Multidimensional Stress Management in Nursing Education

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ABSTRACT

This study investigated the effectiveness of multidimensional stress management training for beginning baccalaureate nursing students (N = 57). An experimental pretest-posttest placebo group, control group design was used. Two pretest and three posttest measurements of the dependent variables of state anxiety (SA), reported emotions, and coping methods were completed. The program incorporated cognitive, physiological, and behavioral approaches.

Second, this study examined the relationship of self-esteem, recent life experiences, and trait anxiety (TA) to encountered stressors. A repeated measures analysis of variance demonstrated no significant differences between treatment groups across time. However, written workshop evaluations demonstrated a strongly positive response by the experimental group. Significant within-subjects change was demonstrated for all 57 subjects over the semester on the dependent variables of SA, Threat emotions, and Challenge emotions reinforcing Lazarus' transactional model. A correlation matrix revealed that individuals with low self-esteem appraised the environment in a negative manner as did those subjects with high state and TA. Recommendations include further revision of the multidimensional stress management approach and continued use of the transactional theoretical framework.

Introduction

The historical and empirical observations reported throughout the nursing literature indicate the continued existence of a highly stressful environment in nursing education, yet few researchers have attempted stress reduction with nursing students (Fox, Diamond, Walsh, & Knopf, 1965; McKay, 1978; Meisnner, 1986; Terrup, 1989). Additionally, the recent investigations of stress management in nursing education have frequently used singular techniques that do not adequately account for the multidimensional nature of the stress response (Baca, 1985; McEntee, 1983). Stoyva and Anderson (1982) emphasize the utility of a tripartite multidimensional format for stress management incorporating physiological, cognitive, and behavioral approaches.

Techniques such as relaxation training, meditation, and deep breathing emphasize modification of physiological parameters, while working with self-statements and irrational beliefs focuses on cognitive changes. Behavioral techniques may include assertiveness and social skills training. Several multifaceted stress management programs have been reported in the nursing literature (Manderino & Yonkman, 1985; McDonald, Collins, & Walker, 1983; Wernick, 1984); however, these were quasi-experimental studies in which randomization and equivalent placebo conditions were not used.

In view of the limited number and scope of stress management programs, this study was conducted to investigate the effect of participation in multidimensional stress management training on the state anxiety (SA) levels, reported emotions, and coping methods of beginning baccalaureate nursing students. An experimental pretest-posttest placebo group, control group design was used to test the hypotheses. Secondarily, the relationship between selected student characteristics (self-esteem, prior life experiences, and trait anxiety) and the students' responses to the environment was explored.
Theoretical Framework

The theoretical framework of the study is based on Lazarus’ transactional model of stress and coping (Lazarus, 1966; Lazarus & Launier, 1978) and provided direction for development of the research design as well as the experimental stress management program (Figure). In Lazarus’ model, stress is defined as a dynamic, ongoing relationship between the person and the environment which is appraised by the individual as exceeding his or her resources. The process of cognitive appraisal is necessary for a specific event to be judged stressful.

The transactional model of stress and coping is characterized as an individualistic, process-oriented model in which previously existing variables influence the person’s cognitive appraisal of any given encounter (Lazarus & Folkman, 1984). These variables are called causal antecedents and include, among other things, an individual’s self-esteem, values, beliefs, and prior life experiences, and certain situational demands or constraints.

The causal antecedents precede and interact with the mediating processes of cognitive appraisal and coping. Through cognitive appraisal, an individual judges both the nature of the environmental demands (primary appraisal) and the resources available to deal with those demands (secondary appraisal). Coping can be viewed as both cognitive and behavioral attempts to manage perceived stressors. Additionally, coping behaviors are not merely automatic responses or necessarily successful adaptations. Folkman and Lazarus (1980) differentiate between two major categories of coping processes: emotion-focused coping which is the regulation of emotional responses, and problem-focused coping which is the behavioral effort to change the situation.

Methodology

Multidimensional stress management training

The multidimensional tripartite stress management program administered to the experimental group incorporated cognitive, behavioral, and physiological approaches to stress management. The 15-hour workshop was conducted on two consecutive Saturdays allowing time for discussion, role-playing, and application assignments during the intervening week.

In order to enhance equivalency, the treatment and placebo groups were conducted concurrently. The control group maintained normal academic activities and was subsequently provided with the stress management program following the last day of data collection. The content outline for the experimental intervention is representative of the transactional model and included: Introduction to Basic Stress Concepts (Lazarus & Folkman, 1984); Guided Relaxation (Davis, Eshelman, & McKay, 1982); Refuting Irrational Beliefs (Ellis, 1974); Stress Inoculation (Meichenbaum, 1985); and Assertiveness Skills (Alberti & Emmons, 1978).

The placebo control group was structured around self-awareness and no direct attempt was made to change an individual’s appraisal and coping skills or behavior. The content included: Introduction to Basic Stress Concepts, Self-Writing, Identification of Stressors, Values Clarification, and Social Support. The extensive placebo treatment was consistent with the control designs outlined by Borkovec, Johnson, and Block (1984).

To test for equivalency between the experimental and placebo groups, self-report questionnaires evaluating the effectiveness of the weekend workshops were completed by both groups at the conclusion of the workshop and at the five-week follow-up.

Instruments

The dependent variables used to assess the effectiveness of the stress management program were SA, reported emotions, and coping methods. The first dependent variable, SA, was assessed using the State-Trait Anxiety Inventory, Form Y-1 (Spielberger, Gorsuch, & Lushene, 1983). SA is defined as a transitory condition of perceived tension in response to specific events. The subjects are asked to indicate how they “feel right at the moment” and the possible range of scores is 20 (low anxiety) to 80 (high anxiety). The reported median test-retest reliability of .33 reflects the influence of situational factors on SA.

The second dependent variable, reported emotions, was assessed with the Reported Emotions Survey (RES) (Folkman & Lazarus, 1985a). The RES was developed for use in a study of emotion and coping during three stages of a college mid-term examination. Subjects were asked to indicate on a 5-point, forced Likert scale the extent to which they felt a selected group of 15 emotions. The selected emotions are grouped into appraisal categories that reflect their future (anticipatory) or past (outcome) orientation. Threat and Challenge emotions are anticipatory measures while Harm and Benefit emotions are outcome measures. The reported reliabilities for the subscales of the RES range from .59 to .84.

Figure. Schematic diagram of the Transactional Model of Stress, Appraisal, and Coping (adapted from Lazarus & Folkman, 1984).

342

Journal of Nursing Education
Coping methods, the third dependent variable, was assessed using the Ways of Coping (WOC) (Folkman & Lazarus, 1985b). The WOC is a 66-item questionnaire that assesses the wide range of cognitive and behavioral strategies people use to cope with specific stressful encounters. The WOC contains three major categories of coping methods with a total of eight subscales. The three categories of coping are Problem-Focused, Emotion-Focused (subscases include: Wishful Thinking, Detachment, Focusing on the Positive, Self-Blame, Tension Reduction, and Keep to Self), and Seeking Social Support (a mixed problem- and emotion-focused scale). The reliabilities ranged from .59 to .88. The five subscales of Emotion-Focused coping showed no statistical changes over time in this current investigation and were combined in one scale for further statistical analysis and reporting.

The assigned independent variables of self-esteem, prior life experience, and trait anxiety (TA) were designated as causal antecedents that reflected the transactional model of stress and coping. As preexisting personality variables, they would influence an individual's appraisal of both environmental demands and of available resources.

Self-esteem was evaluated with the Coopersmith Self-Esteem Inventory, Adult Form (CSEI) (Coopersmith, 1981). The CSEI measures an individual's attitude toward the self in the context of social, academic, and personal experiences and has a reported reliability of .85. Prior life experiences were assessed using the Schedule of Recent Experience (SRE) (Amundson, Hart, & Holmes, 1981). The SRE is a self-report questionnaire that elicits information about both ordinary and unusual occurrences in the areas of family, occupation, residence, social structure, education, health, recreation, and religion. The SRE has a reported validity of .78. The third assigned independent variable, TA, was measured with the State-Trait Anxiety Inventory, Form Y-2 (Spielberger et al., 1983). TA refers to a relatively stable personality characteristic that indicates an individual's propensity for anxiety responses. Test-retest correlations for TA range from .65 to .75.

### Sampling procedure

During the first class session of Medical Therapeutics, a required first-semester nursing course, volunteers were requested for participation in a stress management training workshop. Participation in the study was one means of fulfilling minimal course requirements, and served as an incentive for participation.

The final sample size was 57 with 19 subjects each randomly assigned to the experimental, placebo control, and waiting control groups. The sample consisted of 48 females and nine males. Five students were under the age of 20, 37 were between the ages of 20 and 29, and 15 students were at least 30 years old. All students held sophomore standing or higher within the university. The mean number of academic units per student was 13.47, with all subjects enrolled concurrently in nine units of lecture courses related to nursing and three units of clinical practicum.

### Data collection

All 57 subjects completed the schedule of questionnaires (Table 1). The dates of data collection were chosen to represent varying situational demands during the first semester of nursing courses. The dependent variables of SA, RES, and WOC were administered five times over the course of the Fall 1985 semester. The use of repeated assessments of the dependent variables reflected Lazarus' process-oriented transactional perspective of stress and coping (Lazarus & Folkman, 1984). The assigned independent measures of TA, CSEI, and the SRE were administered concurrently with the dependent measures on the first day of data collection. These reflected
antecedent personality variables in the transactional model and no treatment was directed at changing them.

Results

The statistical design used to test for treatment effect across groups was a repeated measures mixed analysis of variance with three levels of the treatment variable (between-subjects) and five measurements of the dependent variables (within-subjects). Two measurements of the dependent variables were done prior to the intervention (Pretests I and II), while three measurements were completed postintervention (Posttests I, II, and III).

The repeated measures ANOVA demonstrated no significant between-subjects variance on any subscales of the dependent variables of SA, reported emotions, or coping styles. Therefore, the multidimensional stress management intervention was not statistically supported. However, when the 57 subjects were considered as a group (within-subjects factor), significant changes were noted for SA (F = 400.54, df = 4, p < .001), Threat emotions (F = 19.94, df = 4, p < .001), and Challenge emotions (F = 3.02, df = 4, p < .05). The significant F ratios indicated that SA, Threat, and Challenge scores changed across time for all 57 subjects regardless of treatment group. These changes reflect both situational variance and maturation over the course of the semester, and reinforce the use of the transactional model in this study. The means and standard deviations for the dependent variables are reported in Table 2.

In view of the lack of statistically significant differences between the treatment groups on the dependent measures over time, the groups were combined to compute a correlation matrix for the three independent and eight dependent variables at Posttest III (Table 3).

The mean scores on the independent variables for the total sample are as follows:

- Self-esteem = 73.08 (possible range 0-100);
- Recent life experiences = 479.08 (scores above 300 indicate an 80% chance of illness in near future); and
- TA = 40.38 (possible range 20-80).

Selected significant correlations relevant to the secondary research question that explores the relationship of antecedent personality characteristics to the students' perceived stressors will be discussed. Note that with an N of 57, a correlation of .21 or greater is significant at the .05 level.

Self-esteem was negatively correlated with TA (−.54), SA (−.36), Threat emotions (−.38), and Harm emotions (−.33). The direction and strength of the correlations indicate that a student with low self-esteem tended to experience higher levels of anxiety, as well as the negative emotions of Threat and Harm.

A second personality characteristic, TA, correlated significantly with SA (.48), Threat emotion (.35), and Harm emotions (.27). Students with high TA were more likely to have experienced high levels of SA as well as Threat and Harm emotions.

In looking at the dependent measures, SA demonstrated a consistent pattern of correlations with the reported emotions subscales. As could be predicted, Threat (.29) and Harm (.51) were positively correlated with SA, while Challenge (−.40) and Benefit (−.37) were negatively correlated. In essence, subjects who experienced high anxiety also appraised the environment as more harmful and threatening, and less challenging and beneficial. Given Lazarus' transactional model of stress, the reported emotions are products of the subjects' appraisals and provide a method for evaluating the appraisal process. It is evident, therefore, that the negative or positive nature of an individual's appraisals will influence the overall experience of anxiety in an inverse direction.

The reported emotions subscales further demonstrated a consistent relationship between the appraisal categories. Threat and Harm (negative appraisals) were correlated at 0.48, while Challenge and Benefit (positive appraisals) were correlated at 0.56. The direction and strength of these correlations are consistent with those reported by Folkman and Lazarus (1985a).

The three categories of coping methods, Problem-Focused, Emotion-Focused, and Seeking Social Support, had significant positive correlations between all coping categories. Additionally, Problem-Focused coping was associated with the use of positive emotions, while Emotion-Focused coping was associated with the more negative factors of high SA and high TA, and negative emotions.

The self-report questionnaires used initially to evaluate equivalency between the experimental and placebo treatment groups provided a qualitative rating of the workshop effectiveness. Content analysis of the written evaluations revealed that on the initial evaluation immediately following the workshop, 90% (n = 17) of the experimental group and 64% (n = 12) of the placebo group rated the workshop as effective or very effective. Equivalent credibility can be implied from this initial rating. However, on
the five-week follow-up evaluation, 90% \((n = 17)\) of the experimental group continued to rate the workshop as effective or very effective while only 42% \((n = 8)\) of the placebo group gave those ratings.

While this is a subjective measure of treatment effect, the maintenance of a strongly positive evaluation of effectiveness across time by the experimental group is worth noting.

**Discussion**

The findings revealed that participation in multidimensional stress management training had no significant effect on the students' SA, reported emotions, or coping methods. However, the qualitative data (written workshop evaluations) indicated that the program was perceived as being effective or very effective by 90% of the experimental group both at the post-workshop and five-week follow-up evaluations. The strength of the students' evaluations over time indicates a potentially positive treatment for stress which needs to be investigated further.

In order to reflect Lazarus' transactional model of stress and coping, this study employed a process-oriented, repeated measures design in which changes in the dependent variables were measured over time. Additionally, the multidimensional tripartite stress management program was designed to incorporate components of the transactional model including antecedent personality variables, cognitive appraisal, problem- and emotion-focused coping, and immediate physiological and emotional outcomes. The utilization of Lazarus' model was statistically supported by the significant decreases in SA and the anticipatory emotions of Threat and Challenge for all subjects over the course of the semester. The repeated measures design is able to reflect the situational and maturational effects that occur over time and that need to be considered when developing and evaluating stress management programs.

Several factors inherent in the transactional model may have influenced the results of this study. The balance of cognitive, behavioral, and physiological stress management techniques may not have been potent enough to create a change in the dependent measures selected for this investigation. Additionally, the dependent measures may not have been sensitive to actual changes in the subjects' cognitive, behavioral, or physiological responses. To illustrate this, the SAI assessed how "calm or relaxed" an individual feels at any given time. Yet the use of cognitive stress management techniques such as the discussion of irrational beliefs is frequently confrontational as long-held beliefs, values, and behaviors are directly challenged. The explicit expectations for change, coupled with resistance toward altering habitual behaviors, may have, in fact, increased the subjects' SA.

A further confounding variable is the possibility of multiple-treatment interference in which the effective components may have been antagonized or diluted by the less effective components. This is a critical factor in the development and implementation of multidimensional stress management interventions. A possible alternative would be to select an approach such as Stress Inoculation (Meichenbaum, 1985) which is more directed, yet retains the three essential components of the tripartite model.

The students' motivation and fatigue are relevant both to the concentrated weekend workshop format and the use of repeated measurements of the dependent variables. The increased demands made on the students by these factors doubt were reflected in the results of the study. Integrating the multidimensional format into the curriculum and employing the dependent measures as learning tools may be a practical alternative approach for employing this research.

The secondary research questions investigated the relationship between the independent variables of self-esteem, recent life experiences, and TA, and the dependent variables of SA, reported emotions, and coping methods over the first semester. An interesting pattern of correlations with self-esteem was established. The student with low self-esteem tended to have higher TA and experienced higher levels of SA, Threat emotions, and Harm emotions. Clearly, the student with low self-esteem appraised the environment in a negative manner. Although self-esteem may be largely determined in childhood (Coopersmith, 1981), interventions directed toward increasing self-esteem to the postadolescent student may be valuable.

Both TA and SA demonstrated consistent correlations with the reported emotions. The negative emotions of Threat and Harm were correlated with the experience of anxiety, while the positive emotions of Challenge and Benefit were inversely related. Again, students with higher levels of anxiety appraised the environment in a negative manner. Sering to reinforce the transactional model, correlations were demonstrated between the negative appraisals of Threat and Harm, as well as the positive appraisals of Challenge and Benefit. Finally, significant positive correlations between the three categories of coping reinforced the complex nature of the coping response.

The data collected in this investigation reaffirm the stressful environment present in baccalaureate nursing education. Although SA and TA scores were comparable to the scores of other college students (Spielberger et al., 1983), the subjects of this study demonstrated a consistently higher level of Threat, Challenge, and Benefit emotions when compared to a sample of nonnursing students (Folkman & Lazarus, 1985a). While nursing faculty may highlight the importance of identifying the emotional needs of clients, the students' emotional needs may not be clearly recognized. The significant correlations suggest the possible benefits that could be derived from instituting programs designed to improve self-esteem, to encourage peer support, and to enhance the orientation of beginning nursing students.

This group of students had a mean score of 479.08 on the SRE, indicating a high level of perceived life changes.
Clearly, the students were in a state of transition which increases the potential for illness. The elevated SRE scores reinforce the need to interact with the students as individuals and not merely as a group of "beginning nursing students." A more individualized approach would require flexibility as well as increased recognition of an individual student's background, personality, strengths, and weaknesses. The more flexible approach seems to respond directly to the Torrup study of 1939 in which nursing students identified a lack of rapport with rigid authoritarian instructors.

A recommendation of this study is to further refine the multidimensional stress management approach in which cognitive, physiological, and behavioral components are included. Also, continued research using the process-oriented, transactional, theoretical framework which assesses individuals and groups over time needs to be done. Finally, the descriptive research on stress in nursing education is exhaustive. It is time for nursing educators to respond to the high levels of stress with well-designed experimental investigations.

References