

ABSTRACT

Louise Badham Peele. THE EFFECT OF A STRESS MANAGEMENT INSTRUCTIONAL PROGRAM UPON ANXIETY AND HEALTH LOCUS OF CONTROL IN A FIFTH GRADE POPULATION. (Under the direction of Emilie D. Henning, RN, EdD) East Carolina University School of Nursing, December 1987.

This study tested the effect of a nurse-directed stress management instructional program on the anxiety and health locus of control in a fifth grade population. Responses on pre- and post-tests by the experimental group (n=65) who received the four week stress management audio cassette program were compared with responses of a control group (n=63) who did not.

The program had a significant effect on decreasing anxiety in the experimental group as measured by Gillis' Child Anxiety Scale. However, the experimental group was more anxious at pre-test than the control groups. There was no significant change pre- to post-test in health locus of control in either the experimental or control group as measured by Parcel's Children's Health Locus of Control scale (modified Likert-type response).

Replication of this study using a larger representative sample of fifth graders who are the same at pre-test on the anxiety measure may result in a more significant finding in

regard to the effect of a stress management program on anxiety reduction. Furthermore, the utilization of a longer treatment period and a longer post-test interval may help explain the effect of stress management on anxiety reduction as a health protective behavior. It is suggested that a longitudinal study regarding anxiety, stress management and health locus of control in a given population of children be considered.

An implication for professional nurses, especially school nurses, is that nurse-directed stress management programs may assist children in the development of coping strategies and other health protective behaviors.

THE EFFECT
OF A STRESS MANAGEMENT INSTRUCTIONAL PROGRAM
UPON ANXIETY AND HEALTH LOCUS OF CONTROL
IN A FIFTH GRADE POPULATION

A Thesis
Presented to
The Faculty of the School of Nursing
East Carolina University

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by
Louise Badham Peele
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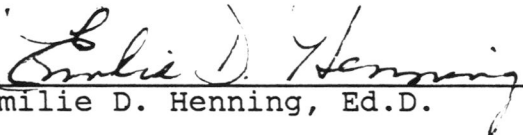
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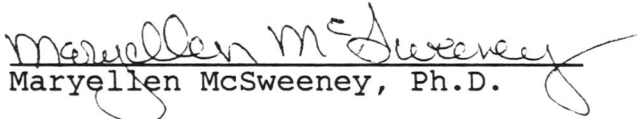
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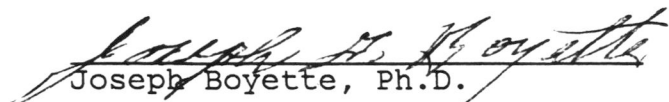
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CHAPTER I
INTRODUCTION

Self-responsibility and the attainment of health protective behaviors have become societal imperatives for the children of today who live in a world of ever-increasing stress. Stress may be of a global nature brought about by mass media technologies and the threat of nuclear war, of a societal nature brought about by economics and family restructuring, or of a personal nature brought about by perceptions of peer pressures, academic pressures and personal inadequacies (Elkind, 1981). Life stress and childhood suicides have been positively correlated (Cohen-Sandler, Berman, & King, 1982). Given the 1980 report of 12,000 children, aged five to fourteen, being admitted to psychiatric hospitals for suicidal behaviors annually (Berman & Cohen-Sandler, 1980) and the acknowledged under reporting due to factors such as an attempt to protect the child and family, the true incidence of this inadequacy in coping with stress is one of significant concern. Children's knowledge and abilities to care for themselves by coping with stress provide not only a base for health protective behaviors but also a base for survival.

Americans believe that our children have rights which include the rights "to be healthy, to live in a healthy environment, to acquire the intellectual and emotional skills necessary to achieve individual aspirations and to cope effectively in our society" (Olsen, 1982, p. 39). These tenets were first espoused at the 1930 White House Conference and later restated by the Joint Commission on Mental Health of Young Children (cited in Olsen, 1982). Past legislative efforts such as Title V of the Social Security Act which provided for Maternal and Child Health and Crippled Children's funding are viewed as milestones in creating preventive and health promotion services. Early and Periodic Screening, Diagnosis and Treatment [EPSDT] programs have had limited success in provision of health prevention/health promotion services although this effort has been a monumental one (Olsen, 1982). Health legislation in the 1970's consisting of bills such as the Health Planning and Development Act, The Education For All Handicapped Act, The Developmental Disabilities Act and others have increased public awareness as to the rights and needs of children to be served. The Surgeon General's report on health promotion and disease prevention has "emphasized the need to minimize the destructive consequences of stress

by preventing or reducing it and by improving the coping skills of persons under stress" (Silver, Goldston, & Silver, 1984, p. 374).

Despite legislative efforts and federal Objectives for the Nation for the control of stress and violent behavior implemented by the National Institute of Mental Health (cited in Silver et al., 1984) to create a healthier, less stressful environment and society, our children are faced with increasing environmental pollution, fewer pollution and safety environmental controls, fewer health care options and increasing stress. The inequities facing today's society of children must be addressed by responsible, caring people and their respective professions and institutions. Nursing and education are two such professions. The school system as an institution and setting provides nurses and educators with a setting and a population at risk. The fifth grade population is a population at risk which is often studied (Blazek & McClellan, 1983; Dielman, Leech, Lorenger & Horvath, 1984; Moffatt & Pless, 1983). These children are important from developmental perspectives. Generally speaking, the concerns of this group of children range from academia to peer acceptance, two areas in which stresses have been widely recognized. Also this group of children is physiologically pre-adolescent which

presents possible internal turmoil. Piaget (1969) believed this period of ten and eleven year old cognitive development to be the concrete operational stage; a stage during which alternate solutions to concrete problems are possible. Awareness of the uncertainties of life is beginning. It is therefore imperative to explore this population and to assist them in finding coping strategies for self-responsibility.

Investigations in the areas of locus of control and coping, tools for stress management, and children's perceptions and knowledge of stress will be a beginning for a better understanding. To increase a child's knowledge of stress and coping mechanisms is to better equip a child for self-responsibility and health protective behaviors. This is a mandate for maternal-child nursing. As a maternal-child nurse practitioner, this nurse researcher welcomes this mandate from both a personal and professional perspective. This mandate was the impetus for this study.

The purpose of this study was to determine the effect of a stress management educational program upon anxiety and health locus of control in a fifth grade population.

CHAPTER II

REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK

A review of literature by this researcher revealed no studies to date examining health locus of control, anxiety or stress reduction, and stress management programs in the fifth grade population. Studies and literature pertaining to health locus of control, stress management programs and techniques for anxiety reduction in children were explored and reviewed.

Health Locus of Control and Locus of Control

Health locus of control is a construct specific to the health field that refers to the extent to which a person believes that his or her health-related behavior influences his or her health. A person with external health locus of control tends to believe that others, fate or the environment controls his or her health whereas a person with internal health locus of control perceives that health-related events are contingent on his or her own health behavior. Three studies reviewed (Blazek & McClellan, 1983; Dielman et al., 1984; Moffatt & Pless, 1983) specifically speak to health locus of control in utilization of a health locus of control scale for children. Other studies explored such health-related issues relating to locus of control

as obesity (Isbitsky & White, 1981; Stager, 1981); anorexia nervosa (Strober, 1982); preoperative coping behavior (LaMontagne, 1984); orthodontic treatment (Tedesco, Albino, & Cunat, 1985); encopresis (Landman, Rappaport, Fenton, & Levine, 1986); and cancer (Jamison, Lesis, & Burish, 1986).

Locus of control is a factor which influences health behavior in children (Lewis, 1974; Lewis, Lewis, Lorimer, & Palmer, 1977). Blazek and McClellan (1983) investigated the effects of self-care instruction on the locus of control of forty-two fifth grade children utilizing Parcel's Children's Health Locus of Control (CHLC) scale. The forty-two fifth graders from an upper middle-class Southwestern class were randomly assigned to a control or experimental group. The experimental group or self-care instruction group was presented content from Igoe's Health PACT (Participatory and Assertive Consumer Training 1980) curriculum while the control group participated in health discussions. Three forty-minute sessions were given to each group with a student nurse as the instructor of each group. The measure of health locus of control was administered concurrently to each group. A pretest-posttest control group design was utilized with gain scores as a measure of difference. The

results supported self-care instruction as a possible method by which "children view health event outcomes as being due to their own actions" (Blazek & McClellan, 1983, p. 555). Limitations noted include the fact that health behaviors were not observed and that there was no varying time frame for data collection. The nurse researchers suggested varying time frames, longitudinal studies and studies "to determine if an increase in an internal locus of control is related to health behaviors" (p. 556).

Another study which addressed locus of control utilizing health locus of control as a measure was that of Moffatt and Pless (1983). This study involved 156 bilingual eight to fourteen year old diabetic campers over a three week period and a control group of thirty diabetic children who did not attend camp. The 156 campers were assessed by physicians, nurses, a dietician and senior staff as to control, knowledge, self-help technical skill, diet knowledge and adherence, and adjustment to camp life on a subjective basis. A pretest-posttest design was used with Parcel's Children's Health Locus of Control (CHLC) scale as a health measure and the Nowicki-Strickland Children's Locus of Control (NSLC) Scale administered as a general measure of locus of control. Analyses

were conducted only with English speaking campers for whom the tests were designed. A nonrandom sample of twenty-three campers was given the NSLC at the next year's camp physicals to assess the longevity of the changes of locus of control. Changes in the NSLC were significant for the campers but not for the control group. The change on the CHLC was considered statistically significant for campers and controls; however, not meaningful clinically by the investigators. Reassessment at one year with the NSLC on the nonrandom group demonstrated a move toward internal control. Interestingly, the CHLC score was the best single predictor of medical assessment skills.

The third study (Dielman et al., 1984) examined health locus of control as measured by Parcel's CHLC scale and self-esteem as measured by a modified Coopersmith Self-Esteem (CSE) inventory. Additionally, questions regarding past and current behaviors and future intentions as to alcohol, cigarette and marijuana use were incorporated into the questionnaire. Questionnaires were given to 246 fifth-grade and 265 sixth-grade students during class in an attempt to study relationships of health locus of control and self-esteem and related intentions and behaviors. Factor analysis revealed that the measures used were

multidimensional and the relationships of these dimensions to health behavior and intentions do vary depending on both the dimension and the intention or behavior to be studied. The children's self-esteem scale was related in the predicted direction to all but one behavior or intention while the children's health locus of control scale did not reflect overall relationship with any intention or behavior. The "intercorrelations among the CSE and CHLC subscales indicate(d) a tendency for adolescents who score(d) in an internal control direction to be happier, more well adjusted, and more self-confident" (p. 949). The researchers suggested a longitudinal study which monitors changes in behavior and conceptual systems. A hypothesis proposed was that "prevention-oriented interventions are more successful in deterring negative health habits when they are successful in enhancing self-esteem and the perception of internal control" (p. 950).

Stress Management Programs and Techniques

Another area explored was stress management programs or techniques. Stress management programs or techniques are means by which children can learn coping skills through knowledge and practice. Yates (1983)

supported this in that "stress management for children can be designed to enhance the child's sense of mastery through successful problem-solving activities" (p 134). Cowen (1982) viewed stress management as a primary prevention measure and supported the utilization of programs in the schools. Relaxation training programs and techniques (Day & Sadek, 1982; Humphrey, 1984; Koeppen, 1974; Rossman & Kahnweiler, 1977) have been used successfully in a group or a classroom setting as a stress management measure. These programs or techniques consisted of stories, exercises and guided imagery that were tools by which the child may analyze and effectively cope with daily stresses. Other stress reduction approaches have included the Quieting Reflex (Stroebe & Stroebe, 1984), systematic desensitization (Whitehead, Shirley, & Walker, 1984) and biofeedback (Carter & Russell, 1984).

Intervention studies have shown that various forms of stress management training have been effective in reducing the stress responses of children. Carter and Russell (1984) have used biofeedback effectively with hyperactive and learning disabled children. Benson's Relaxation Response has been shown to be effective in reducing anxiety levels of children (Day & Sadek, 1982; Petrosa & Oldfield, 1985). Disorbio (1983) and Petrosa

and Oldfield (1985) utilized the Quieting Reflex in stress reduction of school age children. LaMontagne, Mason, and Hepworth (1985) utilized a relaxation treatment which included muscle relaxation, guided imagery and fantasy exercises to reduce anxiety in a second grade classroom. The hypothesis which pertained to anxiety reduction in a second grade classroom was not supported. Subjective data demonstrated short-term anxiety reduction. LaMontagne, Mason, and Hepworth (1985) have suggested that locus of control may be a mediating factor in anxiety reduction and have recommended further study. Rossman and Kahnweiler (1977) evaluated a relaxation program which included imagery, breathing, centering, movement and deep relaxation given to fourth and fifth grade children. Methodological weaknesses included lack of a control group and no reported statistical analyses. Subjective analysis revealed an increase in on-task behavior.

Summary

In summary, studies and literature reviewed in the areas of health locus of control, locus of control, stress management or anxiety reduction techniques, and intervention studies broadly suggest that stress management programs in schools may be warranted as a

method of primary prevention and that locus of control or health locus of control may be an important factor. No studies reviewed to date included stress management programs, school-aged children, and health locus of control as the focus of study.

Conceptual Framework

Underlying theory which is fundamental to this study comes from both nursing and psychology. Basic to the study of coping and stress management is the comprehensive stress and cognitive appraisal theory of Lazarus and Opton (1966) and Lazarus and Folkman (1984). Psychological stress... "is a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus and Folkman, 1984, p. 21). Coping is "the process through which the individual manages the demands of the person- environment relationship that are appraised as stressful and the emotions they generate" (Lazarus and Folkman, 1984, p. 19). Stress management is viewed as a tool for coping. Reappraisal using cognitive coping may alter outcomes and produce a decrease in stress or anxiety.

The nursing theory central to this study is the Self-Care Deficit theory by Dorothea Orem (1985). The central idea espoused by Orem in this theory is that "(P)eople can benefit from nursing because they are subject to health-related or health-derived limitation that can render them incapable of continuous self-care or dependent care or that result in ineffective or incomplete care" (p. 34). One presupposition set forth by Orem is that self-care requires self-management, is a form of self-regulation and rests on the "educability of their (social group) individual members" (p. 35). Self-care is "a practical response to an experienced demand to attend to oneself" (p. 89). In the context of this study, focus is one of primary prevention in the supportive-educative system. These children may be viewed as having a self-care knowledge deficit in stress management or inability to cope with stress and the role of the nurse is to guide and support "to the degree permitted by the health state" (Orem, 1985, p. 260). By guiding and supporting the children, the nurse can help them to become effective self-care agents.

The conceptual framework for this study is diagrammed in Figure 1.1.

Identification
of
self-care deficit
(Orem)

+

Appraisal
and mastery of
techniques
of coping
with stress
(Lazarus)

+

Improved Coping Through
Self-Care Knowledge in
Stress Management to
Use Throughout Life

Figure 1. CONCEPTUAL FRAMEWORK

Definition of Terms

Concepts central to this study were anxiety, locus of control, health locus of control and stress management. The common use of the concept "anxiety" in psychological literature began in the 1930's. Over the years, writings on anxiety flourished but no single theory or universally accepted concept definition has emerged. The diversity is partially represented by the following definitions of anxiety:

1. Grinker (1966) related anxiety to stress, with the stress response being measured psychometrically.
2. Lazarus and Opton perceived the stress response to anxiety as multi-dimensional, involving physiological arousal, subjective experience, and objective behavioral responses (1966).
3. Highland (1981) defined anxiety as an emotion more vague and more prevalent in our society than fear. Anxiety could have an adaptive or maladaptive response; it resulted from a threat to one's self-system.
4. Cattell (1966) associated anxiety with uncertainty about the self and the objective world.

5. Anxiety was what people felt when stress was placed on them, according to Crowley (1981).
6. LaMontagne, Mason and Hepworth (1985) defined anxiety as an emotional reaction that occurred as a response to stress.

While the heavy overlap in conceptualization between "stress" and "anxiety" exists, the construct "anxiety" continues to be measured due to the availability of anxiety scales such as state-trait scales and the Child Anxiety Scale (Gillis, 1980). For the purposes of this study anxiety was viewed as a response to stress.

The second concept relevant to this study was locus of control; a concept having to do with a person's belief about his or her control in a given situation (Rotter, 1954). According to social learning theory (Rotter, 1954), the potential for a behavior to occur depends on the expectancy of a reward in a specific situation as well as the value of the reward. Continuing on a cognitive level, the reward or reinforcement is perceived by the individual as being either internally or externally controlled. In this study, a person with internal locus of control believes that he or she has control over his or her behavior, whereas a person with external locus of control

believes that others or fate control his behavior and life outcomes.

Rotter's theory was applied to the health field by Wallston, Wallston, Kaplan and Maides (1976) with the development of the Health Locus of Control scale. This scale measured whether an individual's health beliefs were internally or externally controlled. The results, in turn, were felt to be predictive of their health behaviors by Wallston and Wallston in 1978 (cited in Parcel & Meyer, 1978). Rotter (1966) suggested the need to develop scales for specific types of behavior. Speaking to this need for locus of control scales for specific categories of behaviors in children, Parcel and Meyer (1978) developed a Children's Health Locus of Control scale. This development introduced the concept of health locus of control into the realm of research in children's health behaviors, attitudes and outcomes. For this study, a person with internal health locus of control believes that he or she controls health behaviors, attitudes or outcomes; whereas, a person with external health locus of control believes that others or fate control health behaviors, attitudes and outcomes.

The fourth concept explored was that of stress management. Stress management programs or techniques

are methods by which a group or individual experiences or learns strategies to aid in coping with stresses. Relaxation training, guided imagery, centering, fantasy exercises, and biofeedback are methods reportedly used successfully with children. For the purpose of this study, stress management consisted of audio tapes designed for children by Lowenstein (1978) which combined relaxation training, guided imagery and centering.

Statement of Problem

This study was concerned with the effect of a stress management instructional program upon anxiety and locus of control in a fifth grade population. The specific question explored was: What is the effect of a health-related stress management program upon anxiety and locus of control in fifth grade children as measured by Gillis' Child Anxiety Scale (CAS) and Parcel's Children's Health Locus of Control scale (CHLC)?

Hypotheses

The hypotheses are as follows:

1. Fifth grade children who participate in a stress management program will demonstrate

significant change after a four week stress management program.

a. They will have a significant decrease in anxiety as measured by Gillis' Child Anxiety Scale.

b. They will have a significant gain in internal health locus of control as measured by a higher score on Parcel's Children's Health Locus of Control scale.

2. Fifth grade children who do not participate in a stress management program will demonstrate no significant change after a four week stress management program.

a. They will have no significant change in anxiety as measured by Gillis' Child Anxiety Scale.

b. They will have no significant gain in internal health locus of control as measured by Parcel's Children's Health Locus of Control scale.

3. There will be a greater change from pre-test to post-test in the group who participates in the stress management program than in the group who does not participate in the stress management program as measured by Gillis'

Child Anxiety Scale and by Parcel's Children's
Health Locus of Control scale.

CHAPTER III

METHODS

Overview

This study determined the effect of a school-based, nurse-directed stress management program on health locus of control and anxiety in a fifth grade population. Two groups of fifth graders were given pre-tests and post-tests to assess health locus of control and anxiety with the experimental group participating in a stress management program.

The study can be diagrammed as follows:

Control	O_1		O_2
Experimental	O_1	x_1	O_2

x_1 = presentation of an 18-30 minutes stress tape on Mondays, Wednesdays, and Fridays using Lowenstein's stress tapes for children (a series of six) for four weeks

O_1 = Pre-test- Child Anxiety Scale by Gillis and Children's Health Locus of Control Scale by Parcel

O_2 = Post-test- Child Anxiety Scale by Gillis and Children's Health Locus of Control Scale by Parcel

Description of Sample

The study was conducted using 153 fifth graders in an all fifth grade elementary school in southeastern North Carolina. Six of 13 teachers volunteered to participate and therefore six sections of this grade with a total of 153 children were utilized. Each section was considered homogeneous by written report of the teachers as to sex, race, and abilities from group to group. The sample of 153 fifth graders had not received prior exposure to stress management education or instruction through the school system. Access to the school classrooms was obtained by reviewing the proposal verbally with the assistant superintendent and principal of the school. Data were collected in the classrooms by the teachers so as not to introduce an outside source of anxiety.

Instruments

The instrument selected to measure health locus of control was the Children's Health Locus of Control scale developed by Parcel and Meyer in 1978. The revised instrument contains twenty statements pertaining to health locus of control with a simple scoring system of the assignment of two points to the internal answers and one point to the external

responses. Wording is appropriate for seven to twelve years olds. Administration time was approximately ten minutes. Acceptable levels of reliability, internal consistency and construct validity were noted by Parcel and Meyer (1978). An overall test-retest reliability of .62 was obtained. Internal consistency was measured using Kuder-Richardson formula 20 coefficients which were said to be nearly the same for the overall group of grades two through six with a value of .72 for the first administration and .75 for the second administration. The interval between first and second administrations was six weeks. It was noted by Parcel and Meyer (1978) that Kuder-Richardson values for grades three and five were not constant, with both grades demonstrating increases across administrations. More discrepancies were found from test to retest on the first half as compared to the second half of the instrument. A practice loop was added to assist children in learning how to make an appropriate response (Parcel & Meyer, 1978). Construct validity was investigated by a correlation comparison between the CHLC and the Nowicki-Strickland Children's Locus of Control scale (NSCLC). The Spearman Correlation coefficient for CHLC and NSCLC for the total group of 132 children was .501 as reported by Parcel and Meyer

(1978). In a recent conversation with Dr. Parcel, he recommended using a Likert-type response system whereby the fifth graders would be asked to respond in a more discriminating manner. He further stated that this method of graded responses decreased the likelihood of all responses being internal or external due to exposure to media, education, or other life experiences. He now believes that the revised instrument with the agree-disagree response system to be useful in testing children in grades below the fifth grade. He attributed this in part to health education in the school setting. He sent the revised instrument and gave the researcher permission to change response scales and to copy the instrument (see Appendices A and B for permission and instrument). After completion of the study, the researcher will share results of the study with Dr. Parcel. The revised instrument was informally piloted using another fifth grade population prior to formal study. The students were able to respond appropriately utilizing the Likert-type scale. Children responded by writing their answers on the instrument.

The instrument selected to measure anxiety is Gillis' Child Anxiety Scale published in 1980 (see Appendix C for instrument). It is a brief screening instrument designed to measure adjustment problems in

the elementary school setting using the construct of anxiety. The test is designed for children ages five to twelve years and consists of twenty items with a dichotomous scoring system. The higher the raw score, the higher the anxiety. The test may be administered in approximately 20 minutes using an audio and/or instruction script developed by Gillis. Internal consistency and test-retest coefficients have been provided with a Kuder-Richardson formula 20 value of .73 and a test-retest coefficient of .78 (Benson, 1984). It can be manually scored using a grid. Raw scores translate to stens or percentiles.

The items in the Child Anxiety Scale (CAS) were based on the second order anxiety factor of the Early School Personality Questionnaire (ESPQ) by Coan and Cattell (cited in Gillis, 1980), which provides comprehensive coverage of personality characteristics in young children. The second order anxiety factor of the ESPQ was used as the primary criterion for the selection of the 20 items on the CAS. The second-order factor was found to agree with a general anxiety pattern which has been repeatedly found with older age groups according to Gillis and Cattell (cited in Gillis, 1980).

Design of the Study

A sample of 153 children in six sections of a 13 section all fifth grade school was a sample of convenience. Three classrooms of 25-26 students each were designated on a random basis as the intervention on experimental group while three classrooms of 25 students each were designated as the control group. Consideration was given to physical location of one classroom so as to prevent contamination and the Hawthorne effect. There were 77 students in the experimental or intervention group and 76 students in the control group.

The experimental group of 77 students received a stress management program on Mondays, Wednesdays, and Fridays for a period of four weeks while the control group of 76 students received regularly scheduled school activities not relating to stress management. Pre-tests and post-tests to assess health locus of control and anxiety were given each group. A non-equivalent control group was utilized for this study.

Data were collected on a pre- and post-test basis. Variables assessed to determine the effectiveness of the stress management program were anxiety as measured by Gillis' Child Anxiety Scale (CAS) and health locus of control as measured by Parcel's Children's Health Locus of Control scale (CHLC).

Consent

Permission was given by the assistant superintendent and the school principal to the researcher for teacher and classroom contact. Teachers within the all fifth grade elementary school had expressed an interest in stress management and had volunteered to participate. They were aware that there would be an intervention group and a control group.

A consent form was not deemed necessary by the principal and the assistant superintendent as this study was of an educational nature with no inherent risks noted. No individual student was identified. Group data were compiled.

Demographic data was assessed by group not individually.

The form "Internal Processing Form for Review of Research Involving Human Subjects at East Carolina University" has been filed with the Institutional Review Board.

Procedure

The six teachers met with the investigator for an initial meeting and then for the presentation and discussion of testing tools (see Appendix D for timeline). Testing tools were demonstrated and the

teachers then returned the demonstration. The three teachers involved in the intervention or stress management group met to discuss timing of sessions within the school day in order to facilitate consistency and to review procedures for the intervention or presentation of tapes (see Appendices E and F for expectations). The teachers discussed discipline measures to be used if children became disruptive during the intervention sessions. The teachers agreed on similar measures as were used during the administration of the California Achievement Tests. These measures were writing the student's name on the board which had notified the student of the teacher's awareness or if the disruptive behavior continued the teacher would escort the student from the room and note that the student's post-test was invalid. Due to scheduling difficulties, the pre-test, four weeks of the stress management program and the post-test were conducted toward the end of the school year. Meeting with the teachers on a regular basis throughout the six weeks of the study was not possible. However, phone contact was maintained and progress monitored throughout the four week intervention period.

The four week stress management or intervention program consisted of a presentation of a series of six

18-30 minute audio tapes developed by Lowenstein (1978) involving exercise and relaxation and others involving imagery. A tape was presented on Mondays, Wednesdays and Fridays. The title and length of each tape presented is as follows: Progressive Relaxation for Children (19 minutes), Body Awareness (29 minutes), Relaxation through Breathing (28 minutes), Self-directed (19 minutes), A Journey Inside Me (19 minutes), and World Around Me (18 minutes). The teacher notified the office to decrease disturbances and posted a "Do Not Disturb" sign on the classroom door, said "It's time to relax for today" and pressed the play button on the tape recorder. No script was necessary. A schedule for order of the presentations for teachers was developed from the order of listing above (see Appendix G). Varying methods of relaxation were utilized so as to more possibly effect change in all children in the experimental group. A hand stress thermometer was given to each child as a motivator and reinforcer. No data were collected in regard to the utilization of the hand stress thermometers.

After post-test data collection and analysis, discussion of the stress management program will be offered to the teachers in the control group. The stress management tapes were given to the school for future use.

Assumptions

The following assumptions were made:

1. The teachers would follow directions.
2. The students would respond according to how they felt.
3. The intervention and evaluation tool were appropriate for this age group.

Limitation

The following were limitations in this study.

1. One school was sampled.
2. Selection of the six sections was nonrandom.
3. Assignment of children to the sections of each group was nonrandom.

Procedure for Data Analysis

The sample was described demographically according to sex and age for the experimental and control groups.

In examining the hypotheses, tables for the experimental and control groups included pre-test/post-test comparison of mean group scores as measured by Gillis' CAS and a pre-test/post-test comparison of mean group scores as measured by Parcel's CHLC scale. Comparison was also made between the classes within each group in respect to post mean scores on the CAS and CHLC scale and the mean differences between the

pre- and post-test results on the CAS and CHLC scale.

Statistical Methods

A paired t-test was used to compare pre- and post-test data. A two independent sample t-test compared the change between the two groups. An independent sample t-test between groups prior to testing was utilized to assess similarity. Level of significance was .05. Analysis of variance was used to compare each class within each group, experimental and control, in regard to CAS and CHLC scale scores. Chi square analysis was used to compare demographic data.

Coefficient alpha was computed to assess the internal consistency reliability of the Likert scale form of Parcel's Children's Health Locus of Control scale and Gillis' Child Anxiety Scale.

CHAPTER IV

FINDINGS

Sample

The sample consisted of 77 fifth graders in the experimental group and 76 fifth graders in the control group from the same school in southeastern United States. Of the 77 fifth graders in the experimental group, 12 students were omitted. Eleven (six female, five male) of the students were omitted due to absences at pre-test or post-test and one student (male) was omitted due to disruptive behavior. Of the 76 fifth graders in the control group, 13 students (six female, seven male) were omitted due to absences at pre-test or post-test. The sample analyzed consisted of 65 fifth graders in the experimental group and 63 fifth graders in the control group. Each group consisted of three sections of approximately equal enrollment.

Chi-square analysis at the 0.05 level of significance revealed no significant differences by sex or age between the experimental and control groups. The experimental group was 40 percent (n=26) male and 60 percent (n=39) female. The control group was 47.6 percent (n=30) male and 52.4 percent (n=33) female. Table 1 delineates the distribution of age between the experimental group and the control group.

Table 1
Age Distribution Between the Experimental and Control Groups

Group	Age				
		10	11	12	Total
Experimental	(n)	24	31	10	65
	(%)	36.9	47.7	15.4	50.8
Control	(n)	21	36	6	63
	(%)	33.3	57.1	9.5	49.2

A one way analysis of variance of the classes within the experimental and control groups found classes within the groups to be alike at the .05 level of significance.

Reliability

Coefficient alpha was determined for the Child Anxiety Scale (CAS) pre-test and both pre-test and post-test of the Likert-type Children's Health Locus of Control (CHLC) scale to determine reliability. Coefficient alpha for the CAS was 0.69 on the 20 item pre-test. Reliability analysis of the CHLC pre-test yielded a coefficient alpha of 0.59 on the 20 item scale. Two negative correlations were noted involving items 14 (-.0185) and 18 (-.0639); deleting either item 14 or 18 would improve alpha by no more than 0.03 and therefore these items were not deleted. Reliability

analysis of the CHLC post-test yielded a coefficient alpha of 0.74 on the 20 item scale. One negative correlation was noted which involved item 14 (-.0538). Again, deleting item 14 would improve alpha by no more than 0.02 and therefore the item was not deleted.

Pre-test Data

An independent sample t-test was used in analyzing pre-test data. Table 2 delineates the results of this analysis.

Table 2

A Comparison of the Pre-test Data
for Groups on Test Measures

Group	CHLC	CAS
Experimental	3.04 (\bar{x}) 0.28 (sd)	9.68 (\bar{x}) 3.39 (sd)
Control	3.04 (\bar{x}) 0.27 (sd)	8.35 (\bar{x}) 3.21 (sd)
	t=0.01 df=126 p<0.99 non-significant	t=2.25 df=125 p<0.03 significant

This finding suggested that the experimental group was more anxious at pre-test than the control group.

Effect of Stress Management Program Between Groups

A paired t-test was used to analyze pre- and post-test data on both the experimental and the control groups to assess change over time.

The experimental group demonstrated a significant difference or change on the CAS measure from pre-test to post-test; therefore, hypothesis 1_a was supported. There was a significant decrease in anxiety after a four week stress management program as measured by the CAS tool. However, no significant change was noted from pre-test to post-test on the CHLC scale.

Hypothesis 1_b was not supported in that there was no significant gain in internal health locus of control after a four week stress management program as measured by the CHLC scale. Table 3 compares the pre- and post-test data on both measures for the experimental group.

Table 3

A Comparison of the Mean Scores Pre-test to
Post-test for the Experimental Group

Date	CHLC	CAS
Pre-test	3.04 (\bar{x}) 0.28 (sd)	9.68 (\bar{x}) 3.39 (sd)
Post-test	3.01 (\bar{x}) 0.36 (sd)	8.49 (\bar{x}) 3.74 (sd)
Difference	-0.03 (\bar{x}) 0.32 (sd)	-1.18 (\bar{x}) 3.10 (sd)
	t= -0.79 df= 64 p< .43 non-significant	t= -3.08 df= 64 p< .003 significant

The control group demonstrated no significant difference or change from pre-test to post-test on either the CHLC scale or the CAS; therefore, hypotheses 2_a and 2_b were supported. There was no significant change in anxiety as measured by the CAS. There was no significant gain in internal health locus of control as measured by the CHLC scale. Table 4 compares the data for the control group for both measures.

Table 4

A Comparison of the Mean Scores Pre-test to
Post-test for the Control Group

Date	CHLC	CAS
Pre-test	3.04 (\bar{x}) 0.27 (sd)	8.35 (\bar{x}) 3.21 (sd)
Post-test	3.07 (\bar{x}) 0.28 (sd)	8.08 (\bar{x}) 3.55 (sd)
Difference	0.03 (\bar{x}) 0.30 (sd)	-0.27 (\bar{x}) 2.27 (sd)
t= 0.96 df= 62 p<0.34 non-significant		t= -0.95 df= 61 p<0.35 non-significant

Effect of Class Groups Within Treatment Conditions

Analysis of variance between the three classes within the experimental group with variables post-test CAS mean, post-test CHLC scale mean, post-test minus pre-test CHLC scale mean, and post-test minus pre-test CAS mean revealed that at the .05 level of significance, no two groups were significantly different. Table 5 is a comparison of the classes in the experimental group with respect to these variables.

Table 5
A Comparison of the Class Scores
Within the Experimental Group

Variable	Classes (n)			
	One	Two	Three	Total
	21	22	22	65
CHLC				
post-test \bar{x}	3.06	3.03	2.94	3.01
S.D.	.344	.248	.464	.362
difference (post-pre)	.029	-.002	-.119	-.032
S.D.	.203	.248	.446	.320
CAS				
post-test \bar{x}	8.29	8.95	8.23	8.49
S.D.	4.23	3.81	3.27	3.74
difference (post-pre)	-.810	-1.41	-1.32	-1.18
S.D.	2.73	3.23	3.39	3.10

Results of analysis of variance between the three classes within the control group with variables post-test CAS mean, post-test CHLC scale mean, post-test minus pre-test CHLC scale mean, and post-test minus pre-test CAS mean revealed that at the .05 level of significance, no two groups were significantly different. Table 6 is a comparison of the classes within the control group with respect to these variables.

Table 6
A Comparison of the Class Scores
Within the Control Group

Variable	Classes (n)			
	Four	Five	Six	Total
	18	23	22	63
CHLC				
post-test \bar{x}	3.05	3.14	3.02	3.07
S.D.	.211	.314	.307	.286
difference (post-pre)	.022	-.024	.109	.036
S.D.	.265	.233	.366	.295
CAS				
post-test \bar{x}	7.22	8.04	8.86	8.10
S.D.	3.18	4.19	2.85	3.53
difference (post-pre)	-.667	-.348	.143	-.274
S.D.	1.85	2.46	2.41	2.27

Pre-test to Post-Test Data

A two independent sample t-test was used to measure the change in the experimental and control groups. Hypothesis 3 which stated that there would be a greater change from pre-test to post-test in the group who participated in the stress management program than in the group who did not participate in the stress management program as measured by Gillis' Child Anxiety Scale and Parcel's Health Locus of Control scale.

This hypothesis was not supported in that the experimental group who experienced the four week stress management program did not demonstrate a greater significant change on both the anxiety and health locus of control measures relative to the control group. Table 7 delineates the mean differences for the experimental and control groups.

Table 7

A Comparison of Differences in Mean Scores (Post-Pretest) for the Experimental and Control Groups

	HLOC		CAS	
	Experimental	Control	Experimental	Control
n	65	63	65	62
\bar{X}	-0.0315	0.0357	-1.1846	-0.2742
S.D.	0.320	0.295	3.097	2.270
S.E.	0.040	0.037	0.384	0.288
t=-1.24		t=1.90		
df=126		df=117.35		
p<0.219		p<0.060		
non-significant		non-significant		

CHAPTER V

SUMMARY, CONCLUSIONS AND IMPLICATIONS FOR FURTHER STUDY

Summary and Discussion

The purpose of this study was to determine the effect of a stress management instructional program upon anxiety and health locus of control in a fifth grade population. The investigator developed and presented this program to the teachers for utilization in their classrooms given standardized conditions. Effectiveness was measured by comparing pre- and post-scores of those fifth graders who did experience the stress management program and those fifth graders who did not experience the program. The instrument used to measure anxiety was Gillis' Child Anxiety Scale. The instrument used to measure health locus of control was a modified Likert-type response Children's Health Locus of Control scale by Parcel.

The sample consisted of 153 fifth graders in an all fifth grade school in the southeastern United States. Six teachers volunteered to participate in the study; therefore, six sections of fifth grade students participated. Selection was nonrandom based on volunteerism and the sample, a sample of convenience. Three sections (n=77) were designated as experimental and three sections (n=76) were designated as control

for the four week audio cassette stress management program. Section selection was based on proximity one to the other in order to decrease the chance of contamination or the Hawthorne effect. There were 12 students omitted from the experimental group due to absences or disruptive behavior and 13 students omitted from the control group due to absences on testing dates. Complete data was obtained on 128 fifth graders. The experimental (n=65) and control (n=63) groups were 10, 11, and 12 year old males and females. The experimental and control groups were comparable in that there were no significant differences by age or sex between the groups.

The experimental group was presented the audio cassette stress management program by their teachers for a four week period while the control group had regular classroom activities unrelated to stress management presented to them by their teachers.

The experimental group was more anxious at pre-test than the control group, although no rationale for this can be determined. Teacher anxiety at pre-test may have been a contributing factor although no such anxiety was reported. The teachers' prior experience with testing was equal across all groups. The finding that the experimental group was more anxious at

pre-test than the control group may have significantly contributed to the finding that the four week stress management program did significantly decrease the anxiety in the experimental group, given the levels of anxiety as measured by the CAS. There were no significant differences between any two groups or classes within the experimental or control group based on analysis of variance of post-test scores or differences.

The hypothesis that fifth graders who participated in a stress management program would have a significant decrease in anxiety as measured by Gillis' CAS was supported. As previously discussed, the fact that the experimental group was more anxious at pre-test than the control group may have influenced this finding. Children in the experimental group were able to verbalize feelings of calmness and situations in which they were using exercises or methods for stress management during the four week period prior to the post-test. This anecdotal information was reported by the teachers.

Anxiety as a concept is a response to stress. Stressors come from the total environment and are perceived differently by each person based on appraisal and experiences in methods for coping. Prior

experiences, or the lack thereof, can influence the perception of stress. Coping or strategies for coping mediate the impact of the perceived event and assist the person in caring for self or self-care.

The CAS by Gillis used in this study was viewed as an appropriate measure by the researcher and the teachers involved. The children were reportedly eager to respond to the verbal taped questions and the circles on the answer sheet. This was the first group testing situation in which there were no right or wrong answers. Reported previous internal consistency using a Kuder-Richardson 20 coefficient was .73. Coefficient alpha for this study was .69 for reliability.

The hypothesis that fifth graders who participated in a stress management program would have a gain in internal locus of control as evidenced by a higher score on the CHLC than the control group was not supported. Both the instrument and concept pertaining to health locus of control warrant discussion.

The instrument used to measure health locus of control for this study was modified to a Likert-type response scale as suggested by Parcel in order to decrease the influence of media and prior experiences upon the students' responses. Both the original and Likert-type scale had test-retest reliability change

with an increase in reliability across time. The overall test-retest reliability for the original instrument was .62 while coefficient alpha for the pre-test was .59 and post-test .74 in this study of 128 fifth graders. Interestingly, the two items with negative correlation both addressed the school nurse, a concept and person not known to these students on a full-time basis. Greater visibility and availability of a school nurse may have changed this finding.

Health locus of control from a conceptual perspective may evolve over time based on family, experiences, and education. Change may not come about in a four week time period.

The hypothesis that fifth graders who did not participate in the stress management program would not have a significant change in anxiety or significant gain in internal health locus of control was supported. There was a change in both measures although the findings were not significant from a statistical perspective. Familiarity with the instruments may have contributed to this finding.

No relationship was noted in this study between self-care and health locus of control. The hypothesis that there would be a greater change on both measures from pre- to post-test in the group participating in

the stress management program relative to the control group was not supported. An inference could be made that health locus of control may not be associated with anxiety as this study proposed. Health locus of control may provide a focus for another study examining self-care in a random sample.

Conclusions

Conclusions from the study of the effect of a four week stress management instructional program upon anxiety and health locus of control are:

1. A four week stress management program can decrease anxiety in a fifth grade population.
2. From anecdotal information provided by the teachers, a fifth grade population was able to incorporate the audio stress tapes into their daily lives.
3. It is inferred from differences in responses to the CAS and the HCLC scale that health locus of control is not related to anxiety.
4. A four week stress management program did not result in a gain in internal health locus of control.
5. The presence of a school nurse in the school system could have altered the responses of the children on the CHLC scale.

6. Nursing and education can work together to assist fifth graders in learning stress management as a health protective behavior.

Implications for Further Study

Findings of this study suggest that a nurse-directed school-based stress management program for fifth graders is effective in decreasing anxiety. This study should be replicated using a larger representative sample of fifth graders who are the same at pre-test on the anxiety measures. This would confirm or discount the significant decrease as reported in this study. Also, replication of this study with a longer treatment period, post-test interval may further explain the effect of stress management on anxiety reduction as a health protective behavior.

From a clinical perspective, professional nurses may be able to incorporate stress management into their practices to promote anxiety reduction and health protective behaviors of children.

Health locus of control may be a developmental phenomenon which changes over time and with environmental influence. A longitudinal study regarding anxiety, stress management, and health locus of control in a given population of children may be a beginning to better understand evolution of appraisal and coping.

BIBLIOGRAPHY

- Benson, J. (1985). Children's anxiety scale: A review and critique. In D.J. Keyser & R.C. Sweetland (Eds.), Test Critiques (Vol. 3, 139-144). Test Corporation of America. Kansas City: Westport Publishers.
- Berman, A.L. & Cohen-Sandler, R. (1980, April). Suicidal behavior in childhood and early adolescence. Paper presented at the annual meeting of the American Association of Suicidology, Nashville, Tenn.
- Blazek, B. & McClellan, M. (1983). The effects of self-care instruction on the locus of control in children. The Journal of School Health, 53(9), 554-556.
- Carter, J.L. & Russell, H.L. (1984). Use of biofeedback relaxation procedures with learning disabled children. In J.H. Humphrey (Ed.) Stress in Childhood (pp. 277-300). New York: AMS Press.
- Cattell, R.B. (1966). Anxiety and motivation: Theory and crucial experiments. In C.D. Spielberger (Ed.), Anxiety and behavior. New York: Academic Press.
- Cohen-Sandler, R., Berman, A. & King, R. (1982). Life stress and symptomatology: Determinants of suicidal behavior in children. Journal of the American Academy of Child Psychiatry, 21, 178-186.
- Cowen, E.L. (1982). Primary prevention: Children and the schools. Journal of Children in Contemporary Society, 14, 57-68.
- Crowley, J.A. (1981). Worries of elementary school students. Elementary School Guidance and Counseling, 16(2), 98-102.
- Day, R.C. & Sadek, S.N. (1982). The effect of Benson's relaxation response on the anxiety levels of Lebanese children under stress. Journal of Experimental Child Psychology, 34, 350-356.
- Dielman, T., Leech, S., Lorenger, A. & Horvath, W. (1984). Health locus of control and self-esteem as related to adolescent health behavior and intentions. Adolescence, 19(76), 935-950.
- Disorbio, J.M. (1983). The effects of the kiddie quieting response on stress and anxiety of elementary school children. (Doctoral dissertation, University of Northern Colorado, 1983). Dissertation Abstracts International, 44, 3523B.

- Elkind, D. (1981). The hurried child: Growing up too fast too soon. Massachusetts: Addison-Wesley Publishing Company.
- Gillis, J.S. Child Anxiety Scale Manual. Champaign, Illinois: Institute for Personality and Ability Testing, Inc., 1980.
- Grinker, R.R., Sr. (1966). The psychomatic aspects of anxiety. In C.D. Spielberger (Ed.), Anxiety and behavior. New York: Academic Press.
- Highland, A.C. (1981). Anxiety: A summary of past and present research and theory. Child Welfare, 60(8), 519-527.
- Humphrey, J.N. (1984). Teaching children about stress. In J.H. Humphrey (Ed.), Stress in childhood (pp. 157-164). New York: AMS Press.
- Igoe, J. (1983, February). PACT full of health. Nursing Times, pp. 54-56.
- Isbitsky, J.R. & White, D.R. (1981). Externality and locus of control in obese children. Journal of Psychology, 107, 163-172.
- Jamison, R.N., Lesis, S. & Burish, T.G. (1986). Psychological impact of cancer on adolescents: self-image, locus of control, perception of illness and knowledge of cancer. Journal of Chronic Disease, 39(8), 609-617.
- Koepfen, A.S. (1974). Relaxation training for children. Elementary School Guidance and Counseling, 9, 14-21.
- LaMontagne, L.L. (1984). Children's locus of control beliefs as predictors of preoperative coping behavior. Nursing Research, 33(2), 76-79, 85.
- LaMontagne, L.L., Mason, K.R. & Hepworth, J.T. (1985). Effects of relaxation on anxiety in children: Implication for coping with stress. Nursing Research, 34, 289-292.
- Landman, G.B., Rappaport, L., Fenton, T. & Levine, M.D. (1986). Locus of control and self-esteem in children with encopresis. Journal of Developmental Behavioral Pediatrics, 7(2), 111-113.
- Lazarus, R.S. & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer Publishing Company.

- Lazarus, R.S. & Opton, E.M., Jr. (1966). The study of psychological stress: A summary of theoretical formulations and experimental finding. In C.D. Spielberger (Ed.), Anxiety and behavior. New York: Academic Press.
- Lewis, C.E., Lewis, M.A., Lorimer, A. & Palmer, B.B. (1977). Child-initiated care: The use of school nursing services by children in an "adult-free" system. Pediatrics, 60(4), 499-507.
- Lewis, M.A. (1974). Child-initiated care. American Journal of Nursing, 74(4), 652-655.
- Lowenstein, J.C. (Speaker). (1978). Me-my body and mind! (Sides 1 & 2), Relax freely (Sides 1 & 2), Oh! The wonders inside me! (Sides 1 & 2). (Audio Cassette Recordings No. 202, 204, & 205). Drain, OR: Conscious Living Foundation.
- Moffatt, M. & Pless, I. (1983). Locus of control in juvenile diabetic campers; changes during camp, and relationship to camp staff assignments. The Journal of Pediatrics, 103, 146-150.
- Olsen, L.J. (1982). Trends in maternal and child health. In H.M. Wallace, E.M. Gold, & A.C. Ogelsby (Eds.), Maternal and child health practices: Problems, resources, and methods of delivery (2nd ed). New York: John Wiley and Sons, Inc.
- Orem, D.E. (1985). Nursing: concepts of practice (3rd ed.). New York: McGraw-Hill.
- Parcel, G.S. & Meyer, M.P. (1978). Development of an instrument to measure children's health locus of control. (Monograph). Health Education Monographs, 6, 149-159.
- Petrosa, R. & Oldfield, D. (1985). A pilot study of the impact of stress management techniques on the classroom behavior of elementary school students. Journal of School Health, 55(2), 69-71.
- Piaget, J. (1969). The theory of stages in cognitive development. New York: McGraw-Hill.
- Rossmann, H.M. & Kahnweiler, J.B. (1977). Relaxation training with intermediate grade students. Elementary School Guidance and Counseling, 11, 259-266.
- Rotter, J.B. (1954). Social learning and clinical psychology. New York: Prentice-Hall.

- Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80(1, Serial No. 609).
- Silver, B., Goldston, S. & Silver, L. (1984). The 1990 objectives for the nation for the control of stress and violent behavior: progress report. Public Health Reports, 99(4), 374-384.
- Stager, S.F. (1981). Externality, environment, and obesity in children. Journal of General Psychology, 1051, 141-147.
- Stroebel, E.L. & Stroebel, C.F. (1984). The quieting reflex: a psychophysiologic approach for helping children deal with healthy and unhealthy stress. In J.H. Humphrey (Ed.), Stress in Childhood, New York: AMS Press.
- Strober, M. (1982). Locus of control, psychopathology, and weight gain in juvenile anorexia nervosa. Journal of Abnormal Child Psychology, 10(1), 97-106.
- Tedesco, L.A., Albino, J.E., & Cunat, J.J. (1985). Reliability and validity of the orthodontic locus of control scale. American Journal of Orthodontics, 88(5), 396-401.
- Yates, A. (1983). Stress management in childhood. Clinical Pediatrics, 22(2), 131-135.
- Wallston, B.S., Wallston, K.A., Kaplan, G.D. & Maides, S.A. (1976). Development and validation of the health locus of control (HLC) scale. Journal of Consulting and Clinical Psychology, 44, 580-585.
- Whitehead, D., Shirley, M. & Walker, C.E. (1984). Use of Systematic desensitization in the treatment of children's fears. In J.H. Humphrey (Ed.), Stress In Childhood, New York: AMS Press.

APPENDIX A
PARCEL'S LETTER OF PERMISSION

The University of Texas
Health Science Center at Houston

APPENDIX A

Center for Health Promotion
Research and Development



P.O. Box 20186
Houston, Texas 77225
(713) 792-8540

December 11, 1986

Ms. L. Pupeple
703 West Wilson Creek Drive
New Bern, NC 28560

Dear Ms. Pupeple:

Enclosed is a copy of the Children's Health Locus of Control Scale. I would be very pleased to grant permission for its use in your research. As always I would greatly appreciate receiving information about findings that are obtained with the Children's Health Locus of Control Scale. Please let me know if I may be of any further assistance.

Sincerely,

A handwritten signature in cursive script that reads "Guy S. Parcel 1/7/87".

Guy S. Parcel, Ph.D.
Professor and Associate Director

GSP:11b

Enclosure (1)

APPENDIX B

REVISED CHILDREN'S HEALTH LOCUS OF CONTROL SCALE

CHILDREN'S HEALTH LOCUS OF CONTROL

We would like to learn about different ways children look at their health. Here are some statements about health or illness (sickness). There are four choices from which to choose an answer---STRONGLY AGREE, AGREE, DISAGREE, and STRONGLY DISAGREE. There are no right or wrong answers. Be sure to answer the way you really feel and not the way other people might feel.

PRACTICE: Try the statements below.

a. Children can get sick.

STRONGLY

If you strongly think this to be true, circle **AGREE**

If you think this to be true, circle **AGREE**

If you think this to be not true, circle **DISAGREE**

If you strongly think this to be not true, circle **STRONGLY DISAGREE**

b. When I am not sick, I am healthy.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

NOW DO THE REST OF THE STATEMENTS THE SAME WAY YOU PRACTICED.

1. Good health comes from being lucky.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

2. I can do things to keep from getting sick.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

3. Bad luck makes people get sick.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

4. I can only do what the doctor tells me to do.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

5. If I get sick, it is because getting sick just happens.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

6. People who never get sick are just plain lucky.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

7. My mother must tell me how to keep from getting sick.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

8. Only a doctor or a nurse keeps me from getting sick.

STRONGLY			STRONGLY
AGREE	AGREE	DISAGREE	DISAGREE

9. When I am sick, I can do things to get better.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
10. If I get hurt, it is because accidents just happen.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
11. I can do many things to fight illness.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
12. Only the dentist can take care of my teeth.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
13. Other people must tell me how to stay healthy.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
14. I always go to the nurse right away if I get hurt at school.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
15. The teacher must tell me how to keep from having accidents at school.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
16. I can make many choices about my health.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
17. Other people must tell me what to do when I feel sick.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
18. Whenever I feel sick I go to see the school nurse right away.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
19. There are things I can do to have healthy teeth.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
20. I can do many things to prevent accidents.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE

APPENDIX C
CHILD ANXIETY SCALE

CAS QUESTIONS

<u>Picture</u>	<u>Question</u>
butterfly	Do you do very well in most things you try, or do things often go wrong for you? If you do very well in most things you try, mark an X on the red circle or, if things often go wrong for you, mark an X on the blue circle.
spoon	Do people think you are often bad, or do people think you are usually good? If people think you are often bad, put an X on the red circle. If people think you are usually good, put an X on the blue circle.
cloud	Can you answer quickly, or do others seem to answer before you? If you answer quickly, put an X on the red circle or, if others seem to answer before you, put an X on the blue circle.
fish	Are you lucky or unlucky? If you are lucky, put an X on the red circle. If you are unlucky, put an X on the blue circle.
apple	Do you think only some people like you, or do you think everybody likes you? If you think only some people like you, put an X on the red circle or, if you think everybody likes you, put an X on the blue circle.
mushroom	Do people ever say you talk too much? If people ever say you talk too much, put an X on the red circle or, if people never say you talk too much, put an X on the blue circle.
mouse	Can you do things better than most boys and girls, or not as well as most boys and girls? If you can do things better than most boys and girls, put an X on the red circle or, if you cannot do things as well as most boys and girls, put an X on the blue circle.
moon	Do you seem to be always having accidents, or do you never have accidents? If you seem to be always having accidents, put an X on the red circle or, if you never have accidents, put an X on the blue circle.
bottle	Do you feel cheerful and happy most of the time, or not much at all? If you feel cheerful and happy most of the time, put an X on the red circle. If you do not feel cheerful and happy much at all, put an X on the blue circle.

- kite Do things sometimes seem too hard for you, or do things never seem too hard for you? If things sometimes seem too hard for you, put an X on the red circle or, if things never seem too hard for you, put an X on the blue circle.
- book Do you think you have to sit too long in school? If you think you have to sit too long in school, put an X on the red circle or, if you do not think you have to sit too long in school, put an X on the blue circle.
- leaf Do you usually finish your work on time, or do you need more time? If you usually finish your work on time, put an X on the red circle. If you need more time to finish your work, put an X on the blue circle.
- owl Are other children always nice to you, or do they sometimes pick on you? If other children are always nice to you, put an X on the red circle. If other children sometimes pick on you, put an X on the blue circle.
- lion Can other people do things better than you, or not as well as you? If other people do things better than you, put an X on the red circle or, if other people do not do things as well as you, put an X on the blue circle.
- cake Are you afraid of the dark, or are you not afraid of the dark? If you are afraid of the dark, put an X on the red circle or, if you are not afraid of the dark, put an X on the blue circle.
- sun Do you have just a few problems, or do you have a lot of problems? If you have a few problems, put an X on the red circle. Or, if you have a lot of problems, put an X on the blue circle.
- hand Do you think people every say bad things about you? If you think people every say bad things about you, put an X on the red circle. If you think people never say bad things about you, put an X on the blue circle.
- flag Are you pretty good at everything, or just a few things? If you are pretty good at everything, put an X on the red circle or, if you are good at just a few things, put an X on the blue circle.

heart

Do you always have good dreams, or do you sometimes have bad dreams? If you always have good dreams, put an X on the red circle or, if you sometimes have bad dreams, put an X on the blue circle.

umbrella

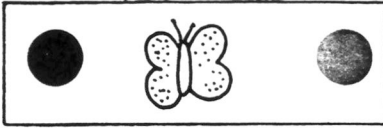
When you cut yourself, do you get scared and feel sick, or do you pay no attention to it? If you get scared and feel sick when you cut yourself, put an X on the red circle. Or, if you pay no attention to it if you cut yourself, put an X on the blue circle.

Name: First _____ Last _____ Boy Girl

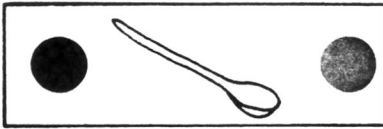
Age _____ Grade _____ Teacher _____ School _____ Date _____
Years Months

Start here

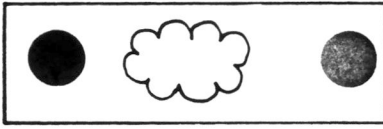
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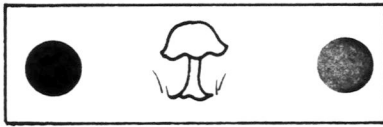
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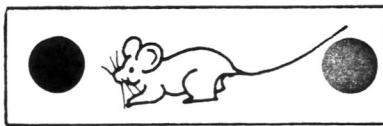
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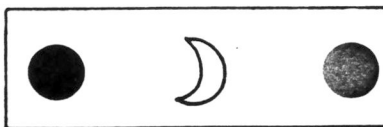
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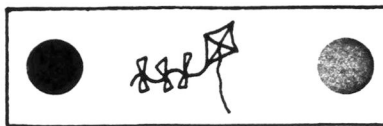
8



9



10



11



12



13



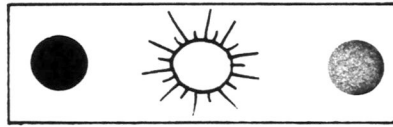
14



15



16



17



18



19



20



Raw Score

Standard Score

APPENDIX D
TIMELINE OF EVENTS

TIMELINE

PREPARATION

Teacher training for
Administration of
CAS (Child Anxiety
Scale)

CHLOC (Children's
Health Locus of
Control Scale)

*Teacher training
for SMP (Stress
Management Program
Lowenstein's stress
tapes for children
6-12 years of age
Finger stress meters
as motivators

BASELINE

Pre-testing
Anxiety level
Health Locus
of Control

INTERVENTION

Weeks 1-4

*Presentation
of SMP (18-
30 min)
(M,W,F)

**Regularly
scheduled
activities

TERMINATION

Posttesting
Anxiety level
Health Locus of
Control

*Teacher Discussions
of SMP with
Investigator

FOLLOW-UP

Sharing of results
with principal and
teachers

Presentation of
tapes for school
and discussion
with teachers

*Refers to intervention classrooms only

**Refers to control classrooms only

APPENDIX E
EXPECTATIONS OF TEACHERS

EFFECTIVENESS OF A STRESS MANAGEMENT PROGRAM IN THE CLASSROOM

Expectations of Participating Teachers:

1. Attendance in discussion and participation in training for administration of assessment tools to be given pre- and post-intervention.
2. Attendance in discussion and participation in training sessions for no more than five hours, prior to initiation of Stress Management Program (SMP). Teachers of control group will be given the opportunity to receive training after data has been collected.
3. Commitment not to share information with other teachers or any others so as to jeopardize the outcomes of this study. For example, those involved with the intervention group are not to discuss any intervention with those involved with the control group and vice versa. Please do not take the information anywhere or to anyone in the community. Casual conversation can be devastating to the outcome.
4. Willingness to share general information with the investigator as to the socioeconomic, social, psychological, demographic make-up of the groups.
5. Administration of the Child Anxiety Scale and the Children's Health Locus of Control Scale before and after intervention. Administration time for the Child Anxiety Scale is approximately 20 minutes utilizing tape recorded instructions. Administration time for the Children's Health Locus of Control Scale is approximately 15 minutes which includes a written practice session.
6. Willingness to use the Stress Management Program according to guidelines for a period of 4 weeks.
7. Willingness to make use of consultation services of investigator during the intervention program.

Benefits for Participating Teachers

1. Personal relaxation training
2. Learning new educational instructional methods and materials
3. Option to keep one set of program materials for future use
4. Knowledge of effectiveness of the program

APPENDIX F
EXPECTATIONS OF STUDENTS

EFFECTIVENESS OF A STRESS MANAGEMENT PROGRAM
IN A CLASSROOM

Expectation of Participating Students

1. Complete the Child Anxiety Scale and the Children's Health Locus of Control Scale
2. Participate in the Stress Management Program

Benefits for Participating Students

1. Learning relaxation skills for personal use and in the future. The control group will also have this opportunity if the teacher chooses to use the program.

APPENDIX G
STRESS MANAGEMENT PROGRAM SCHEDULE

SCHEDULE AND INSTRUCTIONS FOR INTERVENTION GROUP
PARTICIPATING THE STRESS MANAGEMENT PROGRAM

Instructions

1. Prior to beginning, please post a "DO NOT DISTURB" sign on your room door and notify the office of your need for uninterrupted time.
2. Please try to maintain a calming environmental temperature and atmosphere.
3. Set up tape player and put in appropriate tape for the session.
4. Please say to the class "It's time to relax for today. Put your thermometers on the tips of your middle fingers. What does the thermometer tell you today? Let's listen to the tape and then check your thermometer when it is over. Get ready. Let's begin."
5. When the tape is over, please stop the tape. "Class, check your finger thermometers. Have the temperatures changed? It's time to put the finger thermometers away in a safe place for next time." (You may collect them if you doubt that the students can keep them day to day.)

Schedule

Monday, May 11:	Tape 202H Side 1 - Progressive Relaxation for Children (19 minutes)
Wednesday, May 13:	Tape 202H Side 2 - Body Awareness (29 minutes)
Friday, May 15:	Tape 204H Side 1 - Relaxation through Breathing (28 minutes)
Monday, May 18:	Tape 204H Side 2 - Self-Directed (19 minutes)
Wednesday, May 20:	Tape 205H Side 1 - A Journey Inside Me (19 minutes)
Friday, May 22:	Tape 205H Side 2 - World Around Me (18 minutes) (May be done Thursday if Field Day is May 22)
Monday, May 25:	Repeat Tape 202H Side 1
Wednesday, May 27:	Repeat Tape 202H Side 2
Friday, May 29:	Repeat Tape 204H Side 1
Monday, June 1:	Repeat Tape 204H Side 2
Wednesday, June 3:	Repeat Tape 205H Side 1
Friday, June 5:	Repeat Tape 205H Side 2
Monday, June 8:	Posttest