$). The time lapse for the panel data (e.e., between Time 1 and Time 2) was one month. Partly because of space limitation, and partly because of advantage of panel design in that it can control for initial conditions, panel data will mainly be presented here. Parenthetically, the pattern of results of cross-sectional data is very similar to that of panel data.

Sample

A total of 109 undergraduate students participated in the panel study. Participants who did not report any life events were excluded from the analyses. Specifically, five participants from sample were excluded. Thus, the final sample size was 104. One experimental credit was offered for participation.

The sample consisted of 17% females and 28% males. Age ranged from 17 to 25. Most participants were Freshmen (68%), followed by Sophomores (21%), Juniors (4%), and Seniors (3%). About three fifths of the sample (58%) were Catholic, followed by Protestant (17%) and Jewish (16%).

Procedure

Participants were recruited from large classes in the psychology and sociology departments. The study was

conducted in groups ranging in size from 5 to 25. On arriving for the study, participants received a booklet that contained an informed-consent form and a package of questionnaires. Participants were first asked to read and sign the informed-consent form, in which it was stated that the study was concerned with stressful life events and coping resources. They were then asked to fill out the questionnaires, which were self-explanatory. In order to avoid possible order effects, some scales (personal control, social support, and two depression scales) were counterbalanced for the participants at Time 1.

Measures

The package of questionnaires contained 5 groups of scales; life events, personal control, social support, religiosity, and depression. The first four of these scales (i.e., life events, personal control, social support, and religiosity) comprise the predictor variables. The criterion variable in this study was self-reported depression. The specific variables analyzed in this study are described below.

Life events. Life events were measured with 72 items comprising 6 major areas relevant to college students: school, work, finance, love & marriage, social life, and health & illness. These items were adapted from ISLE (Inventory of Small Life Events-Zautra, Guarnaccia, & Dohrenwend, 1986) and from PERI Life Events Scale (Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978). Each area was assessed by 6 positive and 6 negative life events.

Participants were asked to make three different judgments with respect to each event. First, they were asked to indicate whether each event occurred within the last 6 months. Second, if an event had occurred during that period, they were asked to check the time it happened; within 1 month, between 1-6 months, or both. Third, participants were also asked to rate the desirability of the event on a 5-point scale (e.g., -2=extremely undesirable, 2=extremely desirable).

As an index of life stress, a total score of negative life events was computed; since the focus of the present study was on the buffering effect of coping resources between life stress and depression, positive life events were dropped from the analyses. Before summing the negative life events, scores were weighted for severity. Specifically, if a person experienced an extremely undesirable life event (-2), it was given a score of two, if a person experienced a moderately undesirable life event (-1), it was given a score of one. Finally, with regard to the controllability of an event, objective measures were used, based on ratings in ISLE and PERI Life Events Scale. (see Chon, 1989).

Personal control. Personal control was assessed by three scales; The Mastery, Capacity Control, and Contingency Control Scales; These three scales were presented in the same questionnaire in the following order: Contingency Control, Mastery, and Capacity Control. The Mastery Scale was adapted from Pearlin and Schooler (1978). From the original 7-item mastery scale, two items were removed. This decision was made partly because one item appeared to be confounded with psychological symptoms (e.g., "I often feel helpless in dealing with the problems of life"). The other item was randomly removed because its removal contributed to the direct comparison between contingency control items and capacity control items in formatting. The result was a 5-item scale for use in this study.

The Capacity Control and Contingency Control Scales were mainly developed by the author. In constructing items for these two scales, some items were derived from the literature on locus of control or mastery. Corresponding items were then devised for the other scale. An attempt was made to equate the corresponding items as much as possible except for the connotation of contingency vs. capacity control. This process yielded three-item scales for each Contingency and Capacity Scale (see Chon, 1989, for more information).

Responses to these personal control scales were given

on a 6-point rating scale that ranged from strongly disagree (-3) to strongly agree (3). The scores of relevant items were summed, adding 3 to each item value (e.g., convert -3 into 0, -2 into 1, etc.), to obtain a total score for each scale. In the case of negative items (e.g., "What happens to me has little to do with my own actions"), the values were reversed. Thus the possible range of each scale is 0 to 30 for the Mastery scale and 18 for the Capacity Control and the Contingency Control scales.

Social support. Social support was measured by ISEL (Interpersonal Support Evaluation List, Cohen & Hoberman, 1983). ISEL is a widely used scale of perceived social support. It consists of 48 true-false statements constituting 4 subscales, that is, appraisal, belonging, esteem, and tangible. Previous research has demonstrated adequate psychometric properties for these subscales (Cohen & Hoberman, 1983) as well as their theoretical bases (Cohen & McKay, 1984). Scores on each subscale and total scale could range from 0 to 12, and from 0 to 48, respectively.

Religiosity. Religiosity was assessed by two scales: The Religiosity Scale and the God Concept Scale. The 12 items in the Religiosity Scale were selected and modified from a larger pool of 59 religious items (King & Hunt, 1975). For each item, participants were asked to indicate how much they agreed with the statements provided, on a 4-point rating scale. Scores were obtained by summing the item value for each and could range from 12 to 48.

The God Concept Scale was adapted from Hammersla, Andrews-Qualls, & Frease (1986). The scale analyzed here contained 2 subscales; God as Benevolent (7 items), and God as Vindictive (7 items). Each adjective was rated on a 5-point rating scale (0=never, 4=always). Thus, scores could range from 0 to 28.

Depression. Depression was measured by CES-D (Radloff, 1977) and BDI short form (Beck & Beck, 1972). These two instruments have been used widely in the psycho-social literature. CES-D (Center for

Epidemiological Studies Depression Scale), originally designed for the general population, consists of 20 items. The scale has been shown to have good validity and reliability (Radloff, 1977). The full range of score is 0 to 60.

The BDI short form consists of 13 items. It is designed to tap the severity of depression with a relatively small number of items. The correlations between the BDI short form and BDI long form is strong ($r=.89$ to $.96$, Beck, Rial, & Rickels, 1974). Scores range from 0 to 39.

RESULTS

Preliminary Analyses

A series of analyses of variance were performed to examine whether there are any group differences (psychology students versus sociology students) due to sampling procedures. Only 6 out of 186 variables were statistically significant at the .05 level of confidence, no more than would be expected by chance. Therefore the data were collapsed across samples. In addition, the correlations between demographic variables and the dependent variables were shown to be negligible, or at best weak. Therefore, in the following regression analyses, demographic variables are not considered among the predictor variables.

Scale Reliabilities

Internal consistencies and test-retest reliabilities were calculated for the scales used in the study. When analyzed at Time 1, coefficient alphas ranged from .49 (Belonging Social Support) to .92 (Religiosity Scale). Test-retest correlations over a month ranged from .43 (Life Events Sale) to .87 (Benevolent God Scale) (see Chon, 1989, for detailed information).

Regression Analyses

A series of regression analyses were performed which examined the buffering effects of coping resources be-

tween the level of life stress and depressive symptoms. Statistically speaking, we are specifying interaction effects. Tests for these interaction effects were conducted by estimating a series of multiple regression equations that contained product terms. These product terms were constructed by multiplying the coping resources by the experience of life stress (Fisher, 1988). Since there are two criterion variables (i.e., CES-D, BDI), the same regression analysis was performed twice in exactly the same manner, except for the change of criterion variables.

Since the number of participants in the panel data was quite small ($N=104$), only limited analyses were presented here. First, we excluded, from panel data analyses, an examination of Hypothesis 4, which was unsupported in the cross-sectional data analyses; instead we presented cross-sectional data analyses for Hypothesis 4 ($N=314$). Secondly, since the panel data at Time 2 contain only recent life stress (i.e., within one month period), we excluded an examination of remote life stress at Time 1 as well. Finally, due to space limitation, only brief summaries are provided below.

In doing so, we first presented cross-sectional data analyses for Hypothesis 4. Then, panel data analyses, that is, cross-sectional analyses at Time 1 and 2, and longitudinal analyses, were presented. Since we are interested in the relative efficacy of each moderating variables, simultaneous regression analyses were employed for cross-sectional analyses. For the longitudinal analyses, however, hierarchical regression analyses were employed in order to control for the initial level of depression symptoms.

Finally, before presenting the results of regression analyses, a word about Hypotheses 3 and 5 is in order. Hypotheses 3 and 5 concerned the possible redefinition of personal coping and religious coping to improve their predictive power as moderators between life stress and depression. In order to increase the power of the analysis, the following full model of the regression equation was employed for examining both hypotheses

3 and 5. In setting up a regression equation, belief in a benevolent God and a vindictive God were coded as dummy variables. Coding the concept of God as a dummy variable was necessary because we were interested in each subject's relative weight between belief in a benevolent God and a vindictive God. The cut-off point we used here was that if the score on the Benevolent God scale was greater than that of Vindictive God scale, then we coded it as benevolent. Otherwise, it was coded as vindictive.

Hypothesis 4 ($N=314$)

Hypothesis 4 predicts that the buffering effect of social support will be apparent only when the function of the social support meets the demands of life stress. Statistically speaking, then, each type of social support should reveal significant effects only when matched with an appropriate life stress; if social support is not matched with an appropriate life stress, then the buffering effect should not be found (Tetzloff & Barrera, 1987). To examine this hypothesis, four (out of six) classes of life stresses were selected to match with corresponding social supports, namely, Appraisal Support \times Love & Marriage, Belonging Support \times Social Life, Esteem Support \times Work, and Tangible Support \times Finance.

There was no clearcut pattern of buffering effects from the hypothesized match-ups between types of social support and types of life stress. Specifically, there were five significant buffering effects for CES-D. Among them, only one buffering effect, Belonging Support \times Social Life, was consistent with prediction. Considering that there also were significant buffering effects for Belonging Support \times Work, and Esteem Support \times Social Life, the above buffering effect cannot be taken as support for Hypothesis 4. When BDI was used as a criterion variable, the pattern was again not consistent with prediction, except Belonging Support \times Social Life.

Since no meaningful pattern emerged from the above

analysis, an attempt was made to examine buffering effects following House and Kahn's suggestion (1985); they pointed out that ISEL (Cohen & Hoberman, 1983) consists of two kinds of social support, that is, tangible versus emotional support. A regression equation was thus set up, using Emotional Support (i.e., Appraisal + Belonging + Esteem), Emotional Stress (i.e., corresponding sum of life stress), Tangible Support, and Finance Stress. The regression results revealed that there was a significant buffering effect for the Emotional Support \times Emotional Stress (CES-D), $t = -7.32$, $p < .001$; (BDI), $t = -8.99$, $p < .001$. There was, however, no significant buffering effect for Tangible Support \times Finance Stress.

In sum, at least according to the present study, a specificity model of social support was not confirmed; expected specific buffering effects were not found in both four and two factor models of social support.

Analyses at Time 1 (N=104)

Mastery, in conjunction with life stress, revealed significant buffering effects for both criterion variables (CES-D, $p < .01$; BDI, $p < .001$). So did social support (CES-D, $p < .05$; BDI, $p < .01$). On the other hand, religiosity did not reveal any significant effect at all. In a sense, the impact of religiosity as a moderator is meaningful primarily for believers (Protestant, Catholic, and Jewish). When analyses were confined to believers (N=94), the findings still revealed a similar pattern (Hypothesis 1). Mastery revealed significant buffering effects for controllable life stress (CES-D, $p < .001$; BDI, $p < .001$), but not for uncontrollable life stress, as predicted. Social support also revealed similar effects for uncontrollable life stress (CES-D, $p < .01$; BDI, $p < .07$), but not controllable life stress, as predicted. Interestingly, however, when CES-D was used as a criterion variable, religiosity also revealed a significant buffering effect for controllable life stress ($p < .01$), which was unexpected. This unexpected buffering effect of religiosity for controllable life stress, however, disappeared

when analysis was confined to believers, $t(93) = .34$, ns (Hypothesis 2). For both CES-D ($p < .05$) and BDI ($p < .01$), capacity control was significant in buffering the impact of life stress on depression, while contingency control was not (Hypothesis 3). Finally, belief in a benevolent God, as opposed to belief in a vindictive God, did not reveal a buffering effect between life stress and depression. When analysis was confined to believers, the findings revealed a similar pattern (Hypothesis 5).

Analyses at Time 2 (N=104)

The pattern of the Time 2 regression results was similar to the Time 1 pattern. Specifically, mastery buffered the impact of life stress on CES-D ($p < .001$) and revealed a trend of buffering effect on BDI ($p < .08$). Similarly, social support revealed significant buffering effects of life stress on CES-D ($p < .001$) and BDI ($p < .001$). In contrast, religiosity did not buffer the deleterious effect of life stress on depression. Results, using data with believers (N=94), revealed a similar pattern (Hypothesis 1). Mastery revealed a significant buffering effect for controllable life stress (CES-D, $p < .001$; BDI, $p < .01$), whereas social support revealed a significant buffering effect for uncontrollable life stress (CES-D, $p < .05$; BDI, $p < .05$). As predicted, mastery did not reveal any significant buffering effects for uncontrollable life stress, nor did social support for controllable life stress (Hypothesis 2). Capacity control revealed a buffering effect of life stress on depression (CES-D, $p < .001$; BDI, $p < .001$); in contrast, contingency control did not reveal any significant effect (Hypothesis 3). Finally, belief in a benevolent God, in comparison to belief in a vindictive God, did not reveal significant buffering effect as a whole. Belief in a benevolent God, however, revealed a significant buffering effect on BDI, when confined to believers, $t = -2.04$, $p < .05$ (Hypothesis 5).

Longitudinal analyses (N=104)

In order to examine each hypothesis within the

framework of longitudinal analyses, hierarchical regression analyses were employed. Since the correlation between life stress at Time 1 and Time 2 was moderate ($r=.42$), longitudinal analyses, instead of prospective analyses, were employed. Stated differently, since we are not sure that predictors are stable across time (Cohen, Evans, Stokols, Krantz, 1986; Roos & Cohen, 1987), longitudinal analyses (i.e., analyses of the impact of Time 2 predictors on Time 2 criterion variable after controlling for Time 1 criterion variable) are preferable to prospective analyses (i.e., analyses of the impact of Time 1 predictors on Time 2 criterion variable after controlling for the Time 1 criterion variable). Therefore, regression analyses at Time 2 were repeated, but this time controlling for depression scores at Time 1. Specifically, Time 1 depression scores were entered as a first step in the regression equation, in order to control for their contribution to Time 2 depression scores. This was then followed by a block of the predictor variables employed in the cross-sectional analyses at Time 2.

Before presenting results of the regression analyses testing the proposed hypotheses, a couple of observations are worth noting. First, every Block 2 (i.e., Time 2 predictor variables) made a statistically significant contribution to all criterion variables. Specifically, Block 2 added significant increments to R^2 for all criterion variables, although the magnitude of these contributions varied, ranging from .08 to .20. It is also worth noting that time 1 depression made the strongest contributions in all longitudinal analyses. Specifically, Time 1 depression scores account for about 34% and 48% of the variance in Time 2 CES-D, and 2 BDI, respectively. This impressive contribution of Time 1 depression is consistent with previous studies (Depue & Monroe, 1985, 1986).

Mastery, when CES-D was used as criterion, significantly buffered the impact of life stress on depression, even after controlling for the previous level of depression ($p<.05$). Mastery, however, did not reveal a signifi-

cant buffering effect on BDI. In contrast, social support revealed significant buffering effects for both criterion variables (CES-D, $p<.001$; BDI, $p<.001$), even after controlling for the previous level of depression. Religiosity did not reveal any significant buffering effect at all. This pattern of results for religiosity was not changed even with believers ($N=94$) (Hypothesis 1).

Mastery, when CES-D Time 2 was used as a criterion, revealed a significant buffering effect for controllable life stress, $t=-2.35$, $p<.05$, but not for uncontrollable life stress, $t=1.07$, ns, as predicted. This predicted buffering effect, however, was not supported with BDI Time 2. On the other hand, social support revealed a predicted pattern when BDI Time 2 was used as a criterion (uncontrollable life stress), $t=-2.06$, $p<.05$; (controllable life stress), $t=.75$, ns. The predicted pattern, however, was not supported with the CES-D Time 2. Finally, religiosity did not reveal any buffering effect (Hypothesis 2).

Regression analyses revealed significant buffering effects of capacity control on depression even after controlling for the previous level of depression scores (CES-D, $t=.001$; BDI, $p<.001$). In contrast, contingency control did not reveal any significant effect (Hypothesis 3).

Finally, the concept of God as benevolent did not reveal any significant effect for both CES-D and BDI scores. Interestingly, however, when data analysis was confined to believers ($N=94$), the concept of God as benevolent showed a significant buffering effect of life stress on BDI, $t=-2.53$, $p<.01$, even after controlling for the initial BDI scores (Hypothesis 5).

DISCUSSION

The present study explored the stress-coping-illness relation from a control theory framework. Specifically, the study was concerned with the following issues. What kinds of coping resources are meaningful at the general level (e.g., personal, social, religious)? Under

what circumstances will each kind of coping resource be most effective? Which subvariety of personal control (capacity vs. contingency) is effective as a moderator of stress? Is the effect of social support specific to a given type of stress? Could the preception of God (e.g., as benevolent) be a meaningful moderator?

To summarize the major findings briefly, mastery (i.e., personal coping resources) and social support (i.e., social coping resources) buffered the impact of life stress on depressive symptomatology. When analyzed in conjunction with the controllability of life stress, mastery was effective for controllable life stress, and social support for uncontrollable life stress. On the other hand, as predicted, mastery did not reveal any effect for uncontrollable life stress, nor did social support for controllable life stress. When personal control was differentiated into capacity control and conringency control, capacity control showed a buffering effect of life stress on depression, while contingency control did not. The specificity model of social support, which states that social support is effective only when it meets the demands of a specific kind of life stress, was not supported. Finally, the perception of God as benevolent, rather than as vindictive, showed a buffering effect in some subanalyses (primarily for believers-Protestant, Catholic, and Jewish on BDI), but not in the overall analysis.

With regard to meaningful domains of coping resources, personal coping and social coping, consistent with previous studies, showed a significant buffering effect between life stress and depression (e.g., Billings & Moos, 1981; Kobasa & Puccetti, 1983; Pagel & Becker, 1987; Roos & Cohen, 1987). In this regard, we may consider personal *and* social coping resources as meaningful domains of coping resources at the general level. Future studies should include both personal and social coping resources in the same design in order to understand the interrelations among stress, coping, and psychopathology.

The present findings also suggest that religious cop-

ing may not be an important mediator between life stress and depression. The findings, however, should *not* lead to the suggestion that religious orientation is unimportant in understanding the stress-illness relation. This is for the following reasons. First, religious coping may function as an important mediator in circumstances not assessed in the present study (e.g., extremely uncontrollable situations such as a fatal illness). Secondly, the impact of religion on American life has decreased among college students, at least compared to the 60's (Moberg & Hoge, 1986). The present unsupportive results may thus be tentative; if religious life once again increases in importance, its role as a mediating variable may also increase. Future studies might examine the role of religious coping as a mediator within highly underirable and uncontrollable situations.

As predicted, mastery (i.e., personal coping resources) revealed significant buffering effects for controllable life stress, but not for uncontrollable life stress. In contrast, social support (i.e., vicarious coping resources) showed significant buffering effects for uncontrollable life stress, but not for controllable life stress.

Thus, the present findings suggest the importance of contextual variables in the stress-illness relation. Moreover, the findings seem to be consistent with the argument that a person may try to mobilize his or her personal resources if the situation is controllable, whereas he or she may resort to other resources (e.g., social support) when the situation is personally uncontrollable (Caplan et al., 1984; Jackson & Coursey, 1988).

Since little is documented on the issues raised in the present study, replication is needed in future research. Further, if the model proposed here is a viable one, some other issues implied by the model should be obtained in future research. For example, the present model suggest, consistent with Hobfoll and Lieberman (1987), that personal coping is always available, while vicarious coping may or may not be available depending on the situation.

As predicted, capacity control showed a significant

buffering effect. In contrast, contingency control did not show any significant buffering effect in any of the analyses. Thus, the results suggest that capacity control functions as a moderator while contingency control does not.

The implication of the above results is worth noting in the light of the emphasis placed on contingency control in previous studies (e.g., learned helplessness, locus of control). (See also Bandura, 1977). For example, Seligman (1975) argued that the perception of *noncontingency* between a person's responses and outcomes may lead to depression, regardless of whether the event is positive or negative. Contingency control is also clearly linked to the construct of locus of control. Since Rotter's (1966) original proposal, the majority of researchers have interpreted the concept as emphasizing contingency control (e.g., Graybill & Sergeant, 1983; Newman, 1980; Weisz & Stipek, 1982), although some other researchers have conceived of it as emphasizing competence control (e.g., Campbell, Converse, & Rodgers, 1976). As a result, the concept of locus of control has been the subject of considerable controversy in recent years. It is beyond this discussion to elaborate on the controversy. Of particular interest here is that, although there has been confusion in interpreting and measuring locus of control, researchers have recently begun to realize that competence control, in comparison to contingency control, is responsible for moderating the relation between stress and psychopathology. Stated differently, competence control (analogous to capacity control here) functions as a moderator, while contingency control may not.

The present findings, however, should be interpreted with caution; the findings were based on scales with minimally acceptable reliabilities. Hence, future studies should utilize scales with improved reliabilities.

The findings were not supportive of the specificity model of social support, consistent with Tezloff and Barrera's study (1987). There are several potential explanations for this failure. One possibility is that the

match-ups between life stresses and social supports that we used in the present study were not entirely adequate (e.g., between work life stress and esteem support). Future research should utilize a life events scale well suited for each type of social support, one specially designed for testing the specificity model of social support.

In addition, as with other hypotheses proposed in the present study, the specificity model was explored in light of its implication for control theory. As noted elsewhere (Chon, 1989), the human control system can be thought of as adaptive; the system functions in a continuously changing environment. This nature of adaptive control system suggests that, even if the specificity model is viable at a certain point in time, the test of its validity requires careful examination; the same life stress may create different needs sequentially (e.g., unemployment may create financial difficulties, then lower self-esteem, etc.) (Thoits, 1985). Thus, one possible resolution for future studies is to measure the need created by life stress in more fine grained segments between assessment (e.g., daily assessment) such as a time series (Depue & Monroe, 1986).

Contrary to prediction, the perception of God as benevolent did not show buffering effect on depressive symptomatology as a whole. The role of religion as a possible coping resource among believers, however, has been demonstrated in recent studies (Jackson & Coursey, 1988; Pargament, Kennell, Hathaway, Grevengoed, Newman, & Jones, 1988). Pargament and his colleagues (1988), for example, observed two effective coping styles among Christians, that is, self-directing (belief in individual responsibility for solving problems) and collaborative (belief in joint responsibility between God and the individual for solving problems). The finding that collaborative coping is effective suggests that religion can serve as a meaningful coping resource. In fact, when data analyses were confined to believers (Protestant, Catholic, and Jewish) in the present study, especially BDI as a criterion variable, the

concept of God as benevolent revealed buffering effects (cross-sectional data), $t = -2.64$, $p < .01$; (panel data at Time 2), $t = -2.64$, $p < .01$; (panel data at Time 2), $t = -2.07$, $p < .05$; (longitudinal analysis), $t = -2.53$, $p < .01$.

How can we interpret the present findings? Although the data do not allow us to arrive at a conclusion on the concept of God as a meaningful mediator, there are a couple of points worth mentioning. First, given the trait nature of BDI (compared to that of CES-D), the presence of buffering effects only for BDI suggests that the concept of God as benevolent may affect primarily the long-term orientation of the person, not his or her immediate reaction to stress. The validity of this speculation should be explored in future studies. Secondly, the present findings at least warn against ignoring religious belief in studies of stress and coping. Future research should continue to explore the role of religion as a possible mediator between life stress and psychopathology.

A couple of caveats must be noted regarding the findings presented here. First, like many other studies, our sample consisted of college students. Thus, the results of this study should not be generalized to other populations. Secondly, since the sample involved young, relatively normal individuals, the results may not shed light on the mechanism of clinical depression directly (Coyne & Gotlib, 1983).

In conclusion, the present study explored the nature of personal and vicarious coping resources within a stress-illness model. Specifically, an attempt, based largely on some interpretations of a control theory, was made to improve the understanding of coping resources. The findings generally supported the proposed hypotheses. The present study demonstrates the importance of employing both personal and vicarious coping resources in a single study. The present study also demonstrates the importance of the attempt to resolve the inconsistent findings, either by reconceptualizing target variables or by further specifying them. Furthermore, the present

study underscores the value of control theory as a useful framework from which a variety of issues can be addressed. Other researchers, too, have begun explicitly to employ the concepts of control theory to understand the stress-illness relation (Carver & Scheier, 1985; Suls & Fletcher, 1985; Tapp, 1985). Moreover it is interesting to note that some influential theories of stress-illness relation implicitly adopt the notion of control theory (or systems theory) in their models (e.g., Bandura, 1977; Lazaus, 1986; Trumbull & Appley, 1986). It is our conviction that a control theory framework will broaden and deepen our knowledge of the role of coping resources in moderating the relation between stress and illness.

FOOTNOTES

1. Vicarious effectors refer to control mechanisms in which the system (or individual) influences the environment with the help of outside resources (e.g., social support, God's Grace). This conceptualization is useful in understanding coping mechanisms. As an example, a child may be afraid of a dog when alone, but may not be when with a parent. Thus, if an individual possesses outside resources whenever needed, outside resources can be said to be part of the repertoire of the individual's effectors. Other examples of vicarious effectors from everyday life may include an artificial limb, dentures, etc.

2. according to weisz, the competence judgement can be approached either relatively or absolutely (Weisz, 1986b). Weisz (1986a), however, seems to prefer the relativistic approach, as in social comparison analysis (e.g., "I am better than most kids..."). In contrast, the present framework (i.e., capacity control) does not emphasize the relativistic approach. Rather, our focus is on whether or not a person has the ability to effect a desired outcome. Stated differently, within Weisz's framework, "control belief" is assumed to be superordinate to competence judgment and contingency judgment;

in contrast, within the present framework, capacity control is the core aspect of control belief while contingency control is not.

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생활스트레스 — 우울증과 관련된 개인적 그리고 대리적 대처자원의 속성

전 결 구

성균관대학교

본 연구는, 제어이론(control theory)에 터반하여, 개인적, 사회적, 그리고 종교적 대처자원이 생활스트레스와 우울증간에 중요한 매개변인 역할을 하는 가를 검증하였다. 314명(횡단적 조사)과 104명(종단적 조사)의 참여자들을 통해 생활스트레스, 대처자원, 그리고 우울증에 대한 자료가 수집되었다. 자료분석은 주로 중다회귀 방법이 사용되었다. 결과는 다음과 같다. (1) 개인적 대처 자원과 사회적 대처자원은 생활스트레스가 우울에 미치는 영향에 대해 유의미하게 완충효과를 나타내었다. (2) 생활스트레스를 통제 가능한 스트레스와 통제하기 어려운 스트레스로 구분한 결과, 개인적 대처 자원은 통제 가능한 스트레스에, 그리고 사회적 대처자원은 통제하기 어려운 스트레스에 효과적으로 완충효과를 나타내었다. (3) 개인적 대처를 2개의 구별 가능한 통제지각 개념(능력통제 대 유관통제)으로 구분한 결과, 우울증에 대한 완충효과는 오직 능력통제에서만 나타났다. (4) 사회적 대처 자원에 관한 한 가설인 특수성 가설 — 사회적 지지의 완충효과는 상용하는 생활스트레스에서 유의미하게 나타난다는 가설 — 은 본 연구에서 지지 되지 않았다. 끝으로 (5) 종교적 대처자원은 신앙인(신·구교, 유대교)에서만 유의한 매개 변인이 될 수 있음이 시사되었다. 위의 결과들은 대처 자원에 관한 포괄적인 모델의 중요성을 시사하고 있으며, 특히 본 연구의 이론적 배경이 되고있는 제어 이론의 효용성을 나타내고 있다.