

1989

An investigation into the effects of preoperative teaching on the self reported levels of anxiety of patients undergoing elective surgery

Megan Inglis
Edith Cowan University

Follow this and additional works at: https://ro.ecu.edu.au/theses_hons



Part of the [Perioperative, Operating Room and Surgical Nursing Commons](#)

Recommended Citation

Inglis, M. (1989). *An investigation into the effects of preoperative teaching on the self reported levels of anxiety of patients undergoing elective surgery*. Edith Cowan University. https://ro.ecu.edu.au/theses_hons/177

This Thesis is posted at Research Online.
https://ro.ecu.edu.au/theses_hons/177

Edith Cowan University

Copyright Warning

You may print or download ONE copy of this document for the purpose of your own research or study.

The University does not authorize you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site.

You are reminded of the following:

- Copyright owners are entitled to take legal action against persons who infringe their copyright.
- A reproduction of material that is protected by copyright may be a copyright infringement. Where the reproduction of such material is done without attribution of authorship, with false attribution of authorship or the authorship is treated in a derogatory manner, this may be a breach of the author's moral rights contained in Part IX of the Copyright Act 1968 (Cth).
- Courts have the power to impose a wide range of civil and criminal sanctions for infringement of copyright, infringement of moral rights and other offences under the Copyright Act 1968 (Cth). Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

**An Investigation into the Effects of Preoperative Teaching
on the Self Reported Levels of Anxiety of Patients
Undergoing Elective Surgery**

by

Megan Inglis

November 15, 1989



Degree: Bachelor of Health Science (Nursing) Honours
School of Nursing, Churchlands.
Western Australian College of Advanced Education.

378
.249
205

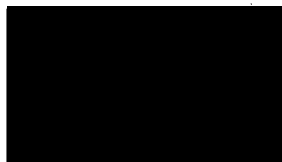
Abstract

Over the last twenty years there has been a considerable amount of research conducted into the effects of preoperative teaching on postoperative recovery. While it is well known that preoperative instruction assists patients to recover from their operation, the mechanisms by which this occurs are not clear. One mechanism which may improve postoperative recovery is the reduction of anxiety preoperatively. This research examined the effects of preoperative teaching on preoperative levels of anxiety in patients undergoing elective cholecystectomy or herniorrhaphy. Twenty eight patients had their preoperative anxiety levels measured by a widely used questionnaire known as the State Trait Anxiety Inventory. These patients were then randomly allocated to either the treatment or control group. The control group received the usual preoperative instruction by the nurse and the physiotherapist. The experimental group received the usual preoperative instruction, as well as detailed information about how they may feel before and after the operation. Each patient was asked to complete the same questionnaire again, to determine if the preoperative teaching had any effect on their anxiety levels. Comparison of the test results showed that preoperative teaching does assist in reducing preoperative anxiety. It was also found that

patients in the treatment group had their anxiety reduced more than those patients in the control group. The findings from this research indicate that the provision of information which indicates to the patient how they may feel after the operation is effective in reducing the patients' preoperative anxiety. Further research is required to determine whether or not this has any effect on the postoperative outcomes.

DECLARATION

"I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text".



ACKNOWLEDGEMENTS

I would like to thank my supervisor Dr Sue Nikoletti for the assistance and guidance she has given me while carrying out this project. Also for assistance with the statistical analysis, I am grateful to Dr Pender Pedlar. My thanks also to Sir Charles Gairdner Hospital where this research was carried out and to Dr Ruth McKay for facilitating the implementation of the research at this hospital. Finally, I would like to thank the College for their generous provision of a scholarship for assistance with expenses during the last half of this year.

TABLE OF CONTENTS

| CHAPTER | PAGE |
|---|------|
| I. INTRODUCTION..... | 1 |
| Objectives..... | 1 |
| Assumptions..... | 2 |
| Definitions..... | 2 |
| II. REVIEW OF THE LITERATURE..... | 4 |
| Categories of Preoperative Teaching.... | 4 |
| Studies of Preoperative Teaching..... | 5 |
| Concrete Orientating Information..... | 6 |
| Meta-Analyses of Related Research..... | 8 |
| III. THEORETICAL RATIONALE..... | 11 |
| IV. METHODOLOGY..... | 13 |
| Setting and Sample..... | 13 |
| Variables for the Study..... | 14 |
| Measurement of the Variables..... | 16 |
| Reliability..... | 16 |
| Validity..... | 17 |
| Demographic Data..... | 18 |
| Design and Procedure..... | 18 |
| V. ETHICAL CONSIDERATIONS..... | 20 |
| VI. RESULTS..... | 22 |
| Statistical Analysis of Data..... | 22 |
| Testing the Instrument..... | 23 |
| Item Analysis..... | 24 |
| Reliability..... | 27 |

| | |
|---|----|
| Analysis of the Demographic Data..... | 27 |
| Testing the Hypotheses for the Study... | 30 |
| VII. DISCUSSION..... | 33 |
| Hypothesis I..... | 33 |
| Hypothesis II..... | 34 |
| VIII. LIMITATIONS..... | 37 |
| IX. CONCLUSIONS AND IMPLICATIONS..... | 40 |
| REFERENCES..... | 42 |
| APPENDIX A..State Anxiety Inventory..... | 46 |
| APPENDIX B..Data Collection Sheet..... | 47 |
| APPENDIX C..Transcript of Tape Recording... | 48 |
| APPENDIX D..Consent Form..... | 51 |
| APPENDIX E..Raw Data for Control Group..... | 52 |
| APPENDIX F..Raw Data for Treatment Group... | 53 |

CHAPTER I

INTRODUCTION

Over the last twenty years there has been a considerable amount of research on the effects of preoperative teaching on postoperative recovery. It is now generally accepted that preoperative instruction is beneficial for patients undergoing surgery. When reviewing the research, the reader may become confused by the large amount of data that has been collected, with much of it providing conflicting results. It is now necessary to inquire into the influence of preoperative teaching on postoperative recovery. An area where this inquiry can begin is to examine the effects of preoperative teaching on levels of preoperative anxiety in patients undergoing elective surgery.

Objectives.

The major objective of this study is to examine the relationship between preoperative teaching and preoperative anxiety levels. The study reported here examined two specific questions. Is preoperative teaching effective in reducing anxiety levels of patients undergoing elective surgery? Does the provision of concrete orientating information effectively reduce preoperative anxiety more than the provision of procedural

information alone? If nurses can identify more effective ways to reduce the anxiety experienced by patients prior to their operations, patients will receive better quality care.

Assumptions.

There were two major assumptions that were formed prior to this research being carried out. The first of these was that it was assumed impending operation represented a stressful event to the patients included in the study. There is a chance that elective surgery was not perceived by some patients as a stressful time for them. The second assumption for this study was that postoperative recovery for both cholecystectomy and herniorrhaphy followed a similar course.

Definitions.

Although all of the terms used during this study are defined within the text at various different places, it is useful to devote a section to definitions for easy reference.

Concrete orientating information is information which describes to the patient how he or she may feel prior to and after his/her operation.

Procedural information is information given to the patients which describes the procedure of having an operation. This includes information such as the period spent in the holding bay prior to going into the theatre, and the number and nature of drainage tubes that may be present postoperatively. The term procedural information is used interchangeably with abstract orientating information.

Anxiety can be defined as the apprehensive tension or uneasiness produced by the anticipation of largely unknown or unrecognised events which pose a threat to the individual (Graham et al 1971, citing Laughlan 1967). In this study anxiety was measured by the State Trait Anxiety Inventory developed by C. D. Spielberger (see Appendix A). Only the state anxiety scale was used, and it measured how each patient felt at the particular time they were answering the questionnaire.

Physical activity instruction is instruction to the patients on how to perform deep breathing, coughing and leg exercises, in order to prevent pulmonary and systemic complications associated with prolonged bedrest.

CHAPTER II

REVIEW OF THE LITERATURE

Categories of Preoperative Teaching

Impending operation is seen as a stressful event and it is thought that if we can adequately prepare the individuals who are subjected to this stressor, then they will be able to cope with it more effectively (Dumas and Johnson 1972, p. 137). In her review of the literature on coping with elective surgery Johnson (1984) described the different categories of preoperative teaching that have been used in an attempt to enhance postoperative recovery by increasing the patient's ability to cope with stress. These categories include the provision of patient and carer interaction, the use of physical activity instruction, instruction in coping strategies such as relaxation techniques, hypnosis and positive thinking, the use of abstract orientating information and finally, the use of concrete orientating information. Abstract orientating information can be described as general information given to the patient about what is going to happen to them during the preoperative and postoperative course. Concrete orientating information is information which describes to the patient how he/she may feel. These categories represent the variety of procedural and psychoeducational methods that have been tested by

research in nursing.

Studies of Preoperative Teaching in Nursing

The first report of a study conducted in the area of preoperative instruction for surgical patients was published in 1963 (Dumas and Leonard 1963). They found that patients who were given special information and psychological support by the facilitating of a relationship between the patient and the nurse suffered less from postoperative vomiting (Dumas and Leonard 1963). In other studies facilitating this relationship there was a reduction in the negative emotions reported by the patients, but other postoperative recovery indicators that were measured, such as use of medications, and length of postoperative hospital stay, showed no consistent results (Dumas and Johnson 1972; Felton et al 1976). Schmitt and Wooldridge (1973) obtained similar results when using the same method, but in their study the carer interacted with patients as a group rather than individually.

It has now been well established that the provision of instruction in physical activity such as deep breathing and coughing exercises can improve postoperative ventilatory function, thereby reducing the incidence of pulmonary complications (Lindemann and Van Aernam 1971; King and Tarsitano 1982). These two studies also indicated that such intervention may be useful in decreasing the

length of postoperative hospitalisation. It is now accepted practice that patients receive this information preoperatively (Johnson 1984, p. 129). These investigators also found that structured information, in the form of slides and tapes, provided better results than unstructured information (Lindeman and Van Aernam 1971; King and Tarsitano 1982).

Studies involving the use of physical activity instruction and abstract orientating information found that postoperative complications were reduced, and length of postoperative stay was shortened. In addition, patients reported less pain and that it was less "bother" to ambulate after the operation (Healy 1968; Fortin and Kirouac 1976; Felton et al 1976; Schmitt and Wooldridge 1973; Hegyvary and Chamings 1975).

Concrete Orientating Information

Johnson (1972) was the pioneer in the investigation of the effect of concrete orientating information on postoperative outcomes. Her original research in this area was conducted in the laboratory where she tested peoples' response to painful stimuli both with sensory information (concrete orientating information) and without it. She hypothesized that the discrepancy between expectations about sensations and the experience of these sensations in a threatening event

resulted in distress (Johnson 1972, p. 499). Her experiment supported this hypothesis which led her to speculate on the use of concrete orientating information for the person facing impending surgery. Johnson and her associates (1978a) conducted studies on the use of concrete orientating information for patients undergoing elective cholecystectomy by measuring their level of fear before the operation and then providing them with preoperative information. One group of patients received the usual preoperative instruction in physical activity and procedural information, while the other group received this as well as concrete orientating information about how they would feel after the operation. It was found that the patients receiving the sensory information had a significantly increased rate of recovery and that the use of analgesics in this group was decreased. Their results indicated that the preoperative information given to both groups positively influenced the patients' emotional response, while only the sensory information enhanced postoperative recovery. This led to the proposal that emotional response and behavioural response are independent (Johnson et al 1978a). In a replication of this study, Johnson and her colleagues consolidated their findings that providing cognitive information will enhance postoperative recovery. However, unexpectedly they found that patients with a high level of fear preoperatively did

not have their emotional response positively affected after the operation by the use of sensory information. (Johnson et al 1978b, p. 113). This leads to the speculation that different types of preoperative information are more appropriate for different patients, depending on their preoperative fear and their available coping resources. However, in exploring the relationship between preoperative information and postoperative coping strategies Zeimer (1983) found that the use of coping behaviours was not significantly affected by the type of information received preoperatively.

Meta-Analyses of Related Research

There have been two meta-analyses conducted on the research into the effect of preoperative intervention on postoperative outcomes. Devine and Cook (1983), in examining all of the eligible research, found that the length of postsurgical hospital stay has been reduced by the use of preoperative teaching. Their conclusions were that if psychoeducational interventions were further improved, then there would be a considerable cost saving to the national health care system, because of the potential for this intervention to reduce the length of hospital stay for elective surgery patients. However, with the use of Diagnostic Related Groups in America, from which most of the data supporting these conclusions comes,

their validity is questionable. That is, the length of hospital stay may have been influenced by rules of insurance companies which pay for the patients' hospitalisation.

In a second meta-analysis, Hathaway (1986) examined the results of all the eligible studies conducted prior to 1985 for the effects of preoperative instruction on postoperative outcomes. From this study it was concluded preoperative teaching does have a beneficial effect on the postoperative course, but the author was unable to identify which particular intervention had the best effect. She found that the effect was influenced by the patient's level of fear or anxiety, and that patients with high levels of preoperative anxiety responded better to psychologically orientated teaching, while patients with low levels of preoperative anxiety responded to procedurally orientated teaching. Johnson (1984), in her review of the literature on coping with elective surgery, found that there were many positive outcomes from preoperative teaching but some of the measures for positive outcomes were inconsistent, and that the best results were obtained when a combination of the interventions were used.

From this review of the literature it is obvious that preoperative instruction is beneficial for patients. As many authors have pointed out, most of the studies done have been atheoretical, and now nursing needs to begin to form a theory for the provision of preoperative teaching, so that each patient receives the most appropriate education. This preliminary study is an attempt to find the links, or mediators between anxiety and coping in the patient undergoing elective surgery.

CHAPTER III

THEORETICAL RATIONALE

Stress and coping are the concepts central to the theory that preoperative instruction will assist patients to recover from their operations (Johnson 1984, p. 108). It is assumed that impending operation represents a stressful event to patients. People cope with stressful events in a variety of ways, and some people are able to cope more effectively than others. Many investigators have provided patients with varying degrees of information prior to their operation and have found that it is useful in facilitating their postoperative recovery. The assumption then, is that preoperative information helps patients to cope with an operation, where coping refers to psychological processes and behaviours that occur in response to a threat (Johnson 1984, p. 109). Further research on coping behaviours has been conducted by Zeimer (1983) who studied the frequency of coping behaviours displayed by patients undergoing elective surgery after different types of preoperative information. Zeimer (1983) found that the use of coping behaviours was not increased by these patients, although the author stated that her measuring instruments may not have been sufficiently developed to measure coping behaviours. The coping behaviours measured in this study included physiologic behaviours such as deep breathing, coughing and leg

exercises, and psychophysiologic behaviours. The psychophysiologic behaviours measured included conscious efforts to relax, thinking of positive aspects of the experience, thinking of something else, placing the experience in perspective, ignoring or denying the situation, finding someone to talk to, sleeping, praying and crying. The hypotheses tested were concerned with whether different types of preoperative instruction would increase the reported frequency of coping behaviours. None of the hypotheses were supported. The results lead to the speculation that coping behaviours are not the mediator between preoperative instruction and improved postoperative outcomes (Zeimer 1983, p. 287).

Janis (1958) proposed that a certain amount of fear or anxiety is necessary to promote motivation. He suggested that patients who were highly fearful prior to their operations would have all of their energy directed into their worry about the impending event, and that their anxiety needed to be reduced prior to their operation, so that they could direct their energy towards coping with the worry of the impending operation. This could be done by the use of preoperative teaching. He also said that the opposite might be true of the patient who is not at all concerned about their impending operation, and that information can be provided to promote some anxiety in these patients (cited in Johnson 1984, p. 114).

CHAPTER IV

METHODOLOGY

Setting and Sample

The population for this study was all of the patients who underwent elective cholecystectomy or herniorrhaphy during a four week period at a six hundred bed major teaching hospital in the metropolitan area. In order to enhance the internal validity of the study, only patients undergoing these two elective surgical procedures were included in the sample because it was thought that they would have similar experiences postoperatively. Also, previous research in this area had used these types of surgery. Only those patients that were admitted for surgery on the following day were included in the study because it was felt that patients who had been in hospital for diagnostic tests or other illnesses would bias the sample. Patients that were excluded from the study included those who were non English speaking, and those who were confused, disorientated or critically ill. Four patients were excluded for one or more of these reasons.

The sample consisted of twenty eight patients, who gave informed consent, thirteen males and fifteen females, with an age range from thirty to eighty six years of age. Fifteen of the patients had hernia repairs, while the remaining thirteen patients had cholecystectomies (see

Appendix E and F). It was originally anticipated that the sample size would be much larger, but due to time constraints placed on the study the sample size was limited to twenty eight. These constraints are discussed in Chapter VIII.

Variables for the Study

The independent variable used in this study as the research manoeuvre was concrete orientating information provided to the patient preoperatively. This information consisted of descriptions of what the patient may feel prior to and after the operation. Examples included information that the preoperative medication may make them feel "sleepy, light-headed, relaxed, free from worry, and not bothered by most things" (Johnson et al 1978a, p. 9). If a person receives a sleeping pill, he or she may fall asleep within fifteen to thirty minutes. After the preoperative medication one may have a feeling of dryness in the mouth (Zeimer 1983, p. 284). The intravenous infusion in one's arm may restrict movement and probably feel awkward, but it will not be painful (Johnson et al 1978a, p. 9). Words that are associated with the feeling of the incision included that it may be tender and sore and that the patient may feel "pressure, aching, and pulling. These sensations may become sharp" (McHugh et al 1982, p. 782). Information from the published literature

was supplemented with information obtained from previous experience of the researcher with postoperative cholecystectomy and hernia patients (see Appendix C for a transcript of the tape recording played to the patients in the treatment group).

The dependent variable in this study was the patient's preoperative level of anxiety. Anxiety can be defined as the apprehensive tension or uneasiness produced by the anticipation of largely unknown or unrecognised events which pose a threat to the individual (Graham et al 1971, p. 114, citing Laughlan 1967). Anxiety was measured in this study by the State Trait Anxiety Inventory, which is discussed in detail in the next section.

The influencing variables that were taken into account during this study were the patient's age, sex, and type of operation. This information was collected when the patient completed the first questionnaire. Another variable that was included in the data collection was whether or not the patient had any previous surgery within the last year, as it was thought that this may have some bearing on the patient's level of preoperative anxiety. However, only two patients in the sample had had major surgery within the last year, so this variable was not taken into account.

Measurement of the Variables

The instrument chosen to measure the dependant variable in this study was the State Trait Anxiety Inventory developed by C.D. Spielberger (see Appendix A). This inventory has been used extensively in research and clinical practice. It is made up of separate self report scales for measuring state and trait anxiety, although only the state anxiety scale was used in this study. This scale evaluates how respondents feel at the moment they complete the questionnaire. Scores on the state anxiety scale increase in response to physical danger or psychological stress, and decrease as a result of relaxation training. The scale has been used extensively to assess state anxiety induced by stressful experimental procedures and unavoidable real life stressors such as imminent surgery, dental treatment, job interviews, or important school tests. The state-trait anxiety inventory has been used in more than 2000 studies since it was first published in 1979 (Spielberger 1983, p. 20).

Reliability. Because of the transitory nature of state anxiety, the test used for ascertaining reliability is the alpha coefficient, as modified by Cronbach (1951). The test was administered to four different groups. These groups included working adults, college students, high school students and military recruits. The alpha coefficient was greater than 0.9 in all except one of the

groups, with a median alpha coefficient of 0.93 (Spielberger 1983, p. 13).

Validity. The State Trait Anxiety Inventory has been examined extensively for validity. The authors provide an indepth description of the test construction and how content validity was obtained. This test was recently modified, and some of the items were changed to give even greater content validity. The test was administered to 424 tenth grade high school students and 1728 air force recruits. The results were compared using a factor analysis, providing evidence that the questionnaire was consistent with the original questionnaire used. The only difference was that the factor structure for the new test was more differentiated and more stable than the original (Spielberger 1983, p. 32).

Construct validity was obtained by comparing the scores of people under non stressful situations, and then again under a stressful situation. It was found that scores on the state anxiety scale were higher after stressful conditions. Concurrent validity has also been tested by comparing the test with other similarly developed anxiety tests, although this is only applicable for the trait anxiety scale. The State Trait Anxiety Inventory has also been examined for convergent and divergent validity, by comparing it with other personality tests such as the Minnesota Multiphasic Personality

Inventory. The results provided by Spielberger (1983, p. 16) show significantly high correlations ($p < 0.01$).

Demographic data. Recording of the influencing variables took place when the patients completed their first questionnaire. It was simply recorded on a separate page provided by the researcher (see Appendix B).

Design and Procedure

Each patient who was eligible was approached and asked if they would like to participate in the study. All patients were visited as soon as possible after their admission to the hospital. After the patient had given informed consent, they were randomly allocated to one of two groups, either the control group or the treatment group, using a random numbers table. The odd numbers were allocated to the control group, and the even numbers were allocated to the experimental group. Those who consented to participate were given a questionnaire to obtain information about their level of anxiety (see Appendix A).

The patients in the no treatment groups received the usual preoperative information consisting of procedural information given by the nurses, and instruction in physical activity given by the physiotherapists. The patients in the experimental treatment groups were given the usual preoperative information, as well as concrete orientating information.

This information was provided on a tape recording. The researcher was responsible for playing the tape to each patient in the treatment group. Unfortunately there was no way of controlling the amount or type of information given by the nurses and the physiotherapist, and it is possible that they may have given some concrete orientating information to the non treatment group.

The patients were asked to complete another questionnaire between four to six hours after they had received their preoperative information, to measure their self reported levels of anxiety. The same questionnaire was used for both the pre and the post test. This instrument was discussed in the previous section.

CHAPTER V

ETHICAL CONSIDERATIONS

Before this study was commenced, ethical approval was gained from the academic institution as well as the hospital where the research was carried out. Prior to inclusion in the study, each patient was approached and informed consent was obtained (see Appendix D). Each patient was told that they had the right to refuse to participate in the study. There was no risk to any of the patients. Each patient needed to spend about ten minutes filling out the questionnaires, and the patients in the treatment group spent five minutes listening to the tape recording of concrete orientating information. All information obtained from the patients was kept private and confidential. A numbering system was used to ensure that the data was kept confidential, and the only person with a list of the patients' names and their corresponding numbers was the researcher. This list was kept on a personal computer and once the data collection had been completed, the list of names was destroyed.

The consultant surgeons in charge of the care of the patients eligible for the study were approached to gain permission for their patients to participate in the research. After discussion with the consultants, all but one of them agreed for their patients to be included in

the study. It was decided to use the patients of all the consultants rather than selected consultants, because the surgeons' technique was not an influencing variable as no measurements were recorded after the surgery. This allowed more patients to be included in the study.

CHAPTER VI

RESULTS

Statistical Analysis of Data

After consultation with a statistician, statistical analysis was done by the following method. For each patient a Pearson's correlation coefficient was calculated, using the Canon F800-P scientific statistical calculator, between their score for each particular item on the questionnaire and the total item scores for all the patients on each item. This was to check for consistency of each patient compared to the whole sample for both the pre and the posttests.

For each item on the questionnaire a Pearson's correlation coefficient was calculated, using the Canon F800-P scientific statistical calculator, between the item scores and the total scores. This was to check that each particular item on the questionnaire was being used by the patients in a consistent manner. These were done for both the pre and the posttests .

A Crohnbach's alpha value (Crohnbach 1951, p. 321) was calculated for both the pre and the posttests to measure reliability of the questionnaire. This is the method that the authors of the questionnaire used to calculate reliability.

The whole sample was examined for differences in the pre and the posttest scores using the t-test (Hazard Munro et al 1986, p. 165). Differences were looked for between the control and treatment groups, between the type of operation, and sex of the patient.

Finally, the two hypotheses for the study were tested using the t-test (Hazard Munro 1986, p. 165). The results are presented in detail below.

Testing the Instrument

A graph of Pearson's correlation coefficient for item scores and item totals is shown in Figure 1.

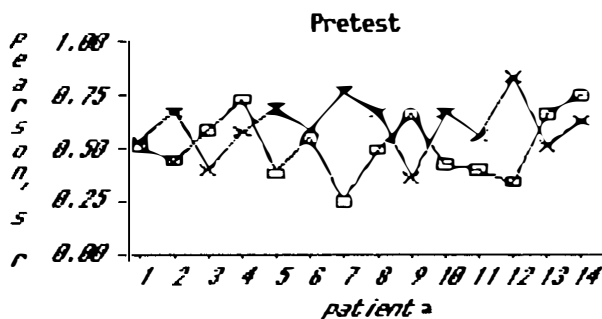


Figure 1. Patient Performance.

The boxes are used to denote the correlation coefficient for the first 14 patients, and the crosses are used to denote the correlation coefficients for the second 14 patients.

The sample was simply divided in half for ease of graphing. The r values range from 0.2518 to 0.8440. They show a reasonably high degree of consistency for each patient's item score compared to the total item score for the whole sample on the pretest, so the researcher is confident that the instrument was used appropriately by each person on the pretest.

Item Analysis. A graph of Pearson's correlation coefficient for item scores and patient totals is shown in Figure 2. By correlating these two values it is possible to determine whether each item on the questionnaire is being used consistently by each patient in the sample. For example, if patients with high total scores only score a 1 or a 2 on a particular item and patients with low total scores consistently score a 3 or a 4 on this item, then the correlation coefficient will be low, showing that this item is not being used appropriately.

The correlation coefficients for the item analysis on the pretest ranged from 0.37 to 0.9 which provides a reasonable indication that each item was being used consistently.

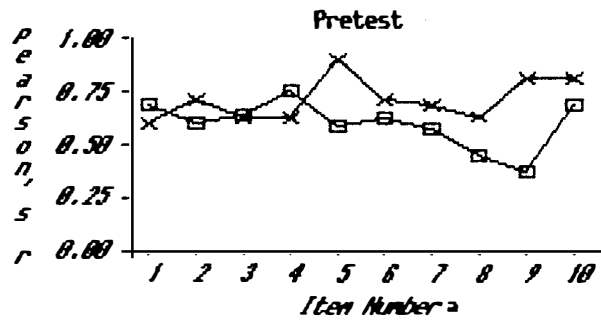


Figure 2. Item performance for the pretest.

The boxes represent the correlation coefficients for the first 10 items on the questionnaire, and the crosses denote the correlation coefficients for the second 10 items on the questionnaire.

The same procedure was followed to check for consistent use of each item on the posttest. Figure 3. shows a graph of the correlation coefficients for the posttest.

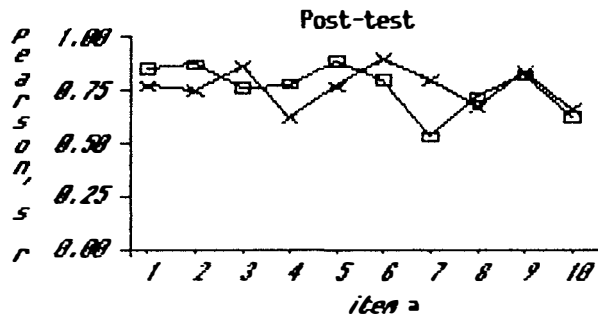


Figure 3. Item performance for the posttest.

The boxes indicate the correlation coefficient for the first 10 items on the questionnaire, and the crosses indicate the correlation coefficients for the second 10 items on the questionnaire.

On the posttest the correlation coefficients ranged from 0.53 to 0.9 indicating that each item was being used reasonably consistently.

Reliability. The calculation of Crohnbach's alpha is one method of measuring internal consistency in order to determine the reliability of the instrument (Carmines et al 1979, p. 44). It is the method that has been chosen by the authors of this questionnaire to determine reliability, and it actually determines the homogeneity of the instrument. In other words, Crohnbach's alpha is a statistic used to determine how consistently a questionnaire measures the concept of interest.

The Crohnbach's alphas for the pre and the posttests were 0.9266 and 0.9674 respectively, which indicates that the instrument was reliable for this sample.

Analysis of the Demographic Data

The sample size for this study was twenty eight patients. It consisted of thirteen males and fifteen females with an age range from thirty to eighty six years. Fifteen of the patients had hernia repairs while the remaining thirteen patients had cholecystectomies (see Appendix E and F).

It was necessary to test if the control and treatment groups were similar on their pretest scores. The t value was -0.2648 ($p > 0.05$) indicating that there was no significant difference in the pretest scores for the control and treatment groups. This means that the anxiety

levels for the control and treatment groups were similar prior to any preoperative teaching. The same procedure was followed for the posttest giving a t value of -1.49 ($p > 0.05$) indicating that there was no significant difference in the control and treatment groups on their posttest scores.

A t-test was used to see if there were any differences among the groups in this sample. There were no significant differences in the pre and posttest scores of the patients who had cholecystectomies compared to patients who had hernia repairs. The t values for these were -0.344 and 0.2310 respectively ($p > 0.05$), indicating that the amount of anxiety patients experience is not dependent on the type of operation they are having.

Figure 1. Means, Standard Deviations and Variances of Pretest and Posttest Scores.

| GROUP | PRETEST | | | POSTTEST | | |
|-----------|---------|-------|-------|----------|-------|-------|
| | Mean | SD | Var | Mean | SD | Var |
| Control | 41.1 | 12.92 | 166.8 | 40.23 | 16.29 | 265.4 |
| Treatment | 39.93 | 8.98 | 80.6 | 32.53 | 9.42 | 88.65 |
| Choly | 40.38 | 11.23 | 126.1 | 36.77 | 11.28 | 127.3 |
| Hernia | 40.53 | 10.79 | 116.5 | 35.53 | 15.34 | 235.2 |
| Males | 38.54 | 11.39 | 129.6 | 33.15 | 14.24 | 208 |
| Females | 42.13 | 10.37 | 107.4 | 38.67 | 12.32 | 151.8 |

Finally, a t-test was performed to ascertain if there was any significant difference in the anxiety levels of males and females. The t values for this test were -0.8424 on the pretest, and -0.92 for the posttest ($p > 0.05$). In this study there was no difference in the anxiety levels of males and females.

Testing the Hypotheses for the Study

The hypotheses for the study were tested using a one tailed t test. The alpha was set at 0.05 for this study. The first hypothesis was that patients will have a significant reduction in preoperative anxiety after preoperative teaching. The scores for the control groups on the pre and posttests are shown in Figure 4.

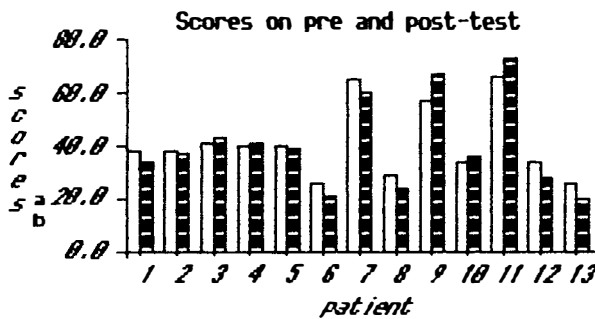


Figure 4. Pre and Posttest scores for the control group.

□ shows pretest scores.

■ shows posttest scores.

• The scores increase with increasing levels of anxiety.

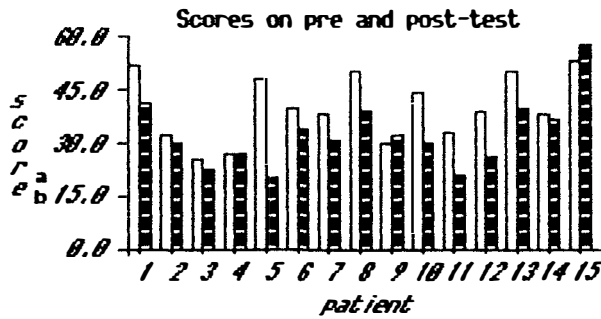


Figure 5. Pre and posttest scores for the treatment group.

□ shows pretest scores.

■ shows posttest scores.

The scores increase with increasing levels of anxiety.

Analysis of the data indicates that patients do have their anxiety reduced after preoperative teaching ($t = -3.0386$, $p < 0.01$). Refer to Figure 5. for pre and posttest scores for the treatment group.

The second hypothesis tested in this study was that patients in the treatment group would have their anxiety reduced more than those patients in the control group. The means of the differences between the pre and the posttest scores of the treatment and the control

groups were tested using a t-test. The t test showed that there was a statistically significant reduction in anxiety in the treatment group compared to the control group. ($t = -2.4891$, $p < 0.05$).

CHAPTER VII

DISCUSSION

Hypothesis I.

Although the interpretation of the data is limited by the small sample size, the statistical analysis indicates that overall preoperative teaching assists in reducing anxiety prior to an operation. There have been no other studies which measure this, so no comparisons can be made. In the statistical analysis it was found that there were no significant differences in pre and postoperative levels of anxiety of men compared with women. Other studies have had a predominantly female sample (Johnson et al 1978a,1978b) and anxiety levels of males and females were not compared. The evidence from this study suggests that there is no difference in the anxiety levels of males and females. It was also found that there was no significant difference in the anxiety levels of cholecystectomy patients compared with hernia repair patients. The results support the assumption that irrespective of the type of operation, impending surgery is still an anxiety producing event for the patient.

In summary this study provides further evidence that preoperative teaching is a useful tool for nurses in assisting patients to cope with anxiety stemming from

anticipated surgery. It has already been shown in previous studies that preoperative teaching is effective in improving postoperative outcomes (Schmitt & Wooldridge 1973; Lindeman & Van Aernam 1971; Johnson et al 1978a, 1978b), and now it has been shown that preoperative instruction helps patients even before they go to the operating theatre.

Hypothesis II.

The statistical evidence from this study supports the hypothesis that concrete orientating information along with procedural information is more effective in reducing preoperative anxiety than procedural information alone. By giving patients information about how they may feel after their operation nurses may enhance patients' sense of control that they have over the events about to take place. However, investigating the relationship between preoperative teaching and locus of control for patients would be an entirely different research project.

It is possible that the reduction of preoperative anxiety in the treatment group was influenced not only by the taped information but also by the patients' perception that they were receiving extra attention. This variable was not controlled in this study. Ideally the design should incorporate three groups, including a group who receives no intervention by the researcher, a group that

receives a tape recording of music or something similar, and the treatment group that is subjected to the experimental manoeuvre. This was the original intention of the researcher, but time constraints and the small sample size prevented the implementation of this design.

Does this mean then that all patients should receive concrete orientating information prior to their operations? This sample was too small to test whether either of the previously mentioned teaching methods was more appropriate for particular patients, depending on their level of preoperative anxiety. It is possible that sensory information will promote anxiety in some patients who already have very high levels of anxiety. This was the case for one of the patients in the treatment group, who scored 53 on the pretest and 58 on the posttest. Obviously this is not the desired effect. It is also interesting to note that some of the patients in the control group experienced an increased level of anxiety after procedural information, although this may be unrelated to the type of information they received. From this study it would appear that in most cases the provision of concrete orientating information to patients is helpful to them, but further research is required to identify those patients which may benefit from alternative means of reducing preoperative anxiety.

Nurses need to gain a body of knowledge of what

they should inform patients about and indeed what other methods could be used. The same information will not be appropriate for different types of operation. It is not known whether this information is best delivered by tape recording or by the nurse herself. However, for research purposes, a tape recording reduces experimenter bias and enhances control. In an effort to provide individualised attention to every patient it may be more appropriate for the nurse to provide the teaching, rather than relying on a more impersonal method. Some people would argue that this would take too much time, but if there are benefits to the patient, it may reduce the amount of time the nurse needs to spend with the patient postoperatively. Another important factor is that the length of hospital stay postoperatively may become shorter, thereby increasing the cost effectiveness of nursing care.

This study takes a first step into developing theory about preoperative education and its effects. It also provides new direction for further studies into the effects of preoperative teaching and its benefits for patients.

CHAPTER VIII

LIMITATIONS

The major limiting factor was the time constraints placed on the data collection period, resulting in a much smaller sample size (28) than was originally anticipated. The time available for doing the study was limited because of initial problems with the Ethical Review Committee at the institution where the research was carried out. Another factor that restricted the sample size was the lack of available beds for elective surgery at this institution. The period during which this study was conducted was a particularly busy time for hospitals in this city, with many beds occupied by elderly people with flu related illnesses or accidents.

In conducting the research one problem the researcher encountered was meeting with the patients for the first time. While it was possible to determine the date of admission from the admission centre records, the time of each patient's admission was unpredictable as this depended on the availability of beds. As a result the researcher was unable to meet with each patient immediately after admission to the hospital. This was further hampered by the fact that some patients were being examined by doctors or sent off for diagnostic procedures immediately after arriving on the ward. This may have

resulted in some of the patients receiving some form of preoperative information prior to completing their first questionnaire. This could not be controlled.

It was outside the bounds of the researchers available resources to control the amount or type of preoperative teaching given by the nurses and physiotherapists. It was assumed that the patients would only receive procedural information from these people, in keeping with the standard procedure for this hospital. It is possible though that some of the patients in the control group may have received concrete orientating information as well as procedural information. Optimally the researcher would have utilised assistants for the delivery of procedural information.

It was originally thought that the relatively short period between the administration of the questionnaires (approximately four to six hours) may result in some patients remembering their responses from the first questionnaire and repeating them on the second. Actually Spielberger (1983, p.4, citing Howard and Diesenhauß 1965; Bendig and Bruner 1962) found that repeated questionnaire administration has either no significant influence or leads to greater reliability on the test scores.

Some of the patients expressed that they had difficulty differentiating between some of the items on the questionnaire. Some of them said that a few of the items meant the same thing to them and they found it difficult to answer them appropriately. Perhaps this was made more difficult for them by the particular situation they were in, that is, immediately prior to their operations. This may account for some of the lower correlation coefficients obtained in the item analysis. It is suggested that in further research with this instrument on preoperative anxiety some of the items should be deleted. This is suggested by Spielberger (1983, p. 4) when repeated administration of the questionnaire is required by the research design.

,

CHAPTER IX

CONCLUSIONS AND IMPLICATIONS.

This study has shown that preoperative teaching reduces the anxiety experienced by patients prior to their operations. It has also shown that the provision of sensory information as well as procedural information is more effective in reducing anxiety than procedural information by itself. Although these results have come from a small sample they would certainly indicate that further research would be worthwhile using a larger sample to validate or refute these findings.

While it cannot be said from this study that reduction in anxiety is the mediating factor between preoperative teaching and postoperative recovery, it would now be appropriate to conduct some research into preoperative anxiety and postoperative recovery.

Because of the small sample size of this study it was impossible to find out if one method of preoperative teaching was more appropriate for patients with particular levels of anxiety. It would be worthwhile to investigate the effects of sensory information versus procedural information on patients with very high levels and very low levels of preoperative anxiety.

There are several implications for nursing from this study. While it is now routine practice for nurses to have a teaching session with each patient prior to their

operation, there is no standard amount or format specified for each patient's preoperative teaching. Probably the most important influencing factor is the amount of available time. However, if nurses are aware of the benefits to the patients they will be more likely to find time to educate their patients more effectively. This would be even more appropriate if it can be shown that reduction of preoperative anxiety improves each patients postoperative recovery.

Nurses need to not only teach patients, but also to become attuned to how each person feels about their procedure. We need to determine the meaning that each patient attributes to his/her experiences to find out exactly how we can prepare them best. Nurses also need to find out about the experiences that patients have after their operations. If we explore the patients' feelings and perceptions postoperatively, we will be able to nurse them more effectively and build a knowledge base to share with other patients pre and postoperatively if they are feeling things that we know other people have experienced too.

Every patient needs to be treated as an individual. By the use of the findings in this research and further research into this area nurses will be better able to prepare each individual patient for their operative procedure, resulting in improved postoperative outcomes for the patient.

REFERENCES

Carmines, E.G., Zeller, R.A. (1979), Reliability and Validity Assessment, Sage Publications, Beverley Hills, London.

Cronbach, L.J. (1951), 'Coefficient Alpha and the Internal Structure of Tests', Psychometrika, 16, 3, pp. 297-334.

Devine, E.C. (1983), 'A Meta-Analytic Analysis of Effects of Psychoeducational Interventions on Length of Postsurgical Hospital Stay', Nursing Research, 32, 5, pp. 267-274.

Dumas, R.G., Leonard, R.C. (1963), 'The Effects of Nursing on the Incidence of Postoperative Vomiting', Nursing Research, 12, 1, pp. 12-15.

Dumas, R.G., Johnson, B.A. (1972), 'Research in nursing practice: a review of five clinical experiments', International Journal of Nursing Studies, 9, 3, pp. 137-149.

Felton, G., Huss, K., Payne, E.A., Srsic, K. (1976), 'Preoperative nursing intervention with the patient for surgery: outcomes of three alternative approaches', International Journal of Nursing Studies, 13, 2, pp. 83-96.

Fortin, F., Kirouac, S. (1976), 'A randomized controlled trial of preoperative patient education', International Journal of Nursing Studies, 13, 4, pp. 11-24.

Graham, L.E., Conley, E.M. (1971), 'Evaluation of Anxiety and Fear in Adult Surgical Patients', Nursing Research, 20, 2, pp. 113-122.

Hathaway, D. (1986), 'Effects of Preoperative Instruction on Postoperative Outcomes: A Meta-Analysis', Nursing Research, 35, 5, pp.269-275.

Hazard Munro, B., Visintainer, M.A., Page, E.B. (1986), Statistical Methods for Health Care Research, J.B. Lippincott Company, Philadelphia.

Healy, K.M. (1968), 'Does preoperative instruction make a difference?', American Journal of Nursing, 68, 1, pp. 62-67.

Hegyvary, S.T., Chamings, P.A. (1975), 'The hospital setting and patient care outcomes. Part 1', Journal of Nursing Administration, 5, 3, pp. 29-32.

Hegyvary, S.T., Chamings, P.A. (1975), 'The hospital setting and patient care outcomes. Part 2', Journal of Nursing Administration, 5, 4, pp. 36-42.

Johnson, J.E. (1972), 'Effects of Structuring Patients' Expectations on their Reactions to Threatening Events', Nursing Research, 21, 6, pp. 499-503.

Johnson, J.E., Rice, V.H., Fuller, S.S., Endress, M.P. (1978a), 'Sensory Information, Instruction in a Coping Strategy, and Recovery from Surgery', Research in Nursing and Health, 1, 1, pp. 4-17.

Johnson, J.E., Fuller, S.S., Endress, M.P., Rice, V.H. (1978b), 'Altering Patients Responses to Surgery: An Extension and Replication', Research in Nursing and Health, 1, 3, pp.111-121.

Johnson, J.E. (1984), 'Coping with Elective Surgery', in Annual Review of Nursing Research, vol 2, 1984, Springer Publishing Company, New York.

King, I., Tarsitano, B. (1982), 'The Effect of Structured and Unstructured Pre-Operative Teaching: a Replication', Nursing Research, 31, 6, pp324-329.

Lindeman, C.A., Van Aernam, B. (1971), 'Nursing Intervention with the Presurgical Patient-the Effects of Structured and Unstructured Preoperative Teaching', Nursing Research, 20, 4, pp. 319-332.

McHugh, N.G., Christman, N.J., Johnson, J.E. (1982), 'Preparatory Information: What Helps and Why', American Journal of Nursing, 82, 5, pp780-782.

Schmitt, F.E., Wooldridge, P.J. (1973), 'Psychological Preparation of Surgical Patients', Nursing Research, 22, 2, pp. 108-116.

Spielberger, C.D. (1983), Manual for the State-Trait Anxiety Inventory, Consulting Psychologists Press, Inc, California.

Zeimer, M.M. (1983), 'Effects of Information on Postsurgical Coping', Nursing Research, 32, 5, pp. 282-287.

APPENDIX A

State Anxiety Inventory

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 feel strained | (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 satisfied | (1) | (2) | (3) | (4) |
| 9. I feel frightened | (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 indecisive | (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 confused | (1) | (2) | (3) | (4) |
| 19. I feel steady | (1) | (2) | (3) | (4) |
| 20. I feel pleasant | (1) | (2) | (3) | (4) |

Reproduced with permission from Consulting Psychologists Press, Palo Alto, California 94306.

APPENDIX B

Data Sheet

The following information is required prior to filling out your first questionnaire. This information will be strictly confidential, and you will not be able to be identified by it.

1. Sex: Male / Female (please circle)

2. What year were you born? _____

3. What operation are you going to have?

4. Have you had any major surgery during the past year?

Yes / No (please circle)

If yes, please state what you had performed.

APPENDIX C

Transcript of tape recording
-concrete orientating information.

The following information may help you to know what sort of feelings you may experience following your operation. These experiences have been described by many patients undergoing similar operations to you. However, you may not necessarily experience all or indeed any of these feelings.

Prior to your operation you will be given a premedication. If you are given a sleeping pill you will probably fall asleep in about fifteen to thirty minutes. If your premedication is in the form of an injection, it may make you feel sleepy or lightheaded. It may also help you to feel relaxed, free from worry and not bothered by most things, to get you ready for your operation.

After the anaesthetic has worn off you will probably become aware of your incision. It may be tender and sore, and you may feel pressure, pulling or aching. These sensations may become sharp or feel as though they are moving along the incision line. These feeling are normal after an operation, and you should ask your nurse for some pain medication. The pain medication will reduce these feelings and make it easier for you to move around.

Sometimes the pain medication may make you feel drowsy or lightheaded, but at least it will dull the sensations of your incision.

Most likely you will have an intravenous infusion (IV) running in one of your arms after the operation. This is to provide you with fluid while you are unable to drink. The IV is usually not painful, but it may make you feel awkward or restricted in movement. Your nurse will help you to move around with your IV.

When you get out of bed or perform exercises with the physiotherapist, you may become aware of an increase in the sensations of your incision. They may become sharper, and you should ask your nurse for some pain medication prior to exercising.

After your operation, you may feel that you have a dry mouth. This is due to the effects of the anaesthetic, and your nurse will give you mouth washes to help remove this feeling.

Getting out of bed for the first time after your operation may sometimes give a feeling of lightheadedness or fatigue. This is simply because you have been in bed for a long time. Your nurse will help you when you get out of bed after the operation.

The experiences I have described are typical for patients undergoing an operation such as you are. You should not be surprised if you experience some of these

feelings, as they are unavoidable after an abdominal operation. You may not experience all of these feelings, but it is likely that you may feel some. These feelings are normal and you should not think that they are complications. This tape recording has been designed to help you have an idea about what you may feel after your operation.

APPENDIX D

CONSENT FORM

Study Title: The Effects of Preoperative Teaching.

Researcher: Megan Inglis, R.N.

Miss Inglis is conducting a study to examine the effects of preoperative teaching on patients undergoing elective surgery. She believes that the information will be useful in helping nurses to prepare their patients for surgery. I understand that there will be no risk involved in being a part of the study and that approximately twenty minutes of my time will be needed to fill out the questionnaires.

I know that my participation in this study is voluntary and any information given will be strictly confidential. If I have any questions regarding the study, I can contact Miss Inglis on 3893333 ext1664 (work).

I agree to participate in this study, and I have received a copy of this consent form. I am assured that my identity will not be revealed while this study is being conducted or if this study is published.

Date: _____

Subject: _____

Witness: _____

Researcher: _____

APPENDIX E

Raw Scores for the Control Group

| Patient | Pretest | Posttest | Sex | Operation | Age |
|---------|---------|----------|-----|-----------|-----|
| 1 | 38 | 34 | M | hernia | 39 |
| 2 | 38 | 37 | M | choly | 30 |
| 3 | 41 | 43 | F | choly | 43 |
| 4 | 40 | 41 | F | hernia | 66 |
| 5 | 40 | 39 | M | hernia | 34 |
| 6 | 26 | 21 | M | choly | 66 |
| 7 | 65 | 60 | M | choly | 68 |
| 8 | 29 | 24 | M | choly | 86 |
| 9 | 57 | 67 | M | hernia | 66 |
| 10 | 34 | 36 | F | choly | 76 |
| 11 | 66 | 73 | F | hernia | 36 |
| 12 | 34 | 28 | F | hernia | 34 |
| 13 | 26 | 20 | M | hernia | 81 |

APPENDIX F

Raw Scores for the Treatment Group

| Patient | Pretest | Posttest | Sex | Operation | Age |
|---------|---------|----------|-----|-----------|-----|
| 1 | 52 | 41 | F | hernia | 44 |
| 2 | 32 | 30 | M | hernia | 77 |
| 3 | 25 | 22 | F | hernia | 81 |
| 4 | 27 | 27 | F | choly | 60 |
| 5 | 48 | 20 | M | hernia | 61 |
| 6 | 40 | 34 | F | hernia | 72 |
| 7 | 38 | 31 | F | choly | 41 |
| 8 | 50 | 39 | F | choly | 53 |
| 9 | 30 | 32 | M | choly | 45 |
| 10 | 44 | 30 | F | choly | 77 |
| 11 | 33 | 21 | M | hernia | 48 |
| 12 | 39 | 26 | M | hernia | 83 |
| 13 | 50 | 40 | F | choly | 57 |
| 14 | 38 | 37 | M | hernia | 72 |
| 15 | 53 | 58, | F | choly | 69 |