

TEACHING, AS IT AFFECTS THE ANXIETY LEVEL OF PATIENTS
PRIOR TO GASTROINTESTINAL INTUBATION

A THESIS

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We hereby recommend that the thesis prepared under
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DEDICATION

To my husband, Ray, and my daughters, Lisa and Linda,
this thesis is lovingly dedicated.

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CHAPTER I

Introduction

With the rapid increase in the development of biomedical equipment has come a concomitant increase in procedures. Some of these procedures are invasive, and these may be a possible cause of patient anxiety. One such procedure is gastrointestinal intubation. This procedure is required in certain diagnostic tests and is utilized in the treatment of some gastrointestinal disorders. It has been said that intubation often causes psychological stress (Beland, 1970, p. 763) which may, in turn, be a source of anxiety. Therefore, the nurse must recognize that this state--this feeling of apprehension--which the patient may or may not express verbally, could exist.

Nursing education has long emphasized the need for the nurse to relieve the patient's anxiety prior to gastrointestinal intubation by explaining the procedure beforehand. However, whether explanation and teaching measures actually affect his level of anxiety, or what that level is, is not known with any certainty. These things can best be determined by measuring anxiety levels in a clinical setting on patients scheduled for gastrointestinal intubation.

It was the aim of this research study to determine the effects of teaching by the nurse on the anxiety level of patients prior to gastrointestinal intubation.

Statement of the Problem

The problems undertaken in this comparative experimental study were:

1. To determine if a difference exists, prior to gastrointestinal intubation, in the anxiety levels of patients taught the procedure and those who were not taught the procedure.
2. To determine if demographic characteristics influence the patients' responses as measured by the difference in state and trait anxiety.
3. To elicit the patients' subjective responses after intubation regarding the benefit of prior teaching.

Purposes of the Study

The purpose of this study was two-fold:

1. To determine if teaching by the nurse prior to gastrointestinal intubation affects the anxiety level of the patient before the procedure is done.
2. To determine after the procedure whether the patient thought prior teaching was, or would have been, helpful.

Background and Significance

Anxiety has been described as a normal reaction to a perception of danger. This danger may be real or imagined, and may be experienced physiologically, psychologically, or behaviorally. Persons experiencing anxiety feel apprehensive, uneasy, and have a vague sense of dread. The

intensity of anxiety may range from mild to severe (Brunner, et al., 1970, p. 30).

Gastrointestinal intubation, by its invasive nature, may cause psychological stress or anxiety in the patient, but it has not been determined at what level this anxiety exists. However, many patients regard this procedure as "one of the most disagreeable aspects of the entire hospital experience" (Beland, 1970, p. 763).

The nurse may play a significant role in preparing patients for gastrointestinal intubation. In this role, she may help him overcome his anxieties, and may aid in securing his cooperation during the procedure (Brunner, 1970; Redman, 1972; Hastings, 1973).

The nurse must recognize that the patient may have anxieties regarding this procedure. Therefore, he must be verbally encouraged and allowed to express his feelings (Brunner, et al., 1970, p. 30).

Numerous studies have been done in relation to anxiety and methods of relieving it, but most of these studies were performed with surgical or psychiatric patients. Not much has been written in this regard concerning the gastroenterology patient. However, it has been found that preoperative teaching reduces the anxiety level in the surgical patient (Lindeman and Van Aernam, 1971).

The patient facing intubation may have some of the same fears as the patient facing surgery, i.e., fears of the unknown, pain or discomfort (Carnevali, 1966). Perhaps then, teaching prior to gastrointestinal intubation would have the same beneficial results as preoperative teaching. Thus, the following hypothesis was postulated.

Hypothesis

There is no statistically significant difference in the anxiety levels of patients not taught and those taught, prior to gastrointestinal intubation.

Variables

- I The dependent variable was identified as:
Anxiety levels.
- II The independent variable was:
Teaching.
- III The intervening variables have been identified as:
 - a. Age,
 - b. Sex,
 - c. Ethnic background,
 - d. Educational background,
 - e. Marital status,
 - f. Prior intubation,
 - g. Individual general level of pain tolerance,
 - h. Severity of disease,
 - i. Previous exposure to teaching,
 - j. Drugs,
 - k. Hospital patient vs. out-patient, and
 - l. Type of G.I. study done.

Definition of Terms

For the purpose of this study, the following definitions have been utilized.

Gastrointestinal intubation is the passage of a single or double lumen tube through the mouth or nose into the stomach or duodenum.

Anxiety is the state of worry, apprehension, dread, or uneasiness (Munn, 1966, p. 607).

Teaching is the process of briefly instructing a patient in what will take place during a procedure and offering a simple explanation of the steps. Teaching also involves direct verbal interaction between the nurse and patient (Hyman, 1974, p. 24).

Mentally competent signifies that there are no known or overt psychiatric disorders present.

Limitations

This project was limited to only those persons scheduled for gastrointestinal intubation at one hospital. These patients were scheduled either for pancreatic function studies or gastric analysis. The number of participants in this project was limited by the number who were scheduled for intubation during a specific time frame and to one researcher. The site for teaching was governed by the available space in the out-patient clinic of the hospital, and only mentally competent adults were included in the study.

Delimitations

The amount of time allowed for teaching and testing for each patient was one hour prior to gastrointestinal intubation;

(1) teaching time--thirty minutes and (2) testing time--thirty minutes.

Assumptions

Several assumptions were made. These included:

1. Patients participating in this study would not have any knowledge of the true purpose for the testing prior to the intubation.
2. All participants would have previously consented to the procedure prior to arrival at the laboratory and may have received some type of information regarding the procedure from the physician.
3. The nurse was qualified to teach a patient, and was able to communicate with him at his level of understanding.
4. Anxiety levels can be measured by the State-Trait Anxiety Inventory.

Summary

Even though various authors have stated that teaching prior to gastrointestinal intubation reduces anxiety, there is little or no documentation of this statement. It has been found, however, that

preoperative and postoperative anxiety has been reduced by teaching the surgical patient.

The primary purpose of this study was to determine if teaching by the nurse, prior to gastrointestinal intubation, affects the anxiety level of patients prior to this procedure, as measured by the State-Trait Anxiety Inventory. This study was limited to those adults undergoing intubation at one clinic for pancreatic function and gastric analysis.

Overview of Following Chapters

A discussion of some of the studies conducted in the surgical setting regarding preoperative and postoperative anxiety and the benefits of teaching are presented in Chapter II, "Review of Literature." Chapter III, "Procedure for Collection and Treatment of Data," reveals: (1) the setting and population for the study, (2) discussion of the State-Trait Anxiety Inventory as a tool for measuring anxiety levels, (3) experimental and control group methodology, and (4) procedure for treatment of data. Chapter IV, "Analysis of Data," presents the findings and their interpretation utilizing statistics. Chapter V, "Summary, Conclusions, Implications and Recommendations": (1) summarizes the study, (2) presents the conclusions and significant elements derived, and (3) offers recommendations for further research.

CHAPTER II

Review of Literature

Little consideration has ever been paid to the anxiety experienced by the patient during intubation for gastrointestinal studies. However, various parameters of anxiety have been evaluated in surgical studies. The literature reviewed encompasses the findings from some of these studies and the role of the nurse in alleviating this anxiety.

Anxiety in the Surgical Patient

Carnevali (1966) reported in her article, "Preoperative Anxiety," the findings from three studies which were undertaken to determine what preoperative patients feared. This was done by means of interviews and self-reports. It was revealed that patients feared pain and discomfort most. Fear of the unknown was found to be the second most common fear. Unfortunately, no statistical analysis of the data was presented.

The manifestations of anxiety experienced by patients prior to surgery were studied by Graham and Conley (1971). The ultimate purpose of their study was:

...to aid in realistic assessment of manifestations of anxiety and of the common sources of anxiety experienced by surgical patients, in order that nursing measures, especially information and support, may be based more on actual needs as experienced by the patient than on subjective estimates of how the patient probably is feeling (p. 113).

The criteria used in the evaluation of anxiety was a list of twenty-six signs or behaviors described in the field of physiology,

psychosomatic medicine, and psychiatry as manifestations of fear and anxiety. Three examples of such manifestations are; (1) "systolic blood pressure increased 10 mm. Hg. over 'basic' pressure," (2) "expression of fears verbally and specifically," and (3) "description of tension or inability to relax in hospital." (Graham and Conley, 1971, p. 115.)

These authors found that a rise in systolic blood pressure in the preoperative period, as compared with the postoperative period, was a statistically significant indicator of anxiety. The subjective responses elicited during the preoperative and postoperative visits to the patient by the researcher were the most helpful and frequently occurring indicators of his anxiety. Approximately fifty percent of the subjects stated that they felt very anxious or frightened the evening prior to surgery. No significant differences in levels of anxiety were found in relationship to age. There were fifty women and twenty men in the study. The proportion of women manifesting higher levels of anxiety (fifty-eight percent) was greater than that of men (twenty-five percent).

Schmitt and Wooldridge (1973) studied the influence of psychological preparation of patients prior to surgery. They conducted a one-hour small group session with preoperative patients in an experimental group the evening prior to surgery, to allow patients to discuss their concerns and fears. Patients were given information regarding what to expect and how they could aid in their recuperation. The morning of surgery, each patient was seen alone, at which time he was encouraged to verbalize any anxiety he might have. One aspect of the hypothesis tested was that this extra preparation would decrease

stress caused by tension and anxiety. A verbal questionnaire was given at the time of discharge which asked the patient to rate his anxiety the morning of surgery as compared with the previous evening. In the experimental group, forty per cent said "less," twenty per cent said "same," and forty per cent said "more." In the control group, zero per cent said "less," twenty per cent said "same," and seventy-two per cent said "more." The authors, therefore, concluded that nursing intervention did decrease preoperative stress. Findings of higher anxiety levels the evening prior to surgery support the original findings of Graham and Conley (1971).

The effects of structured and unstructured preoperative teaching were compared in relation to three postoperative outcomes by Lindeman and Van Aernam (1971). These were: (1) tests of ventilatory function, (2) length of hospital stay, and (3) need for analgesics. The control group received unstructured teaching, defined as "the registered nurse teaching what, how, and when she decides" (p. 321). The experimental group received structured teaching, defined as "the registered nurse following a lesson plan previously established and administratively approved for content, method and visual aids" (p. 321). Teaching was done the evening prior to surgery. It was found that the experimental group performed better than the control group in all tests of ventilatory function in the postoperative period. To test the effects of teaching on length of hospital stay, a mean length of stay was obtained for each group. The mean length was significantly less for the experimental group than for the control group. However, there was no significant

difference in the need for analgesics. Therefore, it was concluded that structured preoperative teaching is effective.

The effects of preoperative visits by operating room nurses on the anxiety level of the patient in the preoperative and postoperative period have also been studied (Lindeman and Stetzer, 1973). The Palmar Sweat Index was utilized for measuring anxiety levels one hour prior to surgery and twenty four hours thereafter. It was found that the preoperative visit did not affect the anxiety level of the patient prior to surgery. The authors concluded that it did decrease the level of anxiety in the postoperative period for adult patients who had experienced minor surgical trauma.

Bruegel (1971) utilized the Personality and Ability Testing Anxiety Scale Questionnaire (IPAT Anxiety Scale) to determine if post-operative perceptions of pain are associated with preoperative levels of anxiety. This scale, with a minimum anxiety score of zero and a maximum of eighty, measures manifest anxiety. It was administered to eighty-five patients the evening prior to surgery. The scores ranged from four to sixty, but neither raw data nor the mean was revealed. In order to determine the amount of pain perceived by the subjects postoperatively, The Chambers-Price modified pain scale was used. "This scale includes objective physical evidence (pulse and respirations) plus subjective patient reports and 'objective' observer ratings" (p.27-28). The author found no relationship between anxiety, as measured by the IPAT Anxiety Scale, and postoperative pain perception. It was concluded that characteristic anxiety did not influence pain perception. "

Whether situational (environmentally-induced) anxiety exerts an influence on the postoperative perception of pain is yet to be seen" (p. 29).

To measure both types of anxiety, characteristic as well as situational, the State-Trait Anxiety Inventory was developed (Spielberger, Gorsuch, and Lushene, 1970). Characteristic, or trait anxiety, refers to relatively stable individual differences in proneness to respond to threatening situations. Situational, or state anxiety, refers to a transitory emotional state or condition, and is characterized by subjective, consciously perceived feelings of tension and apprehension and increased autonomic nervous system activity (p. 3). Mean state and trait anxiety levels were reported on a sample of 110 general medical-surgical patients whose mean age and educational level were 55 years and tenth grade. Based on a scale of 20 (the lowest possible level of anxiety) to 80 (the highest possible level), the mean trait anxiety of the subjects was 41.3, while the mean state anxiety was 42.68. Unfortunately, state anxiety was not measured under varying conditions of stress, i.e., prior to surgery. The study did reveal that there was a significant negative correlation between level of educational achievement and trait anxiety scores. "...Whether or not people who differ in trait anxiety will show corresponding differences in state anxiety depends upon the extent to which a specific situation is perceived by a particular individual as dangerous, or threatening..." (p. 3).

In an attempt to identify the specific factors and events which persons perceive as stressful aspects of hospitalization, a list of forty-five stress-producing events was developed (Volicer, 1973). This

list, however, was not utilized to test hospitalized patients. Instead, respondents were made up of a convenience sample of medical and non-medical groups. They were asked to rate each item in terms of the relative amount of readjustment needed to cope with each stress-producing event. An "inadequate explanation of treatment" was among the items rated as most stressful. Volicer concluded that "some of the aspects of hospitalization which are perceived as very stressful are things which are amenable to change by changing staff behaviors" (p. 497). Thus, nurses are "challenged to come to know each patient...; and to the extent it is possible, to perceive his needs and act to meet them..." (Carnevali, 1966, p. 1538).

Role of the Nurse in Alleviating Anxiety

The opportunities for alleviating anxiety are unlimited in relation to the people for whom the nurse has a responsibility (Pohl, 1969). The nurse must be aware that some procedures may increase the patient's anxiety level and measures should be taken to prevent this. The passage of a naso-gastric tube before the patient was awake and thus unable to cooperate (Carnevali, 1966) is cited as an excellent example of how the nurse can increase a patient's anxiety level.

Carnevali (1966) pointed out that the ways in which nurses thought they had alleviated patients' anxiety differed significantly from those the patients listed. Following, in descending order, is the list of ways through which patients said the nurse had relieved their anxiety: reassurance and friendliness, nursing skills and competence,

concern and interest, willingness to listen, and decreasing the unknown. The nurses, on the other hand, listed the following in descending order: decreasing the unknown, reassuring the patient, listening to the patient, showing concern and acceptance, conveying a feeling of security through competence, and diversions.

To alleviate anxiety, the nurse must employ skills of observation, learn what the patient fears, and act effectively. One measure which may be taken to alleviate anxiety is patient teaching. Suitable circumstances exist in a variety of nursing settings to accomplish this objective (Pohl, 1969). But too often, patients are left just sitting. Many harbor thoughts as "I wonder what will happen to me?", "When?", and "How long will the test take?" (Capp, 1973, p. 481). The nurse who teaches is able to demonstrate to patients the "human qualities of approachability--as one who listens" and cares (p. 483). This may serve to decrease the patient's stress, and thus relieve his anxiety.

Summary

Anxiety, a normal reaction to a perception of danger, may well be present in varying quantities in a patient prior to surgery. This same anxiety may exist prior to gastrointestinal intubation. Much research remains to be done in evaluating the gastroenterology patient--his perceptions, his stresses, and his anxieties. All need to be more fully evaluated.

Studies conducted in the surgical setting report that teaching prior to a procedure has beneficial effects, both preoperatively and post-operatively.

The anxiety level of patients prior to gastrointestinal intubation is sometimes not considered by the nurse in giving nursing care. Measuring these levels and reporting the findings may serve to increase the nurse's awareness of how the patient feels prior to intubation. With this knowledge, care can be planned accordingly.

The following chapter outlines the method utilized to determine the anxiety levels of patients prior to gastrointestinal intubation, and the effect of teaching on these levels.

CHAPTER III

Procedure for Collection and Treatment of Data

The following methodology was utilized, in order to determine the effect of teaching on anxiety levels of patients prior to intubation. It was necessary to find a tool which would accurately measure these levels and to select a group of persons upon whom the most accurate data could be obtained. All subjects chosen to participate in this study were verbally informed of the study's purpose, and none refused. Anxiety levels were obtained on all participants in both the experimental and the control groups, using the State-Trait Anxiety Inventory. Teaching was done by the investigator. The testing and teaching procedures were limited to a one-hour period for each patient.

Setting

This research project was carried out in the Gastroenterology Department of Scott and White Clinic, Temple, Texas. A small private office located across the corridor from the laboratory where the intubation procedures were done was utilized for teaching and testing. Permission for the study was obtained prior to initiation of the study (Appendix A).

Population

Hospital patients and out-patients scheduled for pancreatic function studies or gastric analysis, between May 13, 1975, and June 20,

1975, were included in this study. A total of twenty-eight persons were scheduled for these procedures. However, only twenty-four persons were selected (fourteen males and ten females). Four subjects were excluded because they either did not meet the criteria for participation or did not tolerate the scheduled procedure.

Criteria for participation included the following:

1. Must be scheduled for pancreatic function study, gastric analysis or Acid Fast Bacillus test (A.F.B.). No patient admitted during this period was scheduled for A.F.B.
2. Must be a mentally competent adult.
3. Must not be in any acute distress.
4. Must be able to speak and read English.

Of the four persons dropped from this study, one was not considered mentally competent; one became acutely ill; one (not taught, pre-tested) became upset, following the scheduled procedure, burst into tears and stated that she did not want to complete the testing; and one did not speak or read English.

Tool

To evaluate state and trait anxiety levels, the State-Trait Anxiety Inventory (developed by Spielberger, Gorsuch, and Lushene, 1970) was used. There are two parts to this test; each are entitled, "Self Evaluation Questionnaire" (Appendix B). However, the first part

(STAI Form X-I) measures state anxiety, which is a transitory state of anxiety; while the second portion (STAI Form X-II), measures trait anxiety, which is a basic personality characteristic (Spielberger, 1966, p. 13).

Both forms are designed to be self administered and have no time limitations. However, college students generally require six to eight minutes to complete each test, and less than fifteen minutes to complete both. Less educated persons may require ten to twelve minutes per test, and twenty minutes to complete both. The range of possible scores on each test varies from a minimum of 20 (least anxiety) to a maximum of 80 (highest anxiety) (Spielberger, Gorsuch, and Lushene, 1970, p. 4).

Reliability

Test-retest reliability correlations for A-trait scales is relatively high. Ranges were from .73 to .86 in a study involving undergraduate college students who were tested on three occasions under varying circumstances. The A-state scale was low, as might be expected when the circumstances of stress vary. The range was from .16 to .54.

"Given the transitory nature of anxiety states, measures of internal consistency such as the alpha coefficient would seem to provide a more meaningful index of the reliability of A-state scales than test-retest correlations. Alpha coefficients for the STAI scales were computed by formula K-R 20 as modified by Cronback (1951) for the normative" data obtained on 3 large groups of students.

These reliability coefficients ranged from .83 to .92 for

A-state and from .86 to .92 for A-trait. Thus, the internal consistency of both A-state and A-trait is reasonably good (Spielberger, Gorsuch, and Lushene, 1970, pp. 9-10).

Validity

Concurrent validity of the STAI A-trait scale has also been tested. Correlations between this test and the IPAT Anxiety Scale (Cattell and Scheier, 1963) and the TMAS (Taylor Manifest Anxiety Scale) are moderately high -- .75 to .83. It has been concluded that the three tests are alternate measures of A-trait anxiety.

Construct validity of the A-state scale is evidenced in the findings of a study involving 977 undergraduate college students under NORM conditions and under EXAM conditions. The mean scores under each condition were reported for each of the 20-item A-state scale and for each separate item. "Critical ratios for the differences between these means and point-biserial correlations" were reported. The mean score under EXAM conditions (males, 54.99 and females, 60.51) was considerably higher than under NORM conditions (males, 40.02 and females, 39.36). "All but one item significantly discriminated between these conditions for the males, and all of the items were significantly higher in the EXAM condition for the females." (Spielberger, Gorsuch, and Lushene, 1970, pp. 10-11).

Validity also rests on the participant's understanding of the instructions on each test. That is, he must be aware that he should answer on one test how he feels "now", and on the other one "how he generally feels." It is recommended that state anxiety be measured

first, since this can be influenced by the "emotional atmosphere that may be created" if the trait scale is given first (Spielberger, Gorsuch, and Lushene, 1970, p. 4). Provisions for these recommendations were ensured by the researcher.

Data Collection

All subjects in this research study were verbally informed of the purpose and asked to participate (Appendix C). Willingness to participate was evidenced by the participant's taking the State-Trait Anxiety Inventory and answering the post-procedural question (Appendix D).

A table of random numbers was used to determine assignment of the twenty-four subjects into the experimental and control groups.

Experimental Group

The experimental group, twelve participants, was divided by random assignment into sub-groups of six--Group A and Group B. Each participant in the experimental group was exposed to the experimental teaching plan. (Appendix B)

Group A (Taught and Pretested)

Group A consisted of six males and no females. Utilizing the teaching plan (Appendix E), the laboratory procedure was explained to each participant, and any questions regarding it answered. Following the teaching period, state anxiety was measured. The participant then proceeded to the laboratory for the procedure. Afterward, state and trait anxiety levels were measured. Following the testing, one question was asked: "Did the teaching prior to the procedure help you?"

Group B (Taught and Not Pretested)

Group B consisted of two males and four females. Utilizing the teaching plan, the laboratory procedure was explained to each participant and questions regarding it answered, as with Group A. However, state anxiety was not measured following the teaching. Instead, participants proceeded to the laboratory. Because the questionnaire focused on the individual's personal feelings, it was felt it might influence his anxiety level. For this reason, state anxiety was not measured on half of the experimental group prior to the laboratory procedure. Following the procedure, however, state and trait anxiety levels were measured. After the testing, participants in this group were asked the same question as those in Group A: "Did the teaching prior to the procedure help you?"

Control Group

As with the experimental group, the control group of twelve participants was divided by random assignment into two sub-groups of six: Group C and Group D. None of the participants in the control group were exposed to the experimental teaching plan.

Group C (Not Taught but Pretested)

There were two males and four females in Group C. Each participant was given the state anxiety test prior to the laboratory procedure. Following the procedure, state and trait anxiety levels were measured.

One question was then asked: "Would teaching prior to the procedure have helped you?"

Group D (Not Taught and Not Pretested)

In Group D, there were four males and two females. Participants were not seen by the researcher until after the laboratory procedure. State anxiety was not measured beforehand for the reason previously discussed in Group B. Following the procedure, state and trait anxiety levels were measured. The same question asked of Group C was asked of those in this group: "Would teaching prior to the procedure have helped you?"

Demographic data (Appendix F) was obtained on all participants following the post-procedural question. This was done last, since information regarding prior intubation and teaching was being sought, and it was felt that a discussion of this nature might have affected his anxiety level.

Treatment of Data

Pre-procedural scores for state anxiety levels were listed for each person separately in the control group (Group C) and experimental group (Group A). A mean was obtained for each group. These were compared by the paired Student-t distribution at a level of significance of .05,

The Student-t distribution was used to determine if the observed difference in two sample means could be attributed to chance or if it

was indicative of the fact that the samples came from populations with unequal means (Freund 1973). The t-test is used to compare the differences in the means of small samples, $N \leq 25$ (Phillips and Thompson, 1967). The formula for the Student-t test is:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sum (x_1 - \bar{x}_1)^2 + \sum (x_2 - \bar{x}_2)^2}{n_1 + n_2 - 2} \cdot \left(\frac{1}{x_1} + \frac{1}{x_2} \right)}}$$

In determining whether or not the differences in the sample means were significant beyond the possibility of chance, the 0.05 level was chosen. This means that there would be five chances in a hundred that the findings could be attributed to chance alone (Treece and Treece, 1973, p. 214). The .05 and .01 levels of significance are the levels used most often to test hypotheses in research studies (Phillips and Thompson, 1967, p. 154).

The mean pre-procedural and post-procedural state anxiety scores were obtained for the control group (Group C). These mean scores were compared using the Student-t distribution. The same test was used to compare the mean pre- and post-procedural scores in the experimental group (Group A).

Post-procedural state anxiety scores were listed for each of the control and experimental groups (Groups A, B, C, and D). The mean scores of the control groups (Groups C and D) were compared using the

Student-t distribution. The experimental groups (Groups A and B) were treated in an identical fashion. In addition, Group C was compared with Groups A and B. Group A was compared with Group D; and Group D was compared with Group B. Post-procedural state anxiety scores of all subjects in the control group (Groups C and D) were compared to those of all subjects in the experimental group (Groups A and B) using the t distribution. Post-procedural trait anxiety scores were compared by sub-groups, as was done with post-procedural state anxiety scores. Group C was compared with Groups D, A, and B; Group A, with Groups B and D; and Group D with Group B. The t distribution was also used to compare post-procedural trait anxiety scores of all subjects in both the control group (Groups C and D) and the experimental group (Groups A and B).

Pre- and post-procedural state and trait anxiety scores were listed for the control and experimental groups (Groups A, B, C, and D). To determine the interaction of the variables, analysis of variance was done on all post-procedural state and trait anxiety scores.

Demographic data, as well as the studied intervening variables, was outlined for the control and experimental groups. State-trait post-procedural anxiety scores were listed for comparison.

Summary

A sample of twenty-four participants was chosen from persons scheduled for gastrointestinal intubation in the clinic of one hospital. The sample consisted of mentally competent adults who were not in any

acute distress, and on whom the most accurate data could be obtained. The State-Trait Anxiety Inventory was utilized for both pre- and post-testing of anxiety levels. Both the experimental and control groups were divided into two sub-groups (experimental: Groups A and B; control: Groups C and D). Group A was taught and pretested. Group B was taught, but was not pretested. Group C was not taught, but was pretested. Group D was posttested only. Pre- and posttest findings were compared statistically.

The following chapter describes the statistical analysis of the data obtained.

CHAPTER IV

Analysis of Data

A group of twenty-four persons, fourteen males and ten females, participated in this research project. The mean age was fifty-one years, and the mean educational status was that of an 11.6 grade level. Sixty-three percent said they had never undergone intubation, while ninety-three percent said they had not received prior teaching regarding the procedure. Almost three fourths were out-patients (seventy-one percent). Thirteen were scheduled for gastric analysis and eleven for pancreatic function studies.

To test the null hypothesis: There is no statistically significant difference in the anxiety levels of patients not taught and those taught, prior to gastrointestinal intubation, the following statistical analysis of the obtained data is presented.

Statistical Analysis of Data

Pre-procedural state anxiety scores were measured immediately prior to gastrointestinal intubation on two groups of patients--six not taught (Group C) and six taught (Group A) prior to the procedure. The mean anxiety level of the control group was 46.5, while that of the experimental group was 43.8. Thus, the mean state anxiety scores of these two groups was not different statistically. The mean anxiety level of all twelve subjects prior to intubation was 45.17. (Table I)

TABLE I

PRE-PROCEDURAL STATE ANXIETY SCORES

Control Group C		Experimental Group A	
1.	31	1.	50
2.	57	2.	37
3.	58	3.	46
4.	47	4.	43
5.	58	5.	55
6.	28	6.	32
	$\bar{x}=46.5$		$\bar{x}=43.8$
Total $\bar{x} = 45.17$			

$t=.408$ 10 df

$F=2.67$ 5 df

Not significant at: $\alpha=0.05$ level

Spielberger, et al. (1970) found the mean state anxiety level of general medical-surgical patients not tested under conditions of stress was 42.68. Therefore, the findings of this study demonstrate that the state anxiety level of persons facing intubation, whether taught or not taught, are comparable to the level found in medical-surgical patients, in general.

Pre-procedural state anxiety scores were compared with post-procedural scores in the control group (Group C). A similar comparison was made within the experimental group (Group A), (Table II)

The pre-procedural mean anxiety score for Group C was 46.5 and the post-procedural mean score was 49.8. In the experimental group (Group A), the pre-procedural mean was 43.8 and the post-procedural mean was 41.7. The entire mean state anxiety of all twelve subjects prior to intubation was 45.17, while the post-procedural state anxiety mean was 45.75. Thus, the pre- and post-test anxiety scores are almost identical.

To determine if there was a difference between the pre-procedural state anxiety scores and the post-procedural scores between the two groups (Groups C and A), further comparisons were made. No statistically significant differences were found in the pre- and post-procedural anxiety scores of Group A and Group C. (Table II)

Following intubation, state anxiety scores were also obtained on subjects in the other two sub-groups--control Group D and experimental Group B. The post-procedural state anxiety scores for all twenty-four subjects are shown in Table III. To determine if there was a statisti-

TABLE II

STATE ANXIETY SCORES

Compare Pre-Procedural With Post-Procedural

Control Group C			Experimental Group A		
	Pre-	Post		Pre-	Post-
1.	31	41	1.	50	50
2.	57	55	2.	37	32
3.	58	39	3.	46	53
4.	47	52	4.	43	41
5.	58	65	5.	55	39
6.	28	47	6.	32	35
	$\bar{x}=46.5$ $s=13.84$	$\bar{x}=49.8$ $s=9.64$		$\bar{x}=43.8$ $s=8.43$	$\bar{x}=41.7$ $s=8.287$

- (1) Pre-procedural C with post-procedural C: $t=.481$ $F=2.06$
- (2) Pre-procedural A with post-procedural A: $t=.435$ $F=1.033$
- (3) Post-procedural C with post-procedural A: $t=1.560$ $F=1.36$

Not significant at: $\alpha = .05$ level.

TABLE III

POST-PROCEDURAL STATE ANXIETY SCORES - ALL GROUPS

Control Groups			Experimental Groups		
Group C		Group D	Group A		Group B
1.	41	43	1.	50	40
2.	55	45	2.	32	45
3.	39	20	3.	53	44
4.	52	45	4.	41	20
5.	65	41	5.	39	45
6.	47	31	6.	35	20
$\bar{x}=49.8$ $s=9.64$		$\bar{x}=37.5$ $s=10.035$	$\bar{x}=41.7$ $s=8.42$		$\bar{x}=35.7$ $s=12.275$
Control $\bar{x}=43.67$			Experimental $\bar{x}=38.66$		
Total Group $\bar{x}=41.17$					
Comparison of:					
**Group C with D:			t=2.169	F=1.083	
* " C " A:			t=1.56	F=1.35	
** " C " B:			t=2.21	F=1.621	
" A " B:			t= .99	F=2.194	
" A " D:			t= .79	F=1.466	
" D " B:			t= .28	F=1.496	
" C&D " A&B:			t=1.123	F=1.182 22 df	
			t,df=10	F,df=5	

** Sig. @ .05 level

* Sig. @ .10 level

cally significant difference in the series, a comparison was made of various combinations of the sub-groups:

- (1) Group C with Group D
- (2) Group C with Group A
- (3) Group C with Group B
- (4) Group A with Group B
- (5) Group A with Group D
- (6) Group D with Group B

There were statistically significant findings (using the 1-tail t-test at the 0.05 level, 10 df). The control Group C (not taught, pre-tested) had a higher mean state anxiety score ($\bar{x}=49.8$) following gastrointestinal intubation than did either control Group D ($x=37.5$) (not taught, not pretested) or experimental Group B ($\bar{x}=35.7$) (taught, not pretested). Of less statistical significance (1-tail test, .10 level) is the higher state anxiety mean score in Group C as compared with experimental Group A ($x=41.7$) (taught, pretested). The control group (Groups C and D) had a mean state anxiety score of 43.67 and the experimental group mean score was 38.66. Compared as groups, these values were not statistically significant. The mean state anxiety level of the twenty-four subjects following intubation was 41.17. This is equivalent to the state anxiety levels reported in general medical-surgical patients ($\bar{x}=42.68$) (Spielberger, et al., 1970).

Trait anxiety scores, measured following intubation, did not differ statistically among any of the four sub-groups:

- (1) Group A ($\bar{x}=41.2$)
- (2) Group B ($\bar{x}=39.7$)
- (3) Group C ($\bar{x}=35.2$)
- (4) Group D ($\bar{x}=44.2$)

The mean trait anxiety of the control group was 39.67, while that of the experimental group was 40.42. The mean trait anxiety score of all twenty-four subjects undergoing gastrointestinal intubation was 40.04 (Table IV). Again, these values are the findings of Spielberger, et al. (1970), in their report on general medical-surgical patients whose mean trait anxiety was 41.3.

A compilation of scores on all twenty-four subjects is listed in Table V. In comparing pre- and post-procedural state anxiety scores with trait anxiety scores, there was a statistically significant finding. Control Group C (not taught, pretested) had a higher post-procedural state anxiety score ($\bar{x}=49.8$) as compared with trait anxiety ($\bar{x}=35.2$), than did any of the other three sub-groups in which the same comparison was made. (As previously discussed and shown in Table III, this group (Group C) had a statistically higher post-procedural state anxiety score than did Groups D and B, but less statistically significant than did Group A.)

This suggested that Group C, which did not receive prior teaching and which was pretested, had a significantly higher state anxiety level following the intubation than did any other group. However, Group D (not taught, not pretested) showed a lower level of post-procedural state anxiety ($\bar{x}=37.5$) than trait anxiety ($\bar{x}=44.2$).

TABLE IV

POST-PROCEDURAL TRAIT ANXIETY SCORES - SUB-GROUPS

Control Groups			Experimental Groups		
Group C		Group D	Group A		Group B
1.	35	40	1.	47	45
2.	41	51	2.	27	25
3.	51	24	3.	35	38
4.	38	54	4.	49	49
5.	24	46	5.	54	55
6.	22	50	6.	35	26
$\bar{x}=35.2$		$\bar{x}=44.2$	$\bar{x}=41.2$		$\bar{x}=39.7$
Control $\bar{X}=39.67$			Experimental $\bar{X}=40.42$		
Total Group $\bar{X}=40.04$					
Comparison of:					
Group C with D: $t=-1.43$ $F=1.024$ 5 df					
" C " A: $t=-.98$ $F=1.048$					
" A " B: $t=.227$ $F=1.407$					
" D " B: $t=.672$ $F=1.249$					
" C&D " A&B: $t=.165$ $F=1.107$ 10 df					
t and F scores - not stat. sig. at .05 level.					

TABLE V

ANXIETY SCORES - COMPILATION OF DATA

CONTROL GROUPS								EXPERIMENTAL GROUPS							
GROUP C				GROUP D				GROUP A				GROUP B			
State		Trait		State		Trait		State		Trait		State		Trait	
Pre	Post			Pre	Post			Pre	Post			Pre	Post		
1.	31	41	35	7.	-	43	40	1.	50	50	47	7.	-	40	45
2.	57	55	41	8.	-	45	51	2.	37	32	27	8.	-	45	25
3.	58	39	51	9.	-	20	24	3.	46	53	35	9.	-	44	38
4.	47	52	38	10.	-	45	54	4.	43	41	49	10.	-	20	49
5.	58	65	24	11.	-	41	46	5.	55	39	54	11.	-	45	55
6.	28	47	22	12.	-	31	50	6.	32	35	35	12.	-	20	26
	$\bar{x}=46.5$	$\bar{x}=49.8$	$\bar{x}=35.2$		-	$\bar{x}=37.5$	$\bar{x}=44.2$		$\bar{x}=43.8$	$\bar{x}=41.7$	$\bar{x}=41.2$		-	$\bar{x}=35.7$	$\bar{x}=39.7$

Comparison of all possible combinations of data were done by analysis of variance, with no statistically significant findings.

Sub-group comparison of state mean anxiety with trait anxiety:

Group C: Pre-State with Trait: $t = 1.57$ $F = 1.621$
 *Post State with Trait: $t = 2.461$ $F = 1.271$ (t sig. at .05 level, 10 df)
 Group A: Pre-State with Trait: $t = .48$ $F = 1.513$
 Post State with Trait: $t = .09$ $F = 1.564$
 Group D: Post State with Trait: $t = -1.10$ $F = 1.201$
 Group B: Post State with Trait: $t = .56$ $F = 1.006$

TABLE VI

POST-PROCEDURAL
COMPARISON OF STATE - TRAIT ANXIETY LEVEL OF CONTROL
AND EXPERIMENTAL GROUPS ACCORDING TO INTERVENING
VARIABLES

	Control (C&D)			Experimental (A&B)		
	N	State	Trait	N	State	Trait
<u>Age</u>						
21-30	0	-	-	1	41	41
31-40	3	43.7	50.3	1	53	35
41-50	2	51.0	31.5	2	42	39.5
51-60	4	45.0	37.3	4	37.3	42.3
61-70	3	37.0	37.7	2	26	26.5
Above 70	0	-	-	2	42.5	50
<u>Sex</u>						
Male	6	38.0	38.8	8	39.4	41.0
Female	6	47.2	42.8	4	37.3	39.3
<u>Ethnic Background</u>						
Anglo	10	46.3	40.6	12	38.7	40.4
Sp. Am.	2	30.5	35.0	0	-	-
<u>Educational Status</u>						
Did not attend H.S.	3	42.0	42.7	3	36.3	39.7
Did not complete H.S.	3	41.7	46.7	0	-	-
Completed H.S.	2	49.5	30.0	5	38	40.2
Attended college	3	47.0	46.0	2	36.5	38.0
Completed college	1	20.0	24.0	2	46.0	44.5
<u>Marital Status</u>						
Married	11	44.09	38.64	9	37.8	36.8
Not Married	1	39.0	51.0	3	41.3	51.3
<u>Prior Intubation</u>						
Once	5	45.6	42.2	4	45.5	43.3
Twice	0	-	-	0	-	-
<u>Previous Exposure To Teaching</u>						
Yes	2	47	46	0	-	-
No	10	43.0	38.4	12	38.7	40.4
<u>Drugs prior to intubation</u>						
Yes	0	-	-	0	-	-
No	12	43.67	39.67	12	38.7	40.4
<u>Hospital patient</u>	2	49.5	30.0	5	44.0	41.2
<u>Out-patient</u>	10	41.2	43.0	7	33.3	39.7
<u>Type of G.I. Study</u>						
Pancreatic Func.	5	47.8	36.6	6	33.2	32.7
Gastric Analysis	7	42.6	39.9	6	44.7	47.5
<u>Out-patient</u>						

Group A (taught and pretested) had an almost equivalent amount of post-procedural state anxiety ($\bar{x}=41.7$) as trait anxiety ($\bar{x}=41.2$).

Group B (taught and not pretested) had a somewhat lower post-procedural state anxiety level ($\bar{x}=35.7$) than trait level ($\bar{x}=39.7$).

Finally, an analysis of variance was done to compare all possible combinations of data. There were no statistically significant differences.

Intervening Variables

In view of the statistical findings, one must ask: Did intervening variables influence post-procedural state anxiety scores, and did the state anxiety test prior to intubation influence the outcome?

Each of the intervening variables will be discussed separately. Table VI presents an overview of these intervening variables. Control and experimental groups are shown with their respective mean anxiety levels. Each of the intervening variables will now be discussed individually.

TABLE VII

AGE

Experimental		Control	
A	B	C	D
58	79	53	54
69	46	44	39
37	60	67	63
29	54	60	39
43	91	64	40
57	69	42	59

The mean age of Group A was 48.8 years; Group B, 66.5 years; Group C, 55 years; and Group D, 49 years. This is supported by Graham and Conley (1971) who did not find any significant differences in levels of anxiety according to age.

TABLE VIII

SEX

	A	B	C	D
Male	6	2	2	4
Female	0	4	4	2

Females in the control group had a higher mean post-procedural state and trait anxiety level than did the males. However, in the experimental group, the state and trait anxiety level were higher for males. There is a somewhat lower mean state anxiety level, however, in those females who were taught ($\bar{x}=37.3$) and those not taught ($\bar{x}=47.2$). It was concluded that this was not a significant variable.

TABLE IX

ETHNIC BACKGROUND

	A	B	C	D
Anglo Am.	6	6	6	4
Sp. Am.	0	0	0	2

Because the majority of the subjects were Anglo Americans, comparison by race would not be valid. It is of interest to note that the two Spanish-American subjects had lower mean scores in both state and trait

anxiety than did the Anglo-Americans.

TABLE X

EDUCATIONAL STATUS

	A	B	C	D
Did not attend H.S.		3	1	2
Did not complete H.S.			2	1
Completed H.S.	2	3	2	
Attended College	2		1	2
Completed College	2			1

Those subjects in Group A (taught, pretested) were by far the most highly educated. One subject in Group A had completed eight years of college. Group D (not taught, not pretested) varied from minimum education to highest. Group A (taught, not pretested) had the largest number of subjects who either did not attend or did not complete high school. Neither Group B nor Group C (not taught, pretested) had any college graduates. In the control group (Groups C and D), the mean state anxiety score ($\bar{x}=49.5$) was greater than the trait score ($\bar{x}=30.0$) for those subjects who had completed high school. However, the state anxiety level ($\bar{x}=38.0$) was lower than the trait ($\bar{x}=40.2$) for the experimental group who had completed high school. Whether prior teaching influenced this level is not known. However, educational status does not appear to be an influencing variable in the outcome of this study.

TABLE XI

MARITAL STATUS

	A	B	C	D
Married	5	4	5	6
Not Married	1	2	1	0

The mean trait anxiety level ($\bar{x}=51.15$) of the four subjects who were not married was considerably higher than for those married ($\bar{x}=37.72$). However, there was not a large difference in the mean state anxiety level (not married: $\bar{x}=40.15$ and married: $\bar{x}=40.95$).

TABLE XII

PRIOR INTUBATION

	A	B	C	D
Yes	1	3	4	1
No	5	3	2	5

Nine of the subjects reported one previous intubation. None of this group had been intubated more than once. The mean state ($\bar{x}=45.5$) and trait ($\bar{x}=43.3$) anxiety levels of those in the experimental group were equivalent to those in the control group (state: $\bar{x}=45.6$, trait: $\bar{x}=42.2$).

TABLE XIII

PREVIOUS EXPOSURE TO TEACHING

	A	B	C	D
Yes	0	0	2	0
No.	6	6	4	6

Of the twenty-four subjects in this study, only two reported previous teaching. One related that the doctor had told her "a little" and the other said that a relative who had undergone intubation explained the procedure. Again, because the number of subjects was too small, no comparison could be made.

TABLE XIV

DRUGS

	A	B	C	D
Yes	0	0	0	0
No	6	6	6	6

None of the participants related receiving any oral or parenteral medications in the eight hours prior to testing.

TABLE XV

HOSPITAL PATIENT VS. OUT-PATIENT

	A	B	C	D
Hospital Patient	3	2	2	0
Out-patient	3	4	4	6

With the exception of Group D, the sub-groups were composed of both hospital and out-patients. The subjects who were hospitalized had a higher mean state anxiety level ($\bar{x}=46.75$) than did the out-patient group ($\bar{x}=37.25$). Whether this influenced the outcome of the study is not known. However, it should be noted that among the four sub-groups,

Group D had the lowest mean state anxiety score ($\bar{x}=37.5$) as compared with trait anxiety ($\bar{x}=44.2$) following intubation.

TABLE XVI

TYPE OF G.I. STUDY

	A	B	C	D
Pancreatic Function	2	4	3	2
Gastric Analysis	4	2	3	4

The subjects in the control group (Group C and Group D) who had a pancreatic function study had a higher mean state anxiety score ($\bar{x}=47.8$) than did those in the experimental group (Group A and Group B) ($\bar{x}=33.2$). There was also a higher mean state anxiety level ($\bar{x}=42.6$) as compared with the trait level ($\bar{x}=39.6$) for those in the control group than in the experimental group (state: $\bar{x}=44.7$, trait: $\bar{x}=47.5$) who had a gastric analysis. All subjects undergoing pancreatic function testing had a higher level of state ($\bar{x}=40.51$) as opposed to trait ($\bar{x}=34.65$) anxiety following the procedure, as compared with those undergoing gastric analysis (State: $\bar{x}=43.65$, trait $\bar{x}=43.55$). More subjects in Group D (not taught, not pretested) had a gastric analysis. Teaching Group B may have served to reduce anxiety levels and thus put them at the level of those in Group D. However, this does not explain why Group A, with two patients, scored higher than Group B, with four. The type of study could have been an influencing variable, but needs more investigation. Because no single variable can be found to explain why Group C (not taught, pretested) had a higher post-procedural state anxiety as opposed

to trait anxiety, than did Group D (not taught, not pretested), the possibility that the State-Trait Anxiety Inventory (Form X-1) as an influencing variable should not be discounted.

TABLE XVII

POST-PROCEDURAL QUESTION

		A	B	C	D
Would prior teaching have helped?	Yes			6	2
	No			0	4
Did prior teaching help?	Yes	5	6		
	No	1	0		

In the experimental group, ninety-two percent of the subjects said that teaching helped them. In the control group, only sixty-six percent said prior teaching would have helped. Each person was given a chance to write a comment below the question. Some of these follow:

"If I had been told about the test yesterday, I could have slept better last night, and would not have been so upset this morning, and had a stomach ache."

(Answered YES, teaching helped.)

"Teaching helped to relax me."

(Answered YES, teaching helped.)

"Teaching would have helped me 100%!"

(Answered YES.)

"I think if I had known about it, I would have worried more. It was completely different than what I thought it was going to be."

(Answered NO, teaching would not have helped.)

"I think the patient has a right to know what they are going through."

(Answered YES, teaching would have helped.)

"Very much!"

(Answered YES, teaching helped.)

"Thought it was good to have one to explain what test was--how it felt, etc. It was not as bad as I thought but longer than I guessed. People were so nice."

(Answered YES, teaching helped.)

"No, they told me about it in there (lab)."

(Answered NO, prior teaching would not have helped.)

"It (procedure) was hell!"

(Answered YES, teaching helped.)

Selected STAI Talley

Graham and Conley (1971) reported that subjective responses of patients are a reliable indicator of their anxiety. The responses to three statements on the STAI (Form X-1) by those subjects tested prior to and after gastrointestinal intubation were tallied, in order to determine their subjective responses. Three statements regarding tension, anxiety, and nervousness were selected for discussion by the researcher. (Table XVIII)

Prior to gastrointestinal intubation, six persons in the experimental group either felt moderately or very tense, anxious, or nervous, while twelve answered somewhat or not at all. In the control group, nine patients felt moderately or very tense, anxious, or nervous, and nine persons somewhat, or not at all.

Following intubation, five subjects in the experimental group felt either moderately or very tense, anxious, or nervous, and thirteen answered somewhat or not at all. In the control group, seven persons felt moderately or very tense, anxious, or nervous, while eleven answered somewhat or not at all.

TABLE XVIII

SELECTED STAI TALLEY

	Experimental								Control							
	Pre-Test				Post-Test				Pre-Test				Post-Test			
	Not At All	Some what	Mod. So	Very Much	Not At All	Some what	Mod. So	Very Much	Not At All	Some what	Mod. So	Very Much	Not At All	Some what	Mod. So	Very Much
1. I am tense.	2	2	2		1	3	1	1	1	3	1	1		2	2	2
2. I feel anxious.	2	2	1	1	1	3	2		2	1	2	1	3	1	1	1
3. I feel nervous.	2	2	1	1	3	2	1		2		3	1	2	3		1
Totals	6	6	4	2	5	8	4	1	5	4	6	3	5	6	3	4

It should be concluded that prior to intubation, the group taught responded that they felt less anxious, tense, or nervous than did those who were not taught. Following intubation, more persons in both groups had a decreased anxiety as opposed to prior to intubation. Based on these subjective responses, teaching did decrease anxiety. This supports the findings of Graham and Conley (1971).

Summary

Statistical analyses of the data obtained in this research study revealed that in one sub-group (Group C--not taught, pretested) the mean state anxiety level was statistically higher than was their mean trait anxiety level following intubation. This group also had a significantly higher level of state anxiety than did either group B or Group D. No single intervening variable can be identified as an influencing factor. The majority of persons in the study stated that prior teaching either helped or would have been helpful. Based on patients' subjective responses to three statements on the STAI (Form X-1), it was noted that those subjects taught felt less anxious, tense, or nervous than did those in the control (not taught) group.

Based on the face value of the interpretation of the subjective responses to the question regarding the benefit of teaching, the data do show that teaching is beneficial. This supports the findings from studies conducted in the surgical setting which suggest that teaching alleviates anxiety (Lindeman and Van Aernam, 1971; Schmitt and Wooldridge, 1973; Lindeman and Stetzer, 1973).

CHAPTER V

Summary, Conclusions, Implications, and Recommendations

To determine the effect of teaching on the anxiety level of patients prior to gastrointestinal intubation, a research study was conducted in the Gastroenterology Department of one hospital. Teaching was done by one nurse-researcher. The tool for measuring anxiety levels was the State-Trait Anxiety Inventory (STAI).

Twenty-four subjects entered the study and were randomly assigned to control and experimental groups. All subjects in the experimental group were taught prior to intubation, while those in the control group were not instructed.

The experimental group was sub-divided into Groups A and B; and the control group was sub-divided into Groups C and D. Because it was felt that the STAI might affect state anxiety levels prior to intubation, two of the sub-groups were not pretested. Group A was taught and pretested; group B was taught and not pretested. Group C was not taught but pretested; group D was not taught and not pretested. All four groups were tested post-procedurally for state and trait anxiety levels. In response to a post-procedural question regarding the benefit of prior teaching, the majority said that teaching was or would have been helpful.

The null hypothesis tested was, There is no statistically significant difference in the anxiety levels of patients taught and those not taught, prior to gastrointestinal intubation.

Statistical analysis of the obtained data revealed that Group C (not taught, pretested) had a significantly higher mean post-procedural

state anxiety level as opposed to trait anxiety. This was not the finding within the other three sub-groups. Group C also had statistically higher levels of state anxiety following the intubation than did Group B (taught not tested) and Group D (not taught, not pretested).

Intervening variables were examined in order to identify possible explanations for these findings.

Conclusions

Conclusions derived from this study include the following:

1. The mean state anxiety of twelve persons prior to gastrointestinal intubation and following intubation was equivalent to that of general medical-surgical patients, as reported by Spielberger, et al. (1970).

2. The mean trait anxiety of the twenty-four subjects in this study was also equivalent to that of general medical-surgical patients (Spielberger, et al., 1970).

3. Ninety-two percent of the persons who participated in this research project reported that they had not received prior teaching. Thus, most had little knowledge of what to expect regarding gastrointestinal intubation.

4. Teaching prior to intubation did not affect the anxiety level of the six patients exposed to the experimental teaching plan. However, post-procedural anxiety levels were not increased.

5. One sub-group (C) who was not taught and pretested, had a statistically significant increase in state anxiety as opposed to trait

anxiety following intubation.

6. Hospital patients appeared to have higher mean state anxiety levels following intubation than did out-patients.

7. All subjects undergoing pancreatic function studies appeared to have higher mean state anxiety levels following intubation than those undergoing gastric analysis.

8. The majority of the subjects reported that prior teaching was or would have been helpful.

9. The pre-procedural State Trait Anxiety Inventory may have been an intervening variable which influenced the outcome of the study.

Implications

The implications derived from the findings of this study are directed to the professional practitioner who provides health care for any patient undergoing gastrointestinal intubation.

Even though it cannot be said with any certainty that teaching statistically affected the anxiety level of the patient prior to gastrointestinal intubation, it can be said with statistical certainty that it did not increase that level. Perhaps the benefits of teaching immediately prior to intubation are too small to be measured by the anxiety scale selected.

Because those subjects undergoing pancreatic function studies were found to have higher mean state anxiety levels, as opposed to trait levels, than did those undergoing gastric analysis, this may have been an intervening variable which influenced the outcome of the study.

Since the vast majority reported that prior teaching helped, or would have helped, consideration should be given to the teaching needs of the patient. The professional practitioner must not assume that the patient has been previously instructed by others; neither should he assume that the patient does not desire to know what it entails. The comment made by one of the subjects in this study reveals that the opposite is true: "I think the patient has a right to know..."

Recommendations

Additional research remains to be done regarding the teaching needs of the gastroenterology patient. It has been shown at what level his anxiety status is prior to and following gastrointestinal intubation, but it is not known how this status compares with that of the patient prior to other invasive procedures.

For this reason, it is recommended that a study similar to this one be made with the patient facing other endoscopic procedures. It is further recommended that teaching and testing be done the evening prior to the procedure with a retest the morning of the procedure. If the STAI is utilized, it should be administered to every subject. However, based on the outcome of this study, another tool may be indicated.

Also, based on the outcome of this study, it is recommended that persons undergoing pancreatic function testing and gastric analysis be studied separately in order to determine if there is a difference in the basic personality structure of these individuals which may influence their responses to anxiety. Perhaps separate teaching methods would be indi-

cated according to basic personality of the two groups.

Additional research is also needed to determine if a method of teaching other than direct verbal interaction would be effective in reducing anxiety. For example, could audio-visual aids or reading material be effectively used to teach patients prior to commonly performed procedures in order to meet his teaching needs? Have these needs been considered in relation to the basic personality of the individual, and is one method more effective than another when considered in this light?

APPENDIX A**RESEARCH AND INVESTIGATION INVOLVING HUMANS****Statement by Program Director and Approved by Department Chairman**

This abbreviated form is designed for describing proposed programs in which there is justifiable minimal risk to human participants. If any member of the Human Research Review Committee should require more information, the investigator will be so notified. Six copies of this form should be submitted to the committee chairman.

Title of study: TEACHING, AS IT AFFECTS THE ANXIETY LEVEL OF
PATIENTS PRIOR TO GASTROINTESTINAL INTUBATION

Program Director(s): MONA M. COUNTS, R.N., Ph.D.
ROBERT R. RASZKOWSKI, M.D., Ph.D.
PAT MAHON, R.N., Ph.D.

Estimated beginning date of study: May 19, 1975 **Estimated duration:** _____

Brief description of study (use additional pages or attachments, if desired, and include the approximate number and the ages of participants):

This research will be a comparative experimental study with a pre-test of anxiety levels of taught and non-taught willing competent adults prior to gastrointestinal intubation. One post-procedural question will be asked which lets the patients relate the benefits of prior teaching. The sample will be selected from patients scheduled for gastrointestinal intubation as part of their medical regime. Approximately 20 adults will be included in the sample.

1. **What are the potential risks to the human subjects involved in this research or investigation?**

None

2. **Outline the steps taken to protect the rights and welfare of the individuals involved:**

- a. Verbal consent
- b. No names will be revealed.

3. Outline the method for obtaining informed consent from the subjects or from the person legally responsible for the subjects. (Attach documents, i.e., a specimen informed consent letter).
- a. Verbal statement of willingness by the patient.
 - b. Statement of consent forms from institution.
4. If the proposed study includes the administration of personality tests, inventories, or questionnaires, indicate how the subjects are given the opportunity to express their willingness to participate. If the subjects are less than the age of legal consent, or mentally incapacitated, indicate how consent of parents, guardians, or other qualified representatives will be obtained:

Each subject will be informed by the researcher and asked for his permission verbally. His willingness to participate will be evidenced by his taking the pre-test.

(Signed) MONA M. COUNTS, COORDINATOR APRIL 24, 1975
WACO-TEMPLE
Program Director Date

(Signed) LOIS HOUGH, CHAIRMAN May 14, 1975
Dean, Department Head, or Director Date

Date received by committee chairman: _____

APPENDIX A

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
DENTON, TEXAS

DALLAS CENTER
1810 Inwood Road
Dallas, Texas 75235

HOUSTON CENTER
1130 M.D. Anderson Blvd.
Houston, Texas 77025

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE Scott and White Memorial Hospital and Scott, Sherwood and Brindley Foundation

GRANTS TO Delores Sawyer

a student enrolled in a program of nursing leading to a Master's Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem:

Teaching, as it affects the anxiety level of patients prior to Gastrointestinal intubation.

The conditions mutually agreed upon are as follows:

1. The agency (may) (~~may not~~) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (~~may not~~) be identified in the final report.
3. The agency (wants) (~~does not want~~) a conference with the student when the report is completed.
4. The agency is (willing) (~~unwilling~~) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date Feb 26, 1975

D. C. Lightner, M.D., Ph.D.
Signature of Agency Personnel

Delores Sawyer
Signature of student

Mona M. Counts, R.N., Ph.D.
Signature of Faculty Advisor

*Fill out and sign three copies to be distributed as follows: Original — Student; first copy — agency; second copy — T.W.U. College of Nursing.


APPENDIX A

SCOTT AND WHITE

Inter-Office Memorandum

To: To Whom It May Concern From: W. P. Dyck, M. D.
Date: 2/10/75 Subject: Thesis Proposal of Mrs. Delores Sawyer

This is to certify that Mrs. Delores Sawyer has discussed in detail with me her project entitled Teaching, As It Affects Anxiety Levels of Patients Prior to Gastrointestinal Intubation. Mrs. Sawyer will be interviewing patients in our unit before and after intubation procedures, and she has our full permission to do so. Laboratory studies themselves will be performed for routine diagnostic purposes and no additional investigative studies are planned as a part of Mrs. Sawyer's involvement in our laboratory.


Walter P. Dyck, M. D.
Chief, Section of Gastroenterology
Director, Gastrointestinal Physiology and
Research Laboratories

WPD/pkp

SELF-EVALUATION QUESTIONNAIRE

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *feel* right now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I am regretful	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel rested	①	②	③	④
9. I feel anxious	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel "high strung"	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel over-excited and "rattled"	①	②	③	④
19. I feel joyful	①	②	③	④
20. I feel pleasant	①	②	③	④



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577 College Avenue, Palo Alto, California 94306

APPENDIX B

SELF-EVALUATION QUESTIONNAIRE

STAI FORM X-2

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I tire quickly	①	②	③	④
23. I feel like crying	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I am losing out on things because I can't make up my mind soon enough	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I am inclined to take things hard	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I try to avoid facing a crisis or difficulty	①	②	③	④
35. I feel blue	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	①	②	③	④

APPENDIX C

Verbal Pre-Test Instructions to All Participants

I am a graduate student in the School of Nursing at Texas Woman's University, working on my master's thesis. The topic for the thesis deals with the importance of explaining laboratory procedures to people before they have them.

Will you please fill in this questionnaire so that I can determine from the data obtained, the proper teaching methods to use? Your name will not be used in any way.

APPENDIX D

Verbal Post-Procedural Instructions To All Participants

Will you please fill in this two-part questionnaire which is part of my research study and please answer one question that relates to the procedure you just had? It will be very helpful in planning nursing care for hospital patients who must undergo this same test.

Question for Control Group

Would teaching prior to the procedure have helped you?

Yes _____

No _____

Comments:

Question for Experimental Group

Did the teaching prior to the procedure help you?

Yes _____

No _____

Comments:

APPENDIX E

Teaching Plan

1. Establish rapport with the patient.
2. Explain simply and briefly, the purpose of the test he is having.
3. Describe the purpose of the gastrointestinal tube and the way in which it is inserted.
4. List some ways in which he can aid in making the insertion of the tube easier.
5. Relate the sequence of events which will occur during the test as they affect him.
6. Answer all questions the patient may have regarding the teaching.

APPENDIX F

Demographic Data Sheet

Age

Sex

Ethnic Background

Educational Status

Marital Status

Prior intubation

Previous exposure to teaching

Drugs taken prior to intubation

Hospital patient

Out-patient

Type of G.I. Study

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