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**PROGRESSIVE MUSCLE RELAXATION**

**Progressive muscle relaxation:**

**A stress management program for nursing students**

**Susan Cunningham**

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### Abstract

The purpose of this study was to determine whether or not the use of progressive muscle relaxation reduced the physical complaints of stress among nursing students. This pilot quasi-experimental study used a pretest-posttest design with a convenience sample of five volunteers. Data were collected by the use of the stress-related complaint scale. In this 5-week intervention, students learned about stress management and practiced the use of this progressive muscle relaxation technique as a method for reducing the stress in their life. Stress-related symptoms rated as irritating or higher (3 on a 5 point scale) were tension headaches (3.2), frequent colds (3.6), insomnia (3.8), fatigue (3.8), and anxiety (3.6). After the intervention, only four symptoms were rated this high, anxiety (3.0), frequent colds (3.0), insomnia (3.0), and fatigue (3.4). Results suggest that stress management programs for nursing students may be an important component of nursing education.

### **Progressive muscle relaxation: A stress management program for nursing students**

Stress is a fact of life in the American society. As individuals in this society, how we manage stress may determine our state of well-being. Research now indicates that approximately 70 to 80 percent of all disease and illness is stress-related, most notable coronary heart disease, cancer, the common cold, and migraines. Currently the leading causes of death are dominated by what are referred to as lifestyle diseases. As such, any attempt by the individual to reduce or manage the stressors in their lives may lead to a slow-down or reversal of illness (Seaward, 1997).

Stress has many meanings. Noted researcher, Richard Lazarus (1976) defined stress as a state of anxiety produced when events and responsibilities exceed one's coping abilities, while Selye (1976) defined stress as a non-specific response of the body to any demand placed upon it to adapt, whether that demand produces pain or pleasure. In addition, Rhead (1995) suggested that what is perceived as stress for some individuals might not be for others. However one defined stress, the ability to manage the stress in one's life can determine their state of well-being.

Almost everyone suffers from stress; therefore learning to cope with it is important. Selye (1976) stated that stress is well known and little understood. In his General Adaptation Syndrome Theory, Selye described the body's adjustment to stress as its attempt to maintain homeostasis. Lazarus (1976), suggested that Selye did not acknowledge the individual's perception of stress.

College can be a stressful time for many students, particularly nursing students who come in contact with suffering and dying patients (Lindop, 1993). Stetson (1997) said that only 2% of NLN accredited baccalaureate programs required stress management courses within their curricula. Stetson believed that stress management skills are as important for nursing students to acquire as other fundamental nursing skills, because they can potentially reduce the occurrence of

stress-related pain and illness. Stetson concluded by saying that nurse educators often expected nursing students to effectively apply stress and coping skills to themselves and others without being adequately prepared to do so. It is important that students develop a life-long mechanism to manage their stress.

### **Literature Review**

There is a plethora of literature that supports the concept that stress is linked to illness. Benson is a leading researcher who supports this. He has written extensively on mind-body medicine. Mind-body medicine is described as the power of the mind to heal the body by improving the person's attitude and the effect this has on the immune system (Benson, 1979). Benson supported the value of the biobehavioral intervention of relaxation-based techniques (1979). Benson and McKee (1993) suggested that biobehavioral interventions may reduce pain, lower blood pressure, reduce medication requirements, and alleviate symptoms of premenstrual syndrome, menopause, and psychosomatic disorders.

Lindop (1993), Godbey and Courage (1994), Beck and Srivastava (1991), and Rhead (1995) all suggested that student nurses experience stress. Lindop and Godbey and Courage focused on the educational environment as the cause of the stress. Rhead carried this one step further by suggesting that not only is the student experiencing stress but that this stress can carry over to the student's professional career if the cycle is not identified and broken while the nurse is still a student. Rhead supported Benson's (1979) concept that there is an already established link between stress and illness and that stress for students can be manifested by physiological and psychological suffering.

Beck and Srivastava (1991) investigated the perceived level and sources of stress in nursing students in the various years of their baccalaureate nursing programs. These authors did

this by identifying the general level of physiological and psychological health, the levels of stress experienced by nursing students, and the areas that are perceived as particularly stressful. The result of their study showed that students experienced high stress levels and that they are at risk for having a physical or psychiatric illness.

Charlesworth, Murphy, and Beutler (1981), Lees and Ellis (1990), and Russler (1991) also agreed that nursing students experience stress as a process of their educational experience. They, along with Godbey and Courage (1994), offered some form of stress management as a coping method for this stress.

Charlesworth, Murphy, and Beutler (1981) assessed the effectiveness of a 10 session, 5 week, group administered stress management program for nursing students. These sessions use a combination of progressive relaxation, deep muscle relaxation, autogenic training, visual imagery, and modified systemic desensitization. These authors used Jacobson's model (Jacobson, 1978) of progressive muscle relaxation and stated that relaxation training was a potentially effective therapeutic procedure for alleviating various forms of tension and anxiety. The relaxation training program indicates that improvement in generalized anxiety consistently occurred with nursing students trained in using the relaxation technique as an active coping skill for managing stress.

Lees and Ellis (1990) studied stressors and coping strategies of nurses. Their study identified stressors encountered by nurses who were still practicing and those who had left the profession. The results of their study formed the basis for a stress management program for student nurses that began in 1988 in North Wales School of Nursing. Their program included general relaxation and assertiveness techniques and discussion groups which foster peer-group support.

Russler (1991) studied the effectiveness of multidimensional stress management training for beginning baccalaureate nursing students. The program incorporated cognitive, physiological, and behavioral approaches. The researcher looked at variables such as state and trait anxiety, reported emotions, self-esteem, and ways of coping, and found no significant differences between stress management and control groups.

Godbey and Courage (1994) suggest implementing a stress management program for nursing students on an individual basis when the student feels overwhelmed and unable to successfully perform in school. They evaluated the effectiveness of relaxation techniques by measuring anxiety, depression, self-esteem, and grades before and after stress management techniques were employed. They concluded that an individualized stress management counseling program reduced the emotional distress of students who perceived themselves as anxious and in crisis.

### **Theoretical Framework**

The theoretical framework of this study is based on Jacobson's model of progressive muscle relaxation (Jacobson, 1978). This model is based on research on muscle tension and techniques to reduce this tension by progressively relaxing groups of muscles. Edmund Jacobson, a physician, first described this technique in the early part of the 20<sup>th</sup> century while doing research at Harvard University. He noted that his patients suffered from a host of physical ailments that shared the symptom of muscle tension. He believed that if he could reduce muscle tension, he could reduce or eliminate his patients' somatic complaints (Jacobson, 1978). With this technique, people are lead through a series of steps in which groups of muscles are first contracted and then relaxed. Jacobson believed that if a comparison between tension and complete relaxation of muscle fibers was recognized by the individual, the awareness would promote a deepened sense of

relaxation, not only in the muscle itself, but throughout the entire body (Seaward, 1997).

Jacobson believed this technique could restore the body's state of physical health.

Jacobson believed that when the body perceives a threat, muscles contract in readiness to combat the threat. Tension is produced from muscle contraction and individuals experience tension when they feel anxious. If tension is allowed to build over time, illness can result from the inability of the body to return to full homeostasis. Removing the tension can eliminate the anxiety, thus helping with the return to homeostasis. It is this full return to homeostasis that Jacobson's technique attempts to achieve (Jacobson, 1978).

Jacobson's technique is both a problem solving and a coping skill tool, and one that any individual can incorporate into one's daily life. His model focuses more on treatment, evaluation, and explanation than on the theoretical construct of relaxation. Past and current research, however, have repeatedly demonstrated the effectiveness of his technique (Titlebaum, 1988).

### **Research Question**

Does the use of progressive muscle relaxation reduce stress-related symptoms among student nurses?

### **Design**

This study measures the effect of a stress management program on self-reported, stress-related complaints. This quasi-experimental study uses a pretest-posttest with a convenience sample of volunteers.

Subjects were obtained on a volunteer basis 3 weeks after the beginning of the semester. The program began a week later and lasted for 5 weeks. Every effort was made to maintain complete confidentiality of subjects and consent was freely given. Subjects consented in writing and were informed they could refuse continued participation at any time without fears of



repercussions. Additionally, this study proposal was submitted to and approved by the Human Subjects-Institutional Review Board at San Jose State University prior to the start of the research for further human subject protection.

Data were collected over the 5 week time period during which they were in the stress management program. At the initial session, volunteers filled out a stress-related complaint scale, heard a lecture on stress and stress management, and practiced the muscle relaxation technique. The posttest was completed at the last session.

### **Intervention**

The intervention was a 5 week stress management program which taught a relaxation technique designed to reduce muscle tension. This was based on Jacobson's (1978) model of progressive muscle relaxation. Each week, the subjects listened to a tape recording of instructions to follow and performed this relaxation technique. At the end of the fifth week, the subjects filled out the stress-related complaint scale again, as a measure of the effectiveness of the intervention for reducing their stress-related complaints.

### **Instruments**

Two instruments were used in this research study. The first instrument was used to gather demographic information on the subjects. The second instrument was a stress-related complaint scale developed by L. John Mason, Ph.D. (1985), published in his book, Guide to stress reduction, and used with his permission. Dr. Mason is the author of several books about stress management and operates the Stress Education Center in Cotati, California. This scale lists a number of stress-related complaints and asks to have each complaint related on a Likert-type scale. This scale was developed specifically to measure the effects of this relaxation technique program to reduce stress related complaints. This scale was slightly modified by the investigator

to reduce the number of items on the complaint list. The scale was based on Dr. Jacobson's research on stress and muscle tension. There was no established values for reliability and validity reported by Jacobson for the scale. This 5 point Likert-type scale ranges from 1= hardly noticeable to 5= incapacitating. An overall mean score was obtained by summing the rating of all the items.

### **Results**

The sample consisted of five student volunteers (N=5). One was Asian, one was African American and the other three were Caucasian. All were single and ranged in age from 19 to 30 years. None had participated in a stress management program in the past and none had ever practiced any stress management technique in the past (See Table 1).

Mean scores for each stress related complaint were computed for both the pretest and posttest as shown on Table 2. Pretest mean scores ranged from 1.0 for diarrhea to 3.8 for both insomnia and fatigue. There were five complaints above 3, the midpoint of the scale: tension headache, frequent colds, insomnia, fatigue, and anxiety.

Posttest mean scores ranged from 1.0 for diarrhea and constipation to 3.4 for fatigue. There were four complaints above 3, the midpoint of the scale: frequent colds, insomnia, fatigue, and anxiety. Of the 16 symptoms, thirteen decreased and three remained the same. The overall mean decreased from 2.5 to 2.0, mildly disturbing.

### **Discussion**

The findings show that stress-related complaints were experienced by baccalaureate nursing students. This is supported by Lindop (1993), Godbey and Courage (1994), Beck and Srivastava (1991), Rhead (1995), Charlesworth, Murphy, and Beutler (1981), Lees and Ellis (1990), and Russler (1991). The stress-related complaints showing the highest ratings were

tension headaches, frequent colds, insomnia, fatigue, and anxiety. These are some of the same complaints that had been reported by other nursing students (Beck & Srivastava, 1991) and also by the general population (Benson, 1979), (Benson & McKee, 1993), and (Jacobson, 1978).

There is a need to explore the possibility of incorporating a stress management program into the baccalaureate education of nursing students as either a seminar of several weeks duration to introduce students to the concepts of stress management or as a core course. At the very least, there is a need to have faculty available to help students manage stressful situations by giving support and positive feedback. According to Stetson (1997), few baccalaureate programs require stress management courses within their curricula. Stetson believed that stress management skills are as important for nursing students to acquire as other fundamental nursing skills. The results of the study by Lees and Ellis (1990) formed the basis for a stress management program for student nurses in North Wales School of Nursing. Russler (1991) and Godbey and Courage (1994) also support the implementation of a stress management program for nursing students.

### **Limitations**

The first and most obvious limitation to the study was the small nonrandom sample size which limits the external validity of the study. Results can not be generalized to other populations. The study should be replicated with a different, larger, and random population.

In addition, this study was conducted in the midst of the flu season which could account for the rating of some of the stress related complaints. The study concluded as the flu season was coming to an end. These complaints could have been related to the flu season and not necessarily to stress per se. While Benson (1979) believes that most illness is stress related, not everyone accepts this concept.

Finally, there was no control group used in this study. Therefore, it is difficult to know how these scores would compare to other populations at the university or to the general population who knew about stress management techniques but did not use them.

### **Conclusion**

The study suggests that the use of a stress management technique may reduce the amount of stress-related complaints experienced by nursing students. Nursing programs should consider interventions to assist students with management of stress-related complaints.

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**Table 1****Demographics**

<b>Demographic data</b>	<b>Result</b>
<b>Marital status</b>	
Single	5
Married	None
Divorced	None
<b>Race</b>	
Caucasian	3
Asian	1
African-American	1
<b>Age</b>	
Range	19-30 years
Prior participation in stress management class	None
Prior practice of stress management technique	None

**Table 2****Mean scores of pretest and posttest**

Condition	Pretest mean	Posttest mean
Tension headache	3.2	2.4
Muscle cramps	2.2	2.0
Back pain	2.0	2.0
Migraine headache	2.8	1.8
Jaw tension	2.8	2.0
Stomach pain	2.2	1.6
Constipation	1.6	1.0
Diarrhea	1.0	1.0
Frequent colds	3.6	3.0
Insomnia	3.8	3.0
Fatigue	3.8	3.4
Overeating	2.2	1.6
Anxiety	3.6	3.0
Depression	1.2	1.2
Forgetfulness	2.6	2.0
Loss of concentration	2.8	2.2
Overall mean	2.5	2.0

Note: Possible scores ranged from 1-5, 1=hardly noticeable, 2=mildly disturbing, 3=irritating,

4=more intense, 5=incapacitating