THE RELATIONSHIP BETWEEN PREOPERATIVE PSYCHOLOGICAL DISTRESS AND POSTOPERATIVE RECOVERY

by

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has been approved

June, 1967
ACKNOWLEDGMENT

I express my gratitude to those who have assisted me in the completion of this work: Dr. John A. Wolfer, Miss Sumiko Fujiki, Mrs. Bonnie Clayton, and Dr. Ray R. Canning. Appreciation is extended to the L. D. S. Hospital for the use of their facilities; to my family and friends for their encouragement; to my typist, Mrs. Cathy Edwards; and to my husband, Jerry, for his enduring support.
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ABSTRACT

A major goal in nursing is to identify situations that are potentially stressful to patients, and to provide care that enables patients to prevent, relieve, mitigate or at least tolerate stress. It is generally agreed that surgery constitutes a potent source of stress for most people. A number of investigations have attempted to determine if special preoperative preparation and care improve patients' postoperative recovery. However, little research has attempted to determine the extent of relationship, if any, between preoperative fear and anxiety and postoperative recovery.

The present study attempted to see if the most distressed patients could be identified by using selected instruments for measuring fear and anxiety and to test the assumption that the more distressed the patient is preoperatively, the more adverse will be his postoperative recovery in terms of somatic and psychological complications.

Twenty-seven female patients scheduled for abdominal or vaginal hysterectomy were administered the following preoperative and postoperative measures: (a) the IPAT Anxiety Scale; (b) the Multiple Affect Adjective Check List (MAACL); (c) Palmer's Patients' Perceptions Toward Surgery Scale (PPS). Criteria for recovery were the number of pain reducing and sedative medications counted over five postoperative days, and comparison of pre- and postoperative scores on the MAACL.
The mean IPAT anxiety score was higher than the means reported in the manual. There was no significant change in the mean MAACL anxiety, hostility, and depression scores pre- and postoperatively.

Pearson product moment correlations were computed between the measures of preoperative distress and postoperative recovery. There were no significant correlations found between these measures. This failed to support the assumption that high preoperative distress would be associated with poor postoperative recovery in terms of increased number of pain relieving and sleep inducing medications. Further research is necessary to ascertain the extent of relationship between degree of preoperative distress and postoperative recovery.

The correlations between Palmer's Patients' Perception Scale and the IPAT Anxiety Scale and the MAACL were not significant. Therefore, patients' attitudes toward surgery (PPS) were not related to the preoperative level of psychological distress.

The results of this study indicate that further development and refinement of pre- and postoperative measures is necessary. It would be worthwhile for future research to attempt to develop a rating scale to measure non-verbal behavior and correlate this with patients' performance on the paper-and-pencil tests. To add strength to the use of pain reducing medications as a recovery measure a comparison should be made of nurses' and patients' assessment of pain and the need for medication.
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CHAPTER I
INTRODUCTION

In response to the public's needs the concept of community mental health programming has developed. Emphasis in all spheres of psychiatric practice is toward preventive practices in mental health. Caplan's (1961) model of prevention identifies three levels: primary, secondary, and tertiary. Primary prevention refers to reducing the risk of persons becoming mentally ill; secondary, to shortening the durations of an illness by early detection and early treatment; and tertiary, to minimizing the residual disability of those who have been ill. Importance is placed on primary prevention and the development of community programs aimed toward: (a) the reduction of the occurrence of psychological stress in a community; and the increased provision for satisfying the psychological needs of individuals; and (b) help with problem-solving for individuals facing crisis situations, so that they may emerge from the crisis period with improved potential for mental health.

Certain situations such as occurrences of physical illnesses or disabilities may become crises periods calling for primary prevention measures. According to some authorities people may become emotionally disturbed during crises periods and may manifest
behavior that resembles psychiatric illnesses. These people have extreme states of anxiety, depression, stress, and sometimes psychotic behavior along with the original symptoms for which they were hospitalized on surgical and medical services (Titchener, Zwerling, Gottschalk, Levine, Silver, Cowett, Cohen, Culbertson, 1957; Caplan, 1961).

A major goal in nursing according to Dumas (1962) is to enable patients to utilize their internal and external resources in such a way that they will derive optimum benefits at the least expense to their total welfare. To achieve this goal, the nurse must identify situations that are potentially stressful to patients, and provide care that enables patients to prevent, relieve, mitigate or at least tolerate stress (Dumas, 1962).

Psychiatric nursing has a potential contribution to make in the study and relief of psychological stress, based on the aims of primary prevention, because the psychiatric nurse is interested in the way people solve the emotional and social problems of life crises. In her work the psychiatric nurse, through interpersonal contacts, attempts to offer the patient experiences which are directed toward helping him in the face of stress. Moreover, with the increased emphasis on caring for the "whole" patient, "comprehensive nursing care" might be achieved through the employment of the psychiatric nurse in the general hospital setting.
She has been found functioning effectively in the medical and surgical wards, involved in programs in psychiatric nursing consultation to other nurses, and promoting better patient care through increased understanding of psychodynamics and interpersonal relationships among other nurses (John and Leite-Ribeiro, 1963; George, 1966; Shulman, Corrigan, Hudnut and Pfouts, 1966).

In order to reduce the impact of psychological stress, research must identify stressful situations and determine ways in which individuals under stress can be helped. An important step is to identify and evaluate the stressful situations for patients receiving medical services. The present study focused upon surgical operations as a potential source of stress and the relationship between preoperative psychological distress and postoperative recovery.

It is generally agreed that surgery constitutes a potent source of stress for most people. Janis (1958, p. 10) in his study of psychological reactions to surgical procedures, stated that psychologically, "A major surgical operation constitutes a stress situation which resembles many other types of catastrophes and disasters in that the 'victim' [or patient] faces a combination of three major forms of imminent danger, the possibility of suffering acute pain, of undergoing serious body damage, and of dying."

Janis (p. 412) further stated that, "Despite all the important psychological differences that may differentiate surgery from other kinds of physical danger situations, it seems probable that there
are some general features of stress behavior which regularly occur in all of them."

Beland (1965) claims that psychological stress experienced by surgical patients occurs during periods of diagnosis and treatment and that various personal meanings are attached to these experiences. The nature of the surgical intervention as well as the conditions necessitating surgery influence the patient's psychological stress.

In recent years a number of investigators have turned their attention to the possible relationship between surgery patients' preoperative emotional condition and their postoperative recovery.

On the basis of clinical experience, Felter, West, and Zetche (1952) and Eckenoff (1956) note marked preoperative apprehension as a source of serious postoperative complications sometimes resulting in death. Elman (1951) and Harris (1951) observed that surgical patients sometimes suffer from adverse emotional reactions, which by reflex action increase postoperative somatic complications such as vomiting, urinary retention, lower pain threshold, and increased anorexia.

Janis (1958) investigated surgical recovery in relation to self report of fear of surgery. He classified preoperative patients into three groups of anticipatory fear—low, moderate, and high. He found that the medium fear group tended to recover better in terms of the number of postoperative complaints and amount of pain than either the high fear group or low fear group. It was noted that the patients
who had displayed little or no fear before the operation tended to
develop a different form of postoperative disturbance than those who
had displayed high preoperative fear. Low fear patients reacted
postoperatively with anger and resentment, whereas the high fear
patients tended to remain quite fearful after surgery.

In contrast, Titchener et al (1957) found that patients who
reported high degrees of anxiety preoperatively recovered better in
terms of vaguely described psychiatric evaluations. Those patients
who showed little or no anxiety preoperatively remained about the
same postoperatively. Patients who were moderately anxious and
fearful preoperatively appeared to have the worst postoperative
adjustment.

A number of investigations have attempted to determine if
special preoperative preparation and care improve patients' post-
operative recovery. Some studies have been done to show effects of
psychiatric nursing intervention upon postoperative recovery (Dumas,
1962, 1966; White, 1966). Dumas (1962) found in a series of studies
that patients who were emotionally distressed preoperatively tended
to vomit more often postoperatively than those who were relatively
free from distress. Patients who received the experimental nursing
were less often distressed and vomited less than those who did not
receive this nursing approach. The nursing approach was directed
toward helping the patient obtain a psychological state suitable for
surgery. Specific steps were described in this approach, (a) the
nurse observed the patient's behavior and explored with him whether or not he was experiencing distress; (b) the nurse explored further to discover the cause of the distress and the action needed for its relief; (c) an appropriate course of action was next undertaken to relieve the stress; and (d) the nurse followed through on her action(s) to see if the distress was relieved.

However, in a second study (Dumas, 1966) patients receiving the specific preoperative nursing did not show a lower incidence of vomiting than the patients in a control group.

White (1966) attempted to replicate Dumas's studies with better control of the variables of age, amount and type of preoperative medication and anesthetic agent, and the various surgical techniques. She found that patients receiving preoperative psychiatric nursing care had a lower incidence of postoperative nausea, urinary retention, and required fewer narcotic injections.

These studies involving the psychiatric nurse in the care of surgical patients were based on the assumption that the more emotionally distressed (frightened and anxious) the patient is preoperatively, the more difficult will be his postoperative recovery in terms of somatic and psychological complications.

However, only one study (Giller, 1960) has attempted to determine the extent of relationship, if any, between preoperative fear and anxiety and postoperative recovery. Giller gave 50 male surgical patients psychological tests and rating scales to determine the
feasibility of employing objective measures to predict recovery from surgery. The criteria for postoperative recovery were the number of pain reducing and sleep inducing medications administered during five postoperative days, the number of postoperative hospital days, and nurses' ratings of recovery. He found a significant multiple correlation between the objective measures and the number of pain and sedative medications, and a negative correlation between the attitude scale scores and number of postoperative hospital days. Giller concluded that future studies are necessary and should take into account more precise control of variables such as type of surgery and anesthetic.

One purpose of the present study was to further study the extent of relationship between preoperative distress and postoperative recovery. Another purpose was to determine if the most distressed patients could be reliably and validly identified by selected objective measures of distress (anxiety and fear). That is, are these tests feasible for identifying patients who are in greatest distress and, therefore, in greatest need of the services of psychiatric nursing intervention?

The present study tested the assumption that preoperative distress affects postoperative recovery by determining if there was any relationship between selected measures of preoperative fear and anxiety and postoperative recovery. It was assumed that the more psychologically distressed the patient is preoperatively the more
difficult will be his postoperative recovery in terms of somatic and psychological complications.

Preoperative distress was measured by two paper-and-pencil self administered tests designed to measure (a) general anxiety level (the IPAT Anxiety Scale), and (b) patients' perception (attitude) toward impending surgery (Palmer's Patients' Perception Scale); and (c) an adjective check list designed to measure a level of situational stress (the Multiple Affect Adjective Check List--MAACL).

Presumably, high scores on the IPAT and MAACL and low scores (or poor attitudes toward surgery) on PPS would indicate that surgery patients experience psychological distress.

A major problem in the study of postoperative recovery is the absence of agreed upon criteria (Abdellah, 1961; Giller, 1966). Previous investigators have used a variety of measures of patient welfare and postoperative recovery such as length of hospitalization, time to ambulation, amount and independence of activity, skin condition, levels and changes in vital signs, urinary retention, incidence of vomiting, number of patients' complaints, pain and comfort ratings, number of narcotics, analgesics, and sedatives, facial expressions and patients' mental attitude and moral (Aydelotte and Tener, 1960; Deluca, 1962; Dumas, 1962, 1966; Egbert, Battit, Welch and Bartlett, 1964; Elms and Leonard, 1966; Giller, 1960; Howland, 1961; Janis, 1958; Sharp, 1962; Simon and Chastain, 1960; Simon, 1961a, 1961b; and White, 1966). From the review of previous
studies the criteria considered the most appropriate postoperative measures for this study were the MAACL for measuring situational anxiety, and the number of pain reducing and sleep inducing medications given over a period of five postoperative days. It was expected that patients who score high on preoperative measures of distress will require more postoperative medications than patients who score low on preoperative distress.
CHAPTER II

METHOD

The setting for the study was the Latter-Day Saints Hospital, Salt Lake City, Utah. This is a privately owned non-profit general hospital with a 440 bed capacity. It functions as a teaching institution for nursing, medicine, and paramedical groups.

Twenty-seven female patients who underwent surgical removal of the uterus under general anesthetic were included in this study. Nine of these women had abdominal hysterectomies and eighteen had vaginal hysterectomies. They were hospitalized during March and April, 1967. Each patient was under the care of a private physician, and all but three were admitted to the gynecological unit (5 West) one day prior to scheduled surgery. One patient was admitted two days prior and one three days prior to scheduled surgery. A third patient was admitted 11 days prior to surgery for medical management of anemia. Sixteen surgeons were represented in the study with one of them performing five operations, five performing two each, one performing three, and the other nine performing one each.

The sample was limited in order to obtain as homogeneous a sample as possible, and because patients who undergo this type of surgery are thought to experience considerable psychological stress (Bellak and Small, 1965; Bird, 1955). "Loss of any organ can cause
depression, but various organs have heightened value, and their loss leads to strong feeling. Operations which affect the sexual functions, even remotely, can cause strong feelings of loss" (Bird, p. 685).

All patients were admitted to the hospital in a similar way. Regular admission information was obtained in the business office and the patient was admitted to the gynecological nursing division in the early afternoon. Each person received the routine nursing admission procedures which included taking of respirations, pulse, blood pressure and temperature. Specimens were obtained for routine blood and urine laboratory tests. On the day before surgery all patients were seen by an anesthesiologist and received routine preparation for the surgical procedure which consisted of surgical skin preparation, restricted food and fluid intake after midnight, and administration of enemas.

The tests were administered in all but two cases usually following dinner, prior to visiting hours, and after routine admission, laboratory procedures and physical examinations had been completed by hospital personnel, (approximately 5:30 to 7:00 P.M.). Two patients were tested after visiting hours and both were interrupted by nursing staff and given an enema. The investigator introduced herself as a nurse from the University of Utah, who was interested in finding out how people feel about their surgery, and obtained patient's consent to participate in the study. The three tests were described to the
patient as three short questionnaires which would take approximately
15 to 20 minutes to complete. Directions, printed on each form
handed to the patient, were read by the investigator immediately prior
to administration.

The first instrument administered was the IPAT Anxiety Scale,
which was developed to measure clinical anxiety rapidly, objectively,
and in a standard manner (Cattell and Scheier, 1963). The scale
consists of 40 questions representing five anxiety components.
Scoring may be broken down into the five components, into overt and
covert anxiety, or total anxiety scores. Because the component scores
are less reliable, total scores were used.

Cattell et al report test-retest coefficients of .93 for a
sample of 87 male and female adults and .87 for 277 Japanese University
students. Split-half coefficients of .91 for 120 in a mixed sample of
"normal" and hospitalized neutorics, .84 for 240 normal adults and
.83, .81, .80 for three different samples of 200 college students.

The scale is self administered and takes about five to ten minutes
to complete. Each question has three alternative answers, and all
answers are marked directly on the two inside pages of a four-page
test booklet. Instructions for the form were as follows:

Inside this booklet you will find forty questions,
dealing with difficulties that most people experience
at one time or another. It will help a lot in self-
understanding if you check Yes, No, etc., to each,
frankly and truthfully, to describe any problems you
may have.
Start with the two sample examples just below, for practice. As you see, each inquiry is actually put in the form of a sentence. By putting a cross, X, in one of the three boxes on the right you show how it applies to you. Make your marks now.

1. I enjoy walking

   Yes  Occasionally  No

   A middle box is provided for when you cannot definitely say Yes or No. But use it as little as possible.

2. I would rather spend an evening:

   (A) Talking to people

   (B) At a movie  A  In Between  B

   About half the items inside end in A and B choices like this. B. is always on the right. Remember, use the "In Between" or "Uncertain" box only if you cannot possibly decide on A or B.

The second preoperative distress measure was the Multiple Affect Adjective Check List (Zuckerman and Lubin, 1965) which consists of 132 adjectives which describe moods and feelings. The adjectives are arranged in alphabetical order. Eighty-nine of these are scored and the rest are filler items. The check list was designed as a self-administered test to measure three clinically relevant negative affects: anxiety (A), depression (D), and hostility (H). Although no attempt has been made by the authors to measure positive affects, they state that some evidence indicates that the scales are bipolar, and that low scores will indicate states of positive affect. The MAACL seldom requires more than five minutes to administer.
The 89 keyed adjectives are categorized in Table 1 according to the three scales and their scoring value. In scoring the test, minus items are scored if the subject does not check them. Plus items are scored if checked. The total score is the number of plus items checked plus the number of minus items not checked. This method of scoring is a partial control of the influence of the checking response set. Two forms of the test are used: a "general" form and a "today" form. Both use the same set of items. The instruction for the "general" form asks the respondent to check items which describe how he "generally" feels, whereas instructions for the "today" form ask how he feels "now" or "today". The "today" form was used in this study.

The manual reports split-half coefficients on 46 college students for Anxiety, .79; Depression, .92; and Hostility, .90. For 50 psychiatric patients coefficients were for Anxiety, .73; Depression, .65; and Hostility, .24. All but the last (.24) were significant at .01 level of confidence. Test-retest coefficients (7 day interval) were not significant for the college students (Anxiety, .21; Depression, .21; Hostility, .15), but were significant (8 day interval) for psychiatric patients (Anxiety, .77; Depression, .79; Hostility, .84).

A large variety of studies concerned with the validity of the three MAACL scales, especially the Anxiety Scale, are reported in the manual. For example, college students score higher on the
Table 1

Keyed Words for MAACL

<table>
<thead>
<tr>
<th>Anxiety</th>
<th>Depression</th>
<th>Hostility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plus</td>
<td>Minus</td>
<td>Plus</td>
</tr>
<tr>
<td>afraid</td>
<td>calm</td>
<td>alone</td>
</tr>
<tr>
<td>desperate</td>
<td>cheerful</td>
<td>awful</td>
</tr>
<tr>
<td>fearful</td>
<td>contented</td>
<td>blue</td>
</tr>
<tr>
<td>frightened</td>
<td>happy</td>
<td>destroyed</td>
</tr>
<tr>
<td>nervous</td>
<td>joyful</td>
<td>discouraged</td>
</tr>
<tr>
<td>panicky</td>
<td>loving</td>
<td>fit</td>
</tr>
<tr>
<td>shaky</td>
<td>pleasant</td>
<td>gloomy</td>
</tr>
<tr>
<td>tense</td>
<td>secure</td>
<td>hopeless</td>
</tr>
<tr>
<td>terrified</td>
<td>steady</td>
<td>lonely</td>
</tr>
<tr>
<td>upset</td>
<td>thoughtful</td>
<td>lost</td>
</tr>
<tr>
<td>worrying</td>
<td>low</td>
<td>healthy</td>
</tr>
<tr>
<td></td>
<td>miserable</td>
<td>inspired</td>
</tr>
<tr>
<td></td>
<td>rejected</td>
<td>interested</td>
</tr>
<tr>
<td></td>
<td>sad</td>
<td>lucky</td>
</tr>
<tr>
<td></td>
<td>suffering</td>
<td>merry</td>
</tr>
<tr>
<td></td>
<td>sunk</td>
<td>peaceful</td>
</tr>
<tr>
<td></td>
<td>terrible</td>
<td>safe</td>
</tr>
<tr>
<td></td>
<td>tormented</td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td>unhappy</td>
<td>whole</td>
</tr>
<tr>
<td></td>
<td>wilted</td>
<td>young</td>
</tr>
</tbody>
</table>
Anxiety scale immediately before examinations; both professional and amateur actors score significantly higher on the Anxiety scale just prior to performance; "normal" subjects showed significant increases on Anxiety, Depression, and Hostility scores after perceptual isolation; psychiatric patients rated high on clinical anxiety ratings tend to score high on the Anxiety scale; significant correlations were found between the MAACL scales and MMPI Hostility, Depression, and Psychasthenia scales.

Zuckerman and Lubin state that the "today" form of the MAACL is ideally suited for studies requiring repeated measurements of affect over time. They suggest using the MAACL in stress experiments requiring before and after measures of affect, as well as in studies to measure stress situations such as operations and examinations. One of the possibilities of the MAACL is "bridging of the theoretical chasm between affect as a clinical phenomenon and affect as a normal stress phenomenon," (1965, p. 22).

The manual gives a behavior description typical of normal subjects in an hypnotically induced anxiety state who score in the upper range (18-21) of the Anxiety Scale, which is similar to a description typical of clinical subjects observed during an interview. These subjects also scored in the upper range of the anxiety scale. Observations ranged from distressed facial expressions to crying, speech disturbances, tremor, restlessness, increased perspiration, respirations, flushing, pallor, and so on (p. 23). If the MAACL
can consistently correlate with these kinds of behavioral descriptions it should be a useful instrument for the measurement of affect, "which can operationally tie clinical and experimental observations into a unified construct" (p. 23).

Zuckerman and Lubin state that the group scores should not change from occasion to occasion unless the whole group is exposed to some common stress situation. The MAACL was administered a second time, the third postoperative day in order to determine the difference if any between pre- and postoperative reaction to surgery. The Anxiety, Depression, and Hostility scales in this study are referred to as $A_1$, $D_1$, and $H_1$ for preoperative scores and $A_2$, $D_2$, and $H_2$ for postoperative scores.

Directions for the administration of the MAACL were given on each check list form as follows:

On this sheet you will find words which describe different kinds of moods and feelings. Circle the number beside the words which describe how you feel now—today. Some of the words may sound alike, but we want you to check all the words that describe your feelings. Work rapidly.

Palmer's Patients' Perception Scale* was the third test administered (Palmer, 1965). This scale is a Likert-type rating scale developed to ascertain patients' perceptions (attitudes) toward impending surgery. Palmer, a research consultant, assumed that people have favorable and unfavorable perceptions toward surgery which influence the total surgical experience. Three nurse specialists reviewed statements judging the content for relevancy to

* See Appendix A for items.
perceptions of surgery and agreed on 71 items. These items were administered to 50 general surgery patients. Internal consistency was determined by item analysis and 46 items were retained for the final scale. A split-half reliability coefficient of .88 was reported for the same sample. With the Spearman-Brown correction the reliability coefficient was .94. There are no other published studies testing the reliability, validity, and usefulness of this scale. It was included in the present study to determine if it was related to other measures of preoperative distress and postoperative recovery.

Responses are weighted with numerical values from five points for Strongly Agree, to one for Strongly Disagree. Agreement with an item was interpreted as the subject’s favorable attitude toward surgery. It takes five to ten minutes to complete. The form was handed to the patient, and instructions were read as follows:

The following pages contain some statements indicating how patients feel about being operated upon. There are no right or wrong answers to these statements. Let your own personal feelings determine your answers. Please answer every statement. Please check whether you strongly agree, agree, are undecided, disagree, or strongly disagree with each statement.

Checking a statement strongly agree means that you definitely and emphatically agree with the statement. You are really sure of your agreement with it.

If you definitely disagree and have no doubt about your disagreement with the statement, check strongly disagree.
If you are not really sure about how you feel about a statement, check undecided.

If you agree with the statement generally, but are not completely emphatic and very sure about it, check agree.

If you disagree with the statement, but are not really emphatic in your disagreement with it, check disagree.

EXAMPLE:

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical operations have improved so much in the past several years.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Checking this statement Strongly Agree means that YOU are very sure that surgical operations have improved a great deal in the past several years. If you definitely and emphatically believe that surgical operations had not improved much in the past several years, you would have checked Strongly Disagree.

The number of narcotic, analgesic, and sedative medications administered for five postoperative days was obtained from the patient's chart.

In addition the following biographical and historical information was collected to see if it was related to preoperative distress and postoperative recovery measures: age, number of children, postoperative hospital days, previous major and minor surgeries, degree of satisfaction with previous surgeries.
CHAPTER III
RESULTS AND DISCUSSION

Table 2 shows the means, standard deviations, and range of scores for the IPAT, MAACL, PPS, and number of narcotic, analgesic, and sedative medications. As can be seen from the ranges there was individual variation in scores on the IPAT and MAACL scales which presumably reflect individual differences in anxiety and fear. The IPAT mean score (31.74) was higher than the mean scores for women as reported in the manual (28.6 for 405 women in the general population; 29.7 for 555 college women). The standard deviation (9.88) was lower than the standard deviations reported in the manual (11.3 for general population; 10.2 for college women).

The pre- and postoperative MAACL anxiety ($A_1$ and $A_2$) mean scores of 8.78 and 7.63 were slightly higher than the means reported for the psychiatric patients (7.1 to 12.2). This shows that patients were slightly more anxious than the general population, a possible indication that the experience of surgery was stressful. Although the anxiety score decreased postoperatively, this difference was not significant ($t = 1.35$).

Pre- and postoperative depression ($D_1$ and $D_2$) mean scores of 14.63 and 15.74 were within the range of those reported in the manual (10.0 to 14.7 for the general population and 13.8 to 20.8 for
Table 2

Mean, Standard Deviation, Range of Scores on the IPAT, MAACL, PPS; and Number of Narcotics, Analgesics, and Sedatives

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPAT</td>
<td>31.74</td>
<td>9.88</td>
<td>15-58</td>
</tr>
<tr>
<td>MAACL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>8.78</td>
<td>3.78</td>
<td>2-8</td>
</tr>
<tr>
<td>D1</td>
<td>14.63</td>
<td>4.47</td>
<td>4-22</td>
</tr>
<tr>
<td>H1</td>
<td>6.67</td>
<td>2.76</td>
<td>1-12</td>
</tr>
<tr>
<td>A2</td>
<td>7.63</td>
<td>3.81</td>
<td>1-14</td>
</tr>
<tr>
<td>D2</td>
<td>15.74</td>
<td>5.83</td>
<td>8-29</td>
</tr>
<tr>
<td>H2</td>
<td>7.78</td>
<td>3.33</td>
<td>2-14</td>
</tr>
<tr>
<td>PPS</td>
<td>198.41</td>
<td>15.93</td>
<td>166-227</td>
</tr>
<tr>
<td>Narcotics,</td>
<td></td>
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psychiatric patients). The difference pre- and postoperatively was not significant \( t = .90 \).

Pre- and postoperative hostility \( (H_1 \text{ and } H_2) \) mean scores of 6.67 and 7.78 were similar to those reported in the manual for the general population (6.3 to 8.5) but lower than the high score mean reported for the psychiatric patients (6.7 to 10.8). The difference between pre- and postoperative means was not significant \( t = 1.54 \).

The PPS scores were interpreted according to Palmer's categorization of scores into favorable and unfavorable perceptions toward surgery:

<table>
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<tr>
<th>Range of Scores</th>
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<td>46-91</td>
<td>Strongly unfavorable perceptions about being operated upon.</td>
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<td>Disagreeable perceptions about surgical experience.</td>
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<td>Undecided about impending surgery.</td>
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<tr>
<td>184-229</td>
<td>Favorable perceptions about being operated upon.</td>
</tr>
<tr>
<td>230</td>
<td>Strongly favorable perceptions about being operated upon.</td>
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The mean score for the PPS was 198.41. Twenty-four of the patients had scores within the range 184-229, and 4 scored within the 138-183 range. This indicated that all but 4 of the patients had "favorable perceptions about being operated upon." The fact that there were no scores reflecting unfavorable attitudes may
indicate that the scale fails to discriminate between favorable and unfavorable attitudes about surgery.

Pearson product moment correlations were computed to determine if there was a relationship between the measures of preoperative distress and postoperative recovery. Table 3 gives the intercorrelations of the major pre- and postoperative variables as well as other descriptive variables. With 25 degrees of freedom a correlation of .38 is significant at .05 level and one of .49 is significant at .01 level of confidence.

There were no significant correlations found between the major preoperative distress and postoperative measures studied. Therefore, the assumption that high preoperative distress (fear and anxiety) will be associated with poor postoperative recovery in terms of increased number of pain relieving and sleep inducing medications was not substantiated. Moreover, the correlations between the IPAT, the MAACL, and the PPS were not significant. Therefore, patients' attitudes toward surgery (PPS) were not related to the preoperative level of psychological distress. To the extent that the IPAT and MAACL scales are reliable and valid measures of preoperative anxiety, the absence of negative correlations with the PPS raises some doubt about the validity of the PPS.

The preoperative and postoperative correlations of the MAACL Anxiety, Depression and Hostility Scales were significant.
Table 3

Intercorrelations Between Pre and Postoperative Measures
and Other Descriptive Variables (N = 27)

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* .38 significant at .05
** .49 significant at .01
Zuckerman and Lubin (1965) report that the three scales correlated significantly at .01 level and thus were expected to correlate in this study.

A significant correlation of .39 was found between the D₁ and H₂. Those patients who scored high on preoperative depression tended to score high on hostility. However, the correlation is not too high for practical use since only 15% of the variance in H₂ is associated with the variance of D₂ ($r^2 = .15$).

On the minor measures there were three significant correlations found. A correlation of .47 between the number of previous major surgeries and D₂ indicated a tendency for those women who had more previous major surgery to be more "depressed" (as measured by the MAACL) than women who had less or no previous surgery. A correlation of .39 between number of previous surgeries and A₂ indicated some tendency for those patients who had the most previous surgeries to be the most "anxious" postoperatively. It is interesting that the number of children and number of postoperative sedatives are negatively correlated ($-.48$). It might be that those women who had the most children had learned to sleep under unusual and distracting circumstances without the aid of a sedative; or perhaps they were simply relieved to have a rest.

The absence of correlations between the major pre- and postoperative measures may be due to a lack of validity of the measures. For example, the IPAT is entitled "Self Analysis Form." Directions
ask the respondent to check items to "describe any problems you may have." The words "analysis" and "problems" may trigger, in anxious patients, an attempt to avoid revealing any difficulties for fear of being "analyzed." One patient remarked, "What are you going to do, take these up there and laugh at us?" (followed by nervous laugh).

Another possibility is that the MAACL may not give a valid indication of the patient's reaction at the time she responded. The directions say indicate "how you feel now...today." The patient's feeling for the entire day may influence her "now" response. Individual differences in patients' experiences as well as interpretation of "now" may have determined responses to the extent that the scores did not reflect their immediate feeling about their present hospitalization and forthcoming surgery.

Instructions for the PPS may have encouraged favorable responses. For example, the sample item in the instructions reads, "Surgical operations have improved so much in the past several years." The marked response is "Strongly Agree." This response might have encouraged a "response set" in the "agree" direction. To avoid this possibility the example response column could be left blank, or a second example with a negative response could be included.

Because paper-and-pencil tests do not measure non-verbal responses, the test scores may not reflect completely and accurately the patients' true feeling and total response to the stressful stimuli. It was the investigator's observation that some patients
hesitated to reveal their true feelings on paper. For example, one patient who appeared from verbal and nonverbal behavior more frightened than any of the patients in the study scored highest on the PPS (227) and also scored below the IPAT mean and below or very close to the mean on the MAACL scales. Preoperatively she smiled broadly, held her posture stiff, folded her hands carefully on her lap and commented on how pleased she was that she was having surgery. She repeatedly said that she had, "...all the faith in the world," in her doctor, and felt that this surgery would, "take care of everything." Post-operatively, following the administration of the MAACL, the woman wept and expressed fear of losing control. Another woman (who refused to participate) grasped the bed covers close to her, had tears in her eyes and said, "I don't believe I'd care to...I'm not up to doing anything at this point." It is therefore possible that the most distressed patients cannot be identified through paper-pencil tests, due to the fact that their distress prevents them from participating or responding according to their true feelings.

Because some people appeared concerned that others would see their test results they may not have responded with their true feelings. For example, one patient asked the investigator if she was going to laugh at the test results; another said, "You're all going to think I'm nutty, the way I answered some of those questions." In order to assure the patient of confidential handling of results names could be eliminated from the forms. Identification could be made by the
investigator following the administration of the test, using names or code numbers.

Finally, the number of pain relieving medications may not be the most appropriate criterion for postoperative recovery. For example, the patient who appeared most anxious stated that she had been in a great deal of pain, but was afraid to ask for medication, for fear the "nurses would think I was being a baby." Her total number of pain medications was 15, below the mean for the sample. In addition, because the patient relies upon nurses for daily care she may feel that requesting medication may place a burden on the nursing staff or create irritation. She may attempt to avoid this by denying any discomfort.

The results of this study indicate that further development and refinement of pre- and postoperative measures is necessary. It would be worthwhile for future research to attempt to develop a rating scale to measure non-verbal behavior and correlate this with patients' performance on the paper-and-pencil tests. To add strength to the use of pain reducing medications as a recovery measure, a comparison should be made of nurses' and patients' assessment of pain and the need for medication.
A major goal in nursing is to identify situations that are potentially stressful to patients, and to provide care that enables patients to prevent, relieve, mitigate or at least tolerate stress. It is generally agreed that surgery constitutes a potent source of stress for most people. A number of investigations have attempted to determine if special preoperative preparation and care improve patients' postoperative recovery. However, little research has attempted to determine the extent of relationship, if any, between preoperative fear and anxiety and postoperative recovery.

The present study attempted to see if the most distressed patients could be identified by using selected instruments for measuring fear and anxiety and to test the assumption that the more distressed the patient is preoperatively, the more adverse will be his postoperative recovery in terms of somatic and psychological complications.

Twenty-seven female patients scheduled for abdominal or vaginal hysterectomy were administered the following preoperative and postoperative measures: (a) the IPAT Anxiety Scale; (b) the Multiple Affect Adjective Check List (MAACL); (c) Palmer's Patients' Perceptions Toward Surgery Scale (PPS). Criteria for recovery were
the number of pain reducing and sedative medications counted over five postoperative days, and comparison of pre- and postoperative scores on the MAACL.

The mean IPAT anxiety score was higher than the means reported in the manual. There was no significant change in the mean MAACL anxiety, hostility, and depression scores pre- and postoperatively.

Pearson product moment correlations were computed between the measures of preoperative distress and postoperative recovery. There were no significant correlations found between these measures. This failed to support the assumption that high preoperative distress would be associated with poor postoperative recovery in terms of increased number of pain relieving and sleep inducing medications. Further research is necessary to ascertain the extent of relationship between degree of preoperative distress and postoperative recovery.

The correlations between Palmer's Patients' Perception Scale and the IPAT Anxiety Scale and the MAACL were not significant. Therefore, patients' attitudes toward surgery (PPS) were not related to the preoperative level of psychological distress.

The results of this study indicate that further development and refinement of pre- and postoperative measures is necessary. It would be worthwhile for future research to attempt to develop a rating scale to measure non-verbal behavior and correlate this with patients' performance on the paper-and-pencil tests. To add strength to the use of pain reducing medications as a recovery measure a comparison should be made of nurses' and patients' assessment of pain and the need for medication.
REFERENCES


Simon, J. R., & Chastain, Sally S. Take a systematic look at your patients. *Nursing Outlook*, 1960, 8, 509.


APPENDIX A

PALMER'S PATIENTS' PERCEPTION
SCALE ITEMS

1. Soon I am going to be able to do all the things I used to do.
2. The people who are closest to me in my family can take this in their stride.
3. I can be up and doing things for myself in a few days.
4. Surgery is a quick way to get well.
5. Surgery is much safer today than it was in my parents' time.
6. The staff help make people comfortable when they have pain.
7. The thought of having an incision does not upset me.
8. My immediate family knows how to manage while I am in the hospital.
9. Hospitals are the best place to be when you are sick.
10. With God's help, this operation is going to restore my good health.
11. I know what is going to happen to me.
12. Money is of little importance at a time like this.
13. The pain after the operation is not going to amount to much.
14. My immediate family are able to take care of themselves while I am in the hospital.
15. Even though I am being operated upon, there are some things I am able to do for myself.
16. If you have lots of faith in God, being operated on need not worry you.
17. Medical science takes the chance out of an operation today.
18. Surgery is necessary to my future health and well-being.
19. I am doing everything the way the doctors and nurses want.
20. Now is the best possible time for this surgery.
21. The people closest to me understand how I feel about having this operation.
22. What I might say coming out of the anesthesia does not concern me.
23. I am receiving the best care possible.
24. This operation is going to remove my source of discomfort.
25. It is a relief to me that the entire situation is out of my hands.
26. The people who are taking care of me are a great source of strength to me.
27. Incisions are not very noticeable these days.
28. At times like this I am glad to depend on other people.
29. This experience is like an adventure to me.
30. I have confidence in the skill of the hospital staff.
31. The people who are caring for me give me great courage.
32. There is no need to worry about being operated upon.
33. Pain can be overcome in a situation like this.
34. Modern drugs make people comfortable.
35. Soon I can take up where I left off.
36. Most of my questions about the operation have been answered.
37. I am being as little trouble as possible for the people who are taking care of me.
38. A scar on the abdomen does not matter.
39. This operation creates no problem for the people closest to me.
40. With faith in God, everything turns out well.
41. I can take what goes on before and after the operation.
42. We get wonderful care in our hospitals today.
43. It is a relief that I have no more decisions to make.
44. The people who are taking care of me know how I feel about having this operation.
45. With prayers, all turns out well.
46. I can lead my usual life after I am over this operation.
## APPENDIX B

### RAW SCORES FOR PRE- AND POSTOPERATIVE MEASURES

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**Notes:**
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- Prey. No.: Prey.
- Maj.: Maj.
- Min.: Min.
- Tot.: Tot.
- Sat.: Sat.
- Prev.: Prev.
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