

AN EXPLORATORY STUDY OF THE REACTION OF NURSES  
TO LABOR PATIENTS WHO VOCALIZED PAIN

has been approved for the

by

Susan Jane Greenleaf

B.S., University of Washington, 1963

by

Margaret B. Berlinger

Margaret E. Hubbard

Date August 6<sup>th</sup>, 1965

A Thesis submitted to the Faculty of the Graduate  
School of the University of Colorado in partial  
fulfillment of the requirements for the Degree

Master of Science

School of Nursing

1965

ACKNOWLEDGMENTS

This Thesis for the M.S. degree by  
Susan Jane Greenleaf  
has been approved for the  
School of  
Nursing  
by  
Donald Stillson  
and Josiah Dodds, whose suggestions contributed  
greatly in methodology utilization and data analy-  
sis.

Margaret R. Berlinger

Special recognition is given to the Graduate  
School Computer Center, Mrs. Mary Ann  
Mrs. Jeanne Conley, who made possible the IBM  
computations of the

Margaret E. Hibbard

Date August 6<sup>th</sup>, 1965

Without the cooperation and encouragement  
extended the author by the many nurses, doctors,  
patients, and fellow graduate students, this study  
would not have been completed. Therefore, special  
appreciation and acknowledgments are extended for  
this consideration.

Greenleaf, Susan Jane (M.S., Nursing)

An Exploratory Study of the Reaction of Nurses to Labor

## ACKNOWLEDGMENTS

Patients Who Vocalized Pain

Thesis directed by

The author wishes to express her appreciation to the members of the thesis committee, Miss

Marjory Hibbard and Miss Maxine Berlinger, for

their suggestions and guidance throughout the

entire study. Also, the author acknowledges the

valuable assistance of Doctors Donald Stillson

and Josiah Dodds, whose suggestions contributed

greatly in methodology utilization and data analysis.

sis.

Special recognition is given to the Graduate

School Computing Center, Mrs. Beryl Peterson and

Mrs. Jeanne Conley, who made possible the IBM

computations of the study data.

Without the cooperation and encouragement

extended the author by the many nurses, doctors,

patients, and fellow graduate students, this study

would not have been completed. Therefore, special

appreciation and acknowledgments are extended for

this consideration.

Two tools were developed to judge patient vocaliza-

tion and nurse response: The Patient Vocalization and

Nurse Response Record and The Nurse-Experienced Discomfort

Index. On the vocalization and response record, vocal-

izations were given a score based on two criteria:

Greenleaf, Susan Jane (M.S., Nursing)

An Exploratory Study of the Reaction of Nurses to Labor  
Patients Who Vocalized Pain

Thesis directed by Associate Professor Maxine Berlinger

The purposes of the study were: (1) to determine if a relationship exists between the amount of patient vocalization and the amount of nurse response; (2) to determine the effect of patient vocalization on the nurses' comfort during the situation; (3) to determine if the amount of patient vocalization could be related to a factor in the patient's background; (4) to determine if the length of labor was affected by the amount of patient vocalization; (5) to evaluate the amount of agreement between nurse and experimenter comfort during the study situation as an index for validity of the data; (6) to yield hypotheses worthy of further and more circumscribed investigation; and (7) to provide tools of data collection that would aid in further research.

The reaction of nurses was judged by the time spent with patients and the apparent discomfort of the nurses following each study period.

Two tools were developed to judge patient vocalization and nurse response: The Patient Vocalization and Nurse Response Record and The Nurse-Experimenter Discomfort Index. On the vocalization and response record, vocalizations were given a score based on four criteria:

(1) intensity, (2) duration, (3) pitch, and (4) urgency. Following each two-hour data collection period, both the nurses and the experimenter individually rated, on seven-point scales, questions of how difficult the patient was to care for; how each nurse, or the experimenter, felt in the situation; and how much pain the patient experienced.

From the two validated study hypotheses it was found: (1) as patient vocalization scores increased, nurses' discomfort ratings also increased; and (2) the nurses' and the experimenter's discomfort ratings were positively correlated.

On the basis of the findings recommendations for further study were made.

This abstract of about 250 words is approved as to form and content.

Signed Maxine R. Berlinger  
Instructor in charge of thesis

## TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION TO THE PROBLEM. . . . .	1
The Problem. . . . .	1
Statement of the problem . . . . .	1
Purposes of the study. . . . .	1
General hypotheses of the study. . . . .	2
Study hypotheses . . . . .	3
Importance of the study. . . . .	4
Assumptions of the study . . . . .	4
Scope and limitations of the study . . . . .	5
Definitions of Terms Used. . . . .	8
Organization of the Remainder of the Thesis. . . . .	9
II. REVIEW OF THE LITERATURE . . . . .	10
Various Psychological Aspects of Pain. . . . .	11
Definitions of pain. . . . .	11
Philosophical and cultural arguments . . . . .	12
Theories on the dual perception-reaction aspect of pain . . . . .	18
Implications of the Psychological Aspects of Pain on the Nursing Care of Labor Patients . . . . .	25
Psychological factors affecting labor pain . . . . .	25
Meeting patients' needs for pain relief. . . . .	30
Summary. . . . .	33

CHAPTER	PAGE
III. METHODOLOGY. . . . .	34
Selecting the Method of Study and Its	
Application to the Research Problem. . . . .	34
Steps Undertaken in Conducting the Study . . .	36
Preliminaries to conducting the study. . . .	36
The patient population . . . . .	36
The nurse population . . . . .	37
The hospital setting . . . . .	38
Medical care . . . . .	39
The Tools Utilized for Collection of Data. . .	40
The Nurse Background Questionnaire . . . . .	40
The Patient Background Information . . . . .	41
The Patient Vocalization and Nurse Response	
Record . . . . .	42
Patient vocalization . . . . .	43
Nurse responses. . . . .	46
Scoring method . . . . .	47
The Nurse-Experimenter Discomfort Index. . .	49
Statistics Used for the Analysis of the Data .	50
Summary. . . . .	51
IV. ANALYSIS AND INTERPRETATION. . . . .	53
The Study Populations. . . . .	54
Description of the nurses. . . . .	55
Description of the patients. . . . .	57
Analysis of Data from the Tools Utilized . . .	62
Patient vocalization and nurse response data	62

CHAPTER	PAGE
Significant correlations . . . . .	66
Nurse-Experimenter Discomfort Index data . .	70
Correlation of patient background data . . .	75
Significant Correlations Among Tool Data . . .	77
Relationship of Findings to Study Hypotheses .	79
Study hypotheses . . . . .	79
Summary. . . . .	82
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS. . . .	84
Summary. . . . .	84
Conclusions. . . . .	87
Recommendations. . . . .	88
BACKGROUND BIBLIOGRAPHY. . . . .	91
BIBLIOGRAPHY . . . . .	95
APPENDIX A. Letters Requesting Permission to	
Conduct the Study . . . . .	100
APPENDIX B. Nurse Background Questionnaire. . . . .	103
APPENDIX C. Patient Background Information. . . . .	105
APPENDIX D. Patient Vocalization and Nurse Response	
Record. . . . .	107
APPENDIX E. Nurse-Experimenter Discomfort Index . . .	109



LIST OF TABLES

TABLE	PAGE
I. Definition of Patient Vocalization Categories. .	44
II. Nurse Background Data. . . . .	55
III. Patient Background Data. . . . .	58
IV. Correlation Matrix . . . . .	63
V. Patient Vocalization and Nurse Response Data . .	65
VI. Nurse-Experimenter Discomfort Index Ratings. . .	71
VII. Correlation Matrix for Nurse-Experimenter Discomfort Data. . . . .	73

## CHAPTER I

### INTRODUCTION TO THE PROBLEM

A concept greatly emphasized in nursing education today is comprehensive nursing care designed to meet all of the patient's needs. Hopefully this care will assist the patient to achieve the highest level of wellness indicated by his individual abilities.

Evaluation of patient care is accomplished by analyzing patient response, both the physical and emotional response to the nursing care he received. However, it is necessary to know the nurse's reaction to a patient, for this may determine the quality and quantity of nursing care she is able to give. After her reaction is known, the factors causing the reaction could be explored in a systematic, impartial manner.

#### I. THE PROBLEM

##### Statement of the problem

This study explored the reaction of nurses to labor patients who vocalized pain.

##### Purposes of the study

The study was undertaken for the following reasons:

1. To determine if a relationship exists between the

amount of patient vocalization and the amount of nurse response.

2. To determine the effect of patient vocalization on the nurse's comfort during the situation.

3. To determine if the amount of patient vocalization could be related to a factor in the patient's background.

4. To determine if the length of labor was affected by the amount of patient vocalization.

5. To evaluate the amount of agreement between nurse and experimenter comfort during the study situation as an index for validity of the data.

6. To yield hypotheses worthy of further and more circumscribed investigation.

7. To provide tools of data collection that would aid in further research.

#### General hypotheses of the study

The general hypotheses were formed from the study's purpose. The following statements were made:

1. An indirect relationship exists between the amount of patient vocalization and the amount of nurse response to the patient.

2. An indirect relationship exists between the amount of patient vocalization and the number of nurse responses.

3. Patient vocalization causes an untoward nurse reaction and directly affects her comfort in the situation.

4. The tendency for a patient to vocalize is related to some factor in the patient's background.

5. The length of labor is directly related to the amount of vocalization.

6. The situational comfort of the experimenter and the nurse had to be comparable for the vocalization data to be valid.

7. The study will yield hypotheses worthy of further investigation.

8. The tools used in data collection will aid in further research.

### Study hypotheses

The following hypotheses were tested:

1. As the patient vocalization score increased, the amount of time the nurses spent in the patient's room decreased.

2. As the patient vocalization score increased, the number of times the nurses entered the patient's room decreased.

3. As the patient vocalization score increased, the nurses' discomfort rating also increased.

4. Some of the patients' background data was positively correlated to the patients' vocalization scores.

5. As the vocalization score increased, the length of labor increased.

6. The nurses' discomfort rating correlated positively with the experimenter's discomfort rating during the study situations.

### Importance of the study

This was an exploratory study to ascertain whether a need existed for further research in this area. No prior research clearly revealed a need for a study of this nature.

Many factors could alter nurse responses to patients. This study explored only one factor: patient vocalization. Studies have emphasized the need for a positive nurse approach to patients. The importance of patients' needs has been clearly stressed if not overemphasized in the literature. Before the nursing needs of patients can be met, there have to be nurses capable of meeting them. Thus, it would seem that any factor of the nurse-patient environment which possibly hinders the nurse in meeting patients' needs is unquestionably worthy of exploration.

### Assumptions of the study

The study assumed that vocalization of patients is an important factor in nurse-patient relationships. It was further assumed that the reaction of the nurse to a patient is just as important if not more important than is the reaction of the patient to the nurse. If a patient does not like his nurse or feels he is not receiving adequate nursing care, he has the opportunity to report it to the hospital administration. If a nurse finds it difficult to deal with a patient, however, she is expected to overcome her difficulties or to "grin and bear it." This has been considered a part of her nursing role ever since the Nightingale era.

However, in evaluating nursing care, patients are the primary sources of data.

The nurse cannot meet these patient needs if there is something in the situation which causes her anxiety or stress. She must overcome situational factors. It is assumed that patient vocalization does cause a reaction in the entire staff on an obstetrics unit. Therefore, this study was designed to explore how the nurse reacted to patient vocalization as judged by the amount of contact she made with patients and her comfort in the situation.

#### Scope and limitations of the study

All patients pregnant a total of one to three times who were admitted to the labor and delivery area of a state teaching hospital between June 7, 1965, and July 18, 1965, had equal opportunity to be included in the study population.

Further criteria for patient selection included primiparous and multiparous patients through gravida III who had essentially normal antepartal histories for this pregnancy, carried the child full term, took at least two hours from five centimeters cervical dilatation until delivery, and had no obvious problems which would prevent a normal labor and delivery.

Since only one patient could be studied at a time, this factor also limited the patient population. In such a case, where there was more than one patient in labor who met the study criteria, the patient selected was the first one

to reach five centimeters of cervical dilatation. If two patients had progressed in cervical dilatation at the same rate, a coin would have been flipped to decide the patient chosen for the study population. However, further limitations to the patient population were the physical limitations of the experimenter, requiring at least a one-hour rest period between each two-hour data collection, and the experimenter's class hours which totalled seven hours weekly between June 14, 1965, and July 17, 1965.

The fluctuating ward census was another study limitation. The fact that many complicated obstetrical cases were treated at this teaching hospital also limited the patient population. Other patients with no previous hospital records would be admitted in advanced, active labor and would deliver before the completion of the two-hour data collection period.

At the study's onset, the nursing staff quite frequently forgot to call the experimenter when eligible study patients were five centimeters dilated. Since five patients were missed for this reason alone, it was one of the greatest limitations of the study.

Each nurse, including nurses' aides and licensed practical nurses, working on the labor and delivery unit during the dates specified, was eligible for inclusion in the nurse population. A further criterion was that the nurse had to enter the room of a study patient during the two-hour data collection period. The fact that this was a

teaching hospital and medical students were on the ward in many cases could have affected the number of times the nurse felt it was necessary for her, rather than the doctor, to respond to the patient.

A main limitation in comparing nurse response to patient vocalization was that a patient may have had more than one nurse care for her. In analyzing the data, when there were several nurses caring for one patient, the nurses were treated collectively. Thus, the total response of the nurses was used for number of times the nurse entered the patient's room; the mean (average score) of the nurses was computed on the nurse discomfort index.

Factors possibly causing patient verbalizations are varied. The primary interest was not in what caused or affected the amount of pain the patient experienced (such as a medication). The outcome in vocalization of the pain experience was the major concern of this study. A patient was included if she met the study criteria, whether or not she vocalized, since contrasts were needed to study the nurses' responses.

It was necessary to cease data collection on July 19, 1965, in order to allow enough time for data analysis. Although a larger study population would have yielded data of more statistical significance, the time limits for the study's completion limited the data collection period. From a study of this size conducted in only one hospital, no generalizations could be made to other hospital settings.



## II. DEFINITIONS OF TERMS USED

These definitions are for terms used in the statement of the problem. Other terms used in the tools designed for data collection will be defined in Chapter III, Methodology.

Reaction. Reaction was reciprocal or return action or influence.<sup>1</sup> It was measured in this study by the total amount of time the nurse spent in a patient's room; the total number of times she entered the patient's room; the number of times the nurse went to the patient in response to patient vocalizations; the nurse's rating on the discomfort index.

Nurse. A nurse in this study was any licensed registered nurse, licensed practical nurse, or hospital aide who worked on the labor and delivery unit of the study hospital and subsequently cared for labor patients included in the study population.

Labor patient. A labor patient in this study was a patient who was pregnant for the first to third time; was admitted to the labor and delivery unit of the study hospital between June 7, 1965, and July 18, 1965; met the criteria for the study; was subsequently included in the patient population.

Vocalize. Vocalize was defined as to form or to change into voice in order to give utterance or expression

---

<sup>1</sup>Webster's New Collegiate Dictionary. Springfield, Massachusetts: G. C. Merriam Company, 1959, p. 703.

to something.<sup>2</sup> It implied, for the purposes of this study, an audible sound instigated by the pain of labor contractions.

Labor pain. Labor pain, for the purposes of this study, was defined as pain impulses arising in the course of normal human obstetrical labor from the force of uterine contractions and the subsequent pressure of the fetus upon the mother's cervix.

### III. ORGANIZATION OF THE REMAINDER OF THE THESIS

Chapter II consists of a review of literature on the subject of pain. The review is limited to literature describing the various psychological aspects of pain and the implications of these aspects in the nursing care of labor patients. Chapter III presents the methodology used in the study. It includes a discussion of the exploratory study, the tools utilized in the collection of data, and the approach to the analysis. In Chapter IV the data is analyzed and interpreted. Chapter V contains the summary, conclusions, and recommendations for further research based on the findings.

---

<sup>2</sup>Ibid., p. 956.

## CHAPTER II

### REVIEW OF THE LITERATURE

This chapter contains a review of literature divided into three sections: (1) various psychological aspects of pain; (2) implications of psychological aspects of pain in the nursing care of labor patients; and (3) a summary of the chapter.

The review is limited to the psychological aspects of pain since the literature indicated that: (1) the physiology of pain impulses is the same for all "normal" individuals; and (2) a person perceives and responds to his pain on a purely psychological basis.

The review of periodical literature encompassed the following index references from 1960 to the present:

1. Cumulative Index to Nursing Literature
2. Dissertation Abstracts
3. Hospital Literature Index
4. Psychological Abstracts

In addition, nine reference citations were obtained from an IBM MEDLARS service. The IBM search covered 291,379 citations listed in the Index Medicus from January, 1964, through July, 1965. Of these references, only two were sufficiently pertinent to be included in this review of literature.

## I. VARIOUS PSYCHOLOGICAL ASPECTS OF PAIN

In the ensuing discussion a wide variety of psychological theories are presented to represent and define pain. These theories summarize the major controversies of the study of pain. Since there has been little agreement among researchers in delineating pain, few if any conclusions can be drawn. There are many research questions yet unanswered and/or substantiated by thorough statistical analysis. The Background Bibliography cites many other references concurring with one or more of the theories presented by representative authors chosen for discussion in the following review of literature.

### Definitions of pain

Pain is described in many ways. Melzack refers to it as "a private and personal experience" perceived in a different manner and degree by each individual or "a category of complex experiences, not a single sensation produced by a specific stimulus."<sup>1</sup> The dictionary defines pain as:

1. Punishment; penalty.
2. A distressing feeling due to disease, bodily injury, or organic disorders.
3. Distressing uneasiness of mind; grief.
4. (plural) The throes of childbirth.
5. (chiefly plural) Labor; care or trouble; as to labor pains.<sup>2</sup>

Synonym. See Effort.

---

<sup>1</sup>Ronald Melzack, "The Perception of Pain." Reprint from Scientific American, February, 1961. San Francisco: W. H. Freeman and Company, 1961, pp. 3 and 11.

<sup>2</sup>Webster's New Collegiate Dictionary, op. cit., p. 603.

Virginia Woolf in her essay "On Being Ill" gives a pertinent description of the complexities surrounding a concise definition of pain:

English, which can express the thoughts of Hamlet and the tragedy of Lear, has no words for the shiver and the headache. . . . The merest schoolgirl, when she falls in love, has Shakespeare and Keats to speak for her; but let a sufferer try to describe a pain in his head to a doctor and language at once runs dry.<sup>3</sup>

### Philosophical and cultural arguments

Philosophers argue whether pain is a sensation or an emotion. As a sensation it has a threshold, a quality and location. But viewed simply as an emotion it assumes a "pervasive, all-encompassing manner of concentrating attention on the affected part."<sup>4</sup>

Pain is as old as the existence of human life. Reference to it can be found repeatedly in early Greek myths and the Bible. In the Book of Genesis it is stated that pain came to man through the Fall at the time Adam and Eve were expelled from the Garden of Eden.<sup>5</sup> This pain so early described in the first book of the Bible points to the psychological basis as well as physical causes of pain.

Something "painful" or "distressing" may be an

---

<sup>3</sup>Melzack, op. cit., p. 11. Citing quotation from an essay by Virginia Woolf, "On Being Ill."

<sup>4</sup>Walter Freeman and James W. Watts, Psychosurgery in the Treatment of Mental Disorders and Intractable Pain. Springfield, Illinois: Charles C. Thomas, 1950, p. 254.

<sup>5</sup>Fredrick Prescott, The Control of Pain. London: English Universities Press Ltd., 1964, p. 1.

emotional state; thus, an experience or event only resembles pain as opposed to causing or being the pain. What is unpleasant may not be painful, so displeasure and suffering (long thought synonymous) are not always painful. Sensory impressions (like feelings, thoughts or experiences) are characteristic of genuine pain only when they present physical pain sensations. This does not mean that pain cannot have a psychological origin. But if these essential physical characteristics are lacking, then such sensory impressions should be described by terms like "unpleasant," "embarrassing," or "depressing" instead of "painful."

Pain also appears in the case of very strong unfulfilled desires. The classic example is the "pain of love" such as "suffering from a broken heart." A feeling of constriction of the heart muscle as from a sudden emotional shock may be felt by the body as physical pain.<sup>6</sup>

In contrast to this, Plato considered pain arising not only from physical peripheral stimulation but also from emotional experiences in the soul.

We must agree that folly is a disease of the soul; and of folly there are two kinds, the one of which is madness, the other ignorance. Whatever affection a man suffers from, if it involves either of these conditions it must be termed disease, and we must maintain that pleasures and pains in excess are the greatest of the Soul's diseases. For when a man is overjoyed, or contrariwise suffering excessively from pain, being in haste to seize on the one and avoid the other

---

<sup>6</sup>Fredrick J. J. Buytendijk, *Pain*. Chicago: University of Chicago Press, 1962, pp. 132-41.

beyond measure, he is unable either to see or to hear anything correctly, and he is at such a time distraught and wholly incapable of exercising reason . . . and again in respect of pains likewise the soul acquires much evil because of the body.<sup>7</sup>

In modern American and Western European culture, the social orientation toward pain is characterized by two opposite views: (1) Pain is considered to be bad and as such it is to be combated and, if possible, overcome; or (2) Pain and suffering indicate, both to the person's superego (or conscience) and to others that the person is good or is trying to be good. Then pain and suffering are very ego-oriented and can readily be substituted for realistic effort and accomplishment. This latter concept implies a change. What an observer may judge as being a painful experience is transformed and the pain is actually experienced as "pleasure." In this context the pain becomes "erotized" into "pleasure." By making this connection the important influence of Judaism, Christianity, and of a Protestant ethic is apparent. Also, at this point some connections between pain and pleasure on the one hand and secular law on the other become evident. Then pain could be considered, among other things, a currency with which we repay damages done unto others. Cultural attitudes toward pleasurable experiences also contain many complicated and essentially arbitrary value judgments of what are acceptable modes of

---

<sup>7</sup>K. D. Keele, Anatomies of Pain. Springfield, Illinois: Charles C. Thomas, 1957, p. 25, citing quotation from Plato's "Timaeus" translated by R. G. Bury, London, 1952.

enjoyment (pleasure).<sup>8</sup>

Zborowski studied four different cultural groups within the United States and compared their attitudes toward pain. He found individual pain reaction variances between Jewish, Italian, Irish, and "Old American" (at least third generation of United States' citizens) groups due to:

1. Character of disease causing the pain
2. Personality of the patient
3. Degree of Americanization of the patient
4. Socio-economic background
5. Education
6. Religiosity
7. Family environment<sup>9</sup>

The idea that pain and suffering somehow ennobles us has far-reaching consequences for daily life. The ever-present "cynic" or "sad sack" is a constant reminder of the philosophy that an unhappy frame of mind is necessary to spur us on to constructive action or to keep us "usefully" alive. According to Szasz, whether a need becomes stressful or not depends principally on the possibilities available for its satisfaction.<sup>10</sup>

The painful experience of childbirth, as it is widely regarded in our culture, can be directly opposed by anthropological studies of childbirth in primitive societies. In

---

<sup>8</sup>Thomas S. Szasz, Pain and Pleasure. New York: Oxford University Press, 1959, pp. 248-49.

<sup>9</sup>Mark Zborowski, "Cultural Components in Responses to Pain," Journal of Social Issues, Volume 8, No. 4 (1952), pp. 26-30.

<sup>10</sup>Szasz, op. cit., p. 250.



some such observed cultures a woman may continue to do heavy farm work in the field until childbirth is imminent. The husband may then go to bed and simulate anguished cries of great pain while the wife calmly bears the child and resumes work in the fields. This does not mean that women in our culture are falsifying their pain, but it does mean that our culture recognizes childbirth as possibly endangering the life of the mother and thus young girls may learn to fear it as they grow up. Books such as Childbirth Without Fear which stress "natural childbirth" discuss the fear-tension-pain syndrome as a primary cause of unbearable labor pain.<sup>11</sup> The literature stresses the extent to which fear increases the amount of pain felt and how hard it is to dispel this fear when it is so firmly engrained by the onset of labor.<sup>12</sup>

Pain is one of man's primary concerns. It is probably more responsible for bringing the patient to the doctor than any other symptom. Thus it would seem that understanding pain would be of paramount concern to the physician. However, despite the importance of pain in diagnosis, the doctor has no certain way of detecting how much pain his patient is experiencing. As in the case of other sensations, he can know the degree of pain only through his patient's testimony, for only the patient can feel the pain. A

---

<sup>11</sup>Grantly Dick Read, Childbirth Without Fear. New York: Harper & Brothers, 1953; Pierre Vellay, Childbirth Without Pain. New York: E. P. Dutton & Company, 1960.

<sup>12</sup>Melzack, op. cit., p. 3.

particular pain experience cannot be shared by the examiner. This subjective difficulty in appraisal of pain may make the study of pain an even more challenging research problem.<sup>13</sup>

The ancient concept of pain as an emotion is supported by more recent information, which includes emotions and attitudes as being among the identifiable reactions to pain. But pain is a sensation; and, as with other sensations, it is mediated by specialized neural equipment.<sup>14</sup> In 1947, Sir Charles Sherrington discounted the importance of the physiology of the pain stimulus. Prescott quotes him as having said:

Physical pain is not a simple fact of nervous impulses travelling over a nerve at a predetermined gait. It is the resultant of the conflict between the stimulus and the individual.<sup>15</sup>

Within the pain experience there are predictable aspects which could be studied if quantitative techniques were available. Separating the pain experiences into component parts for study and analysis is done in recognition that the "total experience" is more (or less) than the sum of its parts. The individual comprehension of the pain experience might be used as a possible starting point for delineation of both its parts and their integration. Such

---

<sup>13</sup>Harold G. Wolff and Stewart Wolf, Pain. Springfield, Illinois: Charles C. Thomas, 1958, p. 3.

<sup>14</sup>James D. Hardy, Harold G. Wolff, and Helen Goodell, Pain Sensations and Reactions. Baltimore: Williams & Wilkins Company, 1962, p. 391.

<sup>15</sup>Prescott, op. cit., p. 60.

a study must take into account the obvious personal nature of the pain experience bearing the stamp of the individual, and differentiated cultural conditionings to which he is subjected.<sup>16</sup>

Then pain is a phenomenon which is intimately linked to human nature. A deeper probe into this reality suggests that it is characterized by an ambiguous relationship between the subject and his body. Philosophically, this seems rationally incomprehensible, for in a certain way we are our body and we have a body. The French philosopher Gabriel Marcel has said:

We cannot identify our self being completely with our body and we can not completely distinguish our 'self' from our body. The site of pain appears to be the zone where having emerges into being.<sup>17</sup>

Physiologists who investigate pain define it as a sensation, similar to senses of hearing, sight, smell, taste, and touch. The sensation of pain experienced by both animals and man to painful stimuli suggests that animals experience a similar sensation to that felt by man. However, the sensation of pain felt by the animal cannot be compared directly with that of man.<sup>18</sup>

#### Theories on the dual perception-reaction aspect of pain

Pain may be said to perform a useful function by

---

<sup>16</sup>Hardy, loc. cit.

<sup>17</sup>Buytendijk, op. cit., p. 171.

<sup>18</sup>Prescott, op. cit., p. 60.

protecting us from harmful stimuli. It warns us of possible harmful effects, and we avoid the stimuli afterwards if possible. For example, a child avoids fire because he learns that he will experience pain if he gets burned. This knowledge may be the result of a painful prior experience with fire before he learned this lesson. Pain also prevents overexertion in physical activity from aggravating an injury such as a fracture or sprain. The pain in the limb prevents it from being used. If it were used, the fractured bone ends might not knit together. Certainly, an animal that did not sense pain would not live long in its natural surroundings. Thus, the response to pain, part of both animal and humans, is essential to insure that we will avoid dangerous and damaging stimuli. An injured limb heals quicker if it is rested, and pain stops us from doing things that are deleterious. This means that pain is essential for our self-preservation and the healing of injuries.

The response to pain is twofold. It involves two main processes: the perception of the unpleasant stimulus (original sensation) and the reaction to it (the psychic processing of the original sensation). People vary widely in their response and that is why a doctor never has guidelines to judge how much pain is the result of any particular injury or disease. The reaction to pain is purely subjective.<sup>19</sup>

---

<sup>19</sup>Prescott, *op. cit.*, p. 61; John J. Bonica, The Management of Pain. Philadelphia: Lea & Febiger, 1953, p. 73.

Pain perception represents a purely sensory phenomenon, according to Prescott and Bonica. Thus, in laboratory settings, researchers agreeing with these authors have emphasized experimentally produced pain. Since the pain threshold describes physically perceptible pain, it is a clinically observable and measurable factor. It is defined as:

. . . the lowest perceptible intensity of pain caused by a pain threshold stimulus, which is that amount (and no more) of stimulus necessary to induce threshold pain.<sup>20</sup>

The lack of a dependable response to the pain threshold with analgesics and/or no dependable elevated threshold with narcotics is evidence against narcotics acting on the peripheral pain apparatus in both men and animals. It does not seem likely that men and animals would differ at such a low level, although animals do experience a slight rise in the pain threshold with narcotics.<sup>21</sup>

There are a few cases where pain thresholds have been raised not only by narcotics but by placebos as well. However, in a study of 52 obstetrical patients under three different pain experiences, statistical analysis revealed the number of patients consistently reacting positively to the placebo were not greater than chance expectations. Possibly more important was the finding that the patients

---

<sup>20</sup>Bonica, op. cit., pp. 76-77.

<sup>21</sup>Henry K. Beecher, Measurement of Subjective Responses. New York: Oxford University Press, 1959, pp. 174-75.

responded to each of the three situations independently. No statistically significant correlations could be drawn to show a tendency for patients to respond alike in the three pain situations of labor, postpartum, and experimentally produced ischemic muscle pain.<sup>22</sup>

To substantiate his belief that the peripheral pain apparatus (the physiological stimulus pain pattern) has little or nothing to do with either the perception or response to pain, Beecher cites the behavior he carefully observed in severely wounded soldiers during World War II. Of wounded carried into combat hospitals, only one out of three complained of enough pain to require morphine. Beecher stated that these men were not in shock and/or totally unable to feel pain since they complained as loudly as "normal" men at an inept venal puncture. In contrast, upon return to clinical practice as an anesthesiologist, Beecher asked civilians (who had undergone surgery with incisions similar to those the soldiers received) if they wanted morphine for pain relief. Four out of five of the civilians complained of severe pain and begged for morphine. This seemed to oppose the common belief that wounds are inevitably associated with pain and that the more extensive the wound the worse will be the pain.

There is no simple direct relationship between the wounds per se and the pain experienced. The pain is in very large part determined by other factors, and of great importance here is the significance of the

---

<sup>22</sup> Robert Liberman, "An Experimental Study of the Placebo Response," Journal of Psychiatric Research, Vol. 4, No. 4, December, 1964, pp. 223-47.

wound. . . . in the wounded soldier the response to injury was relief, thankfulness at his escape alive from the battlefield, even euphoria; to the civilian, his major surgery, even though essential, was a depressing, calamitous event.<sup>23</sup>

Hall and Stride in England found that using the word "pain" in a set of instructions made anxious subjects report a level of electric shock as painful. The same level of shock was not reported painful when the word "pain" was omitted from the instructions.<sup>24</sup>

Because there is a lack in the consistency of the pain threshold, this weakens the Hardy, Wolff thesis that they are measuring original sensation of pain with their artificially laboratory produced stimuli method divorced from reaction.<sup>25</sup> Possibly Beecher is correct in his belief that variations in the reaction component are responsible for the inconsistency of the pain threshold. At least all researchers reviewed believe that the pain threshold is highly subject to psychological factors.<sup>26</sup>

Melzack in 1961 came out strongly in support of Beecher. His views are summarized as follows:

The psychological evidence strongly supports the view of pain as a perceptual experience whose quality and intensity is influenced by the unique past history of the individual, by the meaning he gives to the

---

<sup>23</sup>Beecher, op. cit., p. 165.

<sup>24</sup>Melzack, op. cit., p. 5.

<sup>25</sup>Hardy, op. cit., pp. 52-146.

<sup>26</sup>Beecher, op. cit., p. 176; Bonica, op. cit., p. 73; see also Background Bibliography.

pain-producing situation and by his "state of mind" at the moment. We believe all these factors play a role in determining the actual patterns of nerve impulses ascending to the brain and traveling within the brain itself. In this way pain becomes a function of the whole individual, including his present thoughts and fears as well as his hopes for the future.<sup>27</sup>

The response to pain sensations may depend to a varying degree on an individual's past experience and the meaning of the pain sensation in terms of threat. This society's attitude and an individual's past experience with pain sensation may (contrary to Hardy's beliefs) modify the pain threshold and the ability to discriminate the intensity of the pain sensation.<sup>28</sup>

Reaction to pain is a complex physiopsychic process which involves the highest cognitive functions of the individual. It is a feeling or state described by Aristotle as "the passion of the soul." The reaction to pain represents the emotional and physiological expressions resulting from its perception. Simply expressed, the reaction is what an individual feels, thinks, and does about his pain as he perceives it. The pattern depends partially upon what the sensation means to the individual in light of his past life experience, and his attitude toward it. His attitude may reflect his mood, emotional status, his will, the state of the various cerebral functional processes, the presence and absence of anxiety, and many other factors.<sup>29</sup>

---

<sup>27</sup>Melzack, op. cit., p. 11.

<sup>28</sup>Beecher, op. cit., pp. 162-66.

<sup>29</sup>Bonica, op. cit., p. 73.



How then can pain be studied? In a comparison of the attitudes of experimental subjects undergoing pain stimulation with that of sick and anxious patients experiencing pain, some interesting facts were brought up as recommendations for further studies. The persistence of the pain (in the patient) plus its often mysterious, unpredictable and unknown causation factors indicates that in experience the reaction to pain may be of more significance than its perception.<sup>30</sup> Certainly reactions to pain, though subjective, can be studied psychologically with projective test tools which researchers have perfected.

Perhaps by studying responses to pain we can theorize about causes of pain. In undertaking any research on the subject, we should note these following statements representing some of the conclusions stated in 1959 by Beecher:

1. Pain cannot be satisfactorily defined, except as every man defines it introspectively for himself.
2. Pain sensations and pain perceptions are identical. Neither represents the "original sensation" alone but represents also an indefinite amount of psychic processing or reactive component.
3. No convincing demonstration has yet been given that the pain threshold is a constant from man to man, or from one time to another in a given man.
4. Only tentative conclusions can be drawn from studies concerning pain threshold for no experimental study has controlled even the

---

<sup>30</sup>Beecher, op. cit., p. 163.

majerity of numerous factors which are said to produce variations in the threshold.

5. There is no dependable relationship in man between the number of pain endings stimulated, or the degree of their stimulation, and the pain evoked.<sup>31</sup>

## II. IMPLICATIONS OF THE PSYCHOLOGICAL ASPECTS OF PAIN ON THE NURSING CARE OF LABOR PATIENTS

Much has been written in the literature of the emotional state of the mother as largely affecting her response to labor. Conversely, the effect of her labor experience can also affect her emotional state in general, and specifically affect her response to subsequent pregnancies. Thus it would seem that a part of the nurse's role would be to calm and reassure the mother as an attempt to minimize stress in the labor period.

### Psychological factors affecting labor pain

Stress is an important concept which is emphasized by Read in discussion of his theory on a fear-tension-pain syndrome. If a laboring woman is fearful (regardless of the numerous possibilities for causation of this emotion), she will become muscularly tense and resist or fight her contractions. This tenseness leads to increased pain physiologically.<sup>32</sup>

---

<sup>31</sup>Ibid., pp. 188-89.

<sup>32</sup>Read, op. cit.

Tokodynamometric studies<sup>33</sup> have further substantiated Read's theory. Using this technique, Reynolds repeatedly observed poor patterns of uterine contractions in nervous, tense labor patients.<sup>34</sup>

Bardwick studied the contractile rhythm of the uterus by means of an intra-uterine balloon. She found experimental data strongly supported the hypothesis that emotions affect the menstrual cycle and the contractions of the uterus. However, the contractile rhythm of the non-pregnant uterus appeared to be relatively unaffected by stress. No relationship could be found between the menstrual cycle phase and stress effect.<sup>35</sup>

Stevens related fear of birth to culture and life style. In her Ph.D. dissertation in 1954 she hypothesized:

Valuations of women pregnant for the first time tend to differ according to life style as a consequence of differences in cultural experiences.<sup>36</sup>

However, in summarizing her findings she found:

. . . among both middle class and lower class primiparae there appears to be a fear of labor per se as

---

<sup>33</sup>Clinical measurement of force and character of uterine contractions in pregnancy and labor by electronic devices.

<sup>34</sup>S. R. M. Reynolds, Jerome S. Harris, and Irwin H. Kaiser, Clinical Measurement of Uterine Forces in Pregnancy and Labor. Springfield, Illinois: Charles C. Thomas, 1954, p. 238.

<sup>35</sup>Judith M. Bardwick, "Uterine Contractions As a Function of Anxiety." Dissertation Abstracts, Vol. 25, No. 6, December, 1964, p. 3683.

<sup>36</sup>Phillipa B. Stevens, "A Social Psychological Study of Pregnant Women." Unpublished Ph.D. dissertation, University of Texas, Austin, Texas, 1954, p. 3.

well as a lack of knowledge about the experience to be faced during the birth of the baby.<sup>37</sup>

An exploratory study for a doctoral dissertation attempted to show the relationship of psychological variables to the degree of difficulty of childbirth. When the research was conducted fifteen years ago, there was little background of objective data or methodology available for guidance in this area. Kann felt that physicians were aware of psychogenetic factors and seldom would make a diagnosis without considering these aspects. But enough mysticism and taboo still surrounded the field of reproduction to have blocked objective investigation into the possible psychosomatic aspects of childbirth. There was still the persistent belief that labor pains made for better motherhood. The study attempted to establish a relationship between the psychological adjustment of the pregnant woman to the degree of difficulty in labor. The quantitative psychological personality appraisal of the 21 primiparae patients yielded inconclusive evidence. Evaluation of patients' prenatal adjustment by clinical psychologists yielded the following conclusions:

1. The more stable patients seemed to react well to labor regardless of whether the physical factors in her labor were favorable.
2. The more unstable patient was more likely to react poorly when physical factors of labor were not as favorable.

This study hoped to yield hypotheses worthy of further

---

<sup>37</sup>Ibid., p. 149.

investigation. Relating emotional stability to the ease or difficulty of labor was the only firm conclusion leading to further research. The small population used made a more detailed analysis statistically impossible.<sup>38</sup>

Maurice Zemlick in his Ph.D. dissertation was interested in how past experience and present attitudes might be related to the pregnant woman's prenatal adjustment. The study was limited to attitudes and feelings the patients experienced during and after pregnancy. He found attitudes or feelings of either psychic rejection and/or acceptance of pregnancy to be present in all his study patients.<sup>39</sup> Thus Zemlick summarized that past and present attitudes of parturient women seemed to play a large role in determining emotional and physical adjustment both toward pregnancy and to the type of mother-child relationship that follows. He further found a statistically significant number in his patient population to have greater difficulty in labor and parturition proportionately both to the amount of emotional distress they displayed during pregnancy and suffering they endured from physical distress of labor and parturition.<sup>40</sup>

---

<sup>38</sup>Jules Kann, "An Exploratory Study of the Relationship of Certain Psychological Variables to the Degree of Difficulty of Childbirth." Unpublished Ph.D. dissertation, University of Pittsburg, Pittsburg, Pennsylvania, 1950, pp. 1 and 42.

<sup>39</sup>Maurice Zemlick, "Maternal Attitudes of Acceptance and Rejection During and After Pregnancy." Unpublished Ph.D. dissertation, Washington University, St. Louis, Missouri, 1952, pp. 1-109.

<sup>40</sup>Ibid., p. 91.

In another study eight maternal complications were found to be statistically related to anxiety: (1) dysmenorrhea, (2) use of forceps in delivery, and (3) a prolonged second stage of labor.<sup>41</sup>

Riffaterre conducted a research study in which the findings indicated there might be a relationship between pregnancy and depression which was independent of marital status or affiliation of the woman to a union or agency.<sup>42</sup> However, no generalizations could be made from this study to apply to pregnant women in general (as one group) because the study population included only Jewish women from New York City. It is doubtful if these study findings are representative of the total pregnant population of the United States.

Another study compared the effects of antepartal education on the childbirth process. It was found that mothers who were educated for childbirth were calmer and experienced less pain during labor and delivery than did the mothers who did not take the prenatal course. The experimental group of mothers needed fewer sedatives and their labor was significantly shorter in comparison to the control

---

<sup>41</sup>Helen Therese Klein, "Maternal Anxiety and Abnormalities of Birth: Relationship Between Anxiety Level During Pregnancy and Maternal-Fetal Complications." Dissertation Abstracts, Vol. 25, No. 3, September, 1964, p. 2049.

<sup>42</sup>Brigitte Berthe Riffaterre, "Determination of Pregnancy Depression and Its Relation to Marital Status and Group Affiliation in a Single Ethnic Group." Dissertation Abstracts, Vol. 25, No. 9, March, 1965, p. 5390.

group of mothers with no antepartal class instruction. The antepartal classes seemed to benefit all women regardless of their educational backgrounds, but it was of most benefit to the more highly educated women.<sup>43</sup>

#### Meeting patients' needs for pain relief

Psychological aspects of the labor experience are being brought forward and emphasized extensively in literature. As this is being done, nursing is taking another look at the care the labor patient is receiving. Both medical and nursing professions are trying to understand and use patients' emotional reactions to the fullest to aid, not hinder, the labor process. The new term of supportative nursing care has been described as being patient-need centered and based on the physiological function of labor.<sup>44</sup> Emphasis is placed on the psychological needs of patients. Insuring patient comfort by relief from pain is listed as a primary patient need in the literature.<sup>45</sup>

---

<sup>43</sup>Maj-Briht Bergstom-Walen, "Efficacy of Education for Childbirth," Journal of Psychosomatic Research, Vol. 7 (October, 1963), pp. 131-46.

<sup>44</sup>Josephine E. Davidson, "An Assessment of the Value of Hypnosis in Pregnancy and Labour," British Medical Journal, II (October 13, 1962), p. 7; Herbert Thoms and Ernestine Weidenbach, "Support During Labor," Journal of the American Medical Association, CLVI (September, 1954), p. 216.

<sup>45</sup>Mae M. Bookmiller and George L. Bowen, Textbook of Obstetrics and Obstetric Nursing. Philadelphia: W. B. Saunders Co., 1963, p. 243; Edward M. Davis and Reva Rubin, Obstetrics for Nurses. Philadelphia: W. B. Saunders Co., pp. 192-203; Elsie Fitzpatrick and Nicholson Eastman, Zabriskie's Obstetrics for Nurses. Philadelphia: J. B.

Although nurses may feel they meet patients' needs as much as possible, some patients in talking about their childbirth experiences have indicated dissatisfaction with the care they have received. Unfortunately, little or nothing has been recorded of the nurses' thoughts and reactions with the exception of a few personal experiences cited in nursing literature. It seems unfortunate and/or a one-sided approach to have used only patients as the source for evaluation and conclusions concerning nursing care.

One study indicated that pregnant mothers with one child were worried about pain during delivery when they thought about giving birth a second time. They also were frightened while in labor. Over 70 per cent of the 250 patients included in another sampling indicated they had no idea of what labor would be like.<sup>46</sup>

A second study, with a population of 1,048 patients from two hospitals, revealed that patients felt the nurses treated them very well during labor and delivery. This was surprising, for 37 per cent then went on to describe the nurse as unsympathetic, abrupt, rude, hostile, and/or sarcastic. Another mean total of 85.5 per cent of the patients

---

Lippincott Co., 1960, p. 243; Marions Lesser and Vera R. Keane, Nurse-Patient Relationships in a Hospital Maternity Service. St. Louis: C. V. Mosby Co., 1956, p. 100; Thoms and Weidenbach, op. cit.

<sup>46</sup> Christine Smith, "We Asked the Patients," Nursing Outlook, Vol. 6, August, 1958, pp. 458-59.



in the two hospitals felt they were neglected.<sup>47</sup>

Kline in a master's study found the father a significant factor to consider in planning nursing care for the labor patient. From her data she found a mean decrease of 2.36 hours in a patient's labor when her husband was present.<sup>48</sup>

Nursing World cited an article from Ladies' Home Journal, "Cruelty in Maternity Wards," as saying:

. . . most prospective mothers realize that members of the medical profession are truly dedicated human beings. On the other hand, doctors and nurses should more fully understand their patients if undesirable practices in the maternity wards are to be eliminated.<sup>49</sup>

A labor patient's acceptance of her maternal role can be attributed to her labor and delivery experience as well as to her pregnancy. This quote by Shainess summarizes the psychological importance of pain relief during labor:

Significant contributions to the mother-child tie occur during pregnancy and delivery, and the woman's sense of mastery of her most vital function, reproduction, in terms of ego-identity or self-esteem, shapes her acceptance of the child.<sup>50</sup>

---

<sup>47</sup>Purvis L. Martin and Stewart H. Smith, "Public Relations in Our Maternity Wards," American Journal of Obstetrics and Gynecology, Vol. 81 (June, 1961), pp. 1079-85.

<sup>48</sup>Mary M. Kline, "The Effects of Fathers Upon Direct Nursing Care." Unpublished Master's thesis, University of Colorado, 1960, p. 44.

<sup>49</sup>Shirley Hope Alperin, "What They're Saying," Nursing World, February, 1959, p. 6.

<sup>50</sup>Natalie Shainess, "The Psychologic Experience of Labor," New York State Journal of Medicine, CLIII (October 15, 1963), p. 2924.

## III. SUMMARY

The review of the literature discussed various psychological aspects of pain. A variety of philosophical and cultural arguments relating to psychological theories were presented. The review indicated that a person perceives and responds to his pain on a purely psychological basis and that the physiology of pain impulses is the same for all "normal" individuals. For this reason the physiological aspects of pain experience were excluded from the review.

Studies were presented to support the need for effective pain relief during labor. Patient evaluations of nursing care revealed some patient dissatisfaction with the care received. Patients were often apprehensive and fearful of the pain experience. Antepartal preparation for the birth process and the presence of fathers in labor rooms were found to have direct positive effects in decreasing the amount of time patients spent in labor.

From the review of literature it was discovered that research studies used patient opinion as the tool for evaluating nursing care and its effect on meeting or not meeting patient needs. No data of statistical significance was found in research studies using other methods of analysis as opposed to patient opinion. For this reason an exploratory study was undertaken to discover nurses' reactions to vocal labor patients. The methodology used in the study is discussed in the following chapter.

### CHAPTER III. METHODOLOGY

The purpose of this study was to determine the reaction of nurses to labor patients who vocalized pain. To discover what this reaction might be, an exploratory study was undertaken. This chapter presents the methods used in conducting the study and the statistics employed to analyze the study data.

#### I. SELECTING THE METHOD OF STUDY AND ITS APPLICATION TO THE RESEARCH PROBLEM

The exploratory study was the research design most appropriate for determining the reaction of nurses to labor patients who vocalized pain.

The study question concerned an area in which hypotheses had not yet been formulated. "When the purpose of a study is exploration, a feasible research design, which provides opportunity for considering many different aspects of a problem, is appropriate."<sup>1</sup> Such an approach made it possible to discover the relationships existing between variables which could lead to further research.

---

<sup>1</sup>Claire Selltitz, et al., Research Methods in Social Relations. New York: Holt, Rinehart, and Winston, Inc., 1963, p. 78.

According to Holliday,

The exploratory study per se attempts to see what is there. . . . However, exploratory studies must have limits set for practical purposes. It is much more effective to explore one central set of variables than to try to study the universe.<sup>2</sup>

To limit the scope of the study, it was decided to investigate two aspects of nurses' reactions to labor patients in order to determine if there was a significant difference in their reactions according to the amount of patient vocalization. These aspects were:

1. The number of times the nurses entered a patient's room.
  - a. Total number of times within the 2-hour study period.
  - b. Number of times entered in response to patient vocalizations during the 2-hour study period, including those times a nurse was already with a patient and thus capable of responding to the patient's vocalization.
2. The cumulative (stopwatch determined) time the nurse spent in a patient's room during the 2-hour data collection period.<sup>3</sup>

The exploratory method provided a means by which information could be gathered, concepts and relationships clarified, and hypotheses developed which might lead to the establishment of priorities for further research.<sup>4</sup>

---

<sup>2</sup>Jane Holliday, "The Exploratory Study Method," Nursing Research, Vol. 13, No. 1 (Winter, 1964), p. 39.

<sup>3</sup>See Appendix D.

<sup>4</sup>Selltiz, op. cit., p. 51.

## II. STEPS UNDERTAKEN IN CONDUCTING THE STUDY

### Preliminaries to conducting the study

Oral permission to conduct the study was obtained from the director of nursing service and the medical director of the Obstetrics and Gynecology Department of the hospital where the study was to be conducted. Following the interviews a letter was written to each person<sup>5</sup> which summarized the interview and thanked both directors for their oral permission to utilize the hospital in pursuing the problem. Oral information concerning the study problem was given to the nursing staff on all three eight-hour shifts, one week prior to the data collection period. Also, while the study was being conducted, further information was given to any members of the nursing and/or medical staffs as interest was shown or the need was made apparent.

### The patient population

The patient population was defined. All patients who met these definitive criteria between June 7, 1965, and July 18, 1965, had equal opportunity to be included in the study.

Criteria for inclusion in the patient population were:

1. Being pregnant not more than three times (gravida I through III).

---

<sup>5</sup> See Appendix A.

2. Having had an essentially normal antepartum.
3. Having a full-term fetus by the date labor commenced.
4. Having no labor complication or obvious problem which would prevent a normal birth.
5. Taking two hours or longer for cervical dilatation to increase from five to ten centimeters.

It was necessary to limit the patient population to gravida I through III because past experience substantiated by doctors' views indicated that patients pregnant more than three times tend to dilate from five to ten centimeters in less than two hours.

Other factors which may have inadvertently caused eligible patients to be excluded from the study were:

1. Another patient was being studied at the same time.
2. Neglect of the nursing staff to notify the experimenter of the patient's presence on the unit when the patient's cervix was dilated to five centimeters.
3. Class commitments of seven hours weekly between June 14, 1965, and July 17, 1965, which prevented the experimenter from being present.

The above listed limiting factors did not significantly alter the patient population because, with the exception of the class hours, the factors occurred randomly in no pre-determined pattern. However, they did cause the data collection period to be extended from twenty-six days to forty-two days.

#### The nurse population

The nurse population included licensed practical

nurses and nurses' aides as well as licensed registered nurses working on the labor and delivery unit. Any nurse was included in the study population provided she was in a study patient's room during the two-hour data collection period.

Nurses included in the study filled out a personal background information sheet.<sup>6</sup> In addition, for each study patient the nurse attended, she checked her responses on the Discomfort Index<sup>7</sup> at the end of the two-hour study period. The experimenter made no attempt to influence either the selection of the nurse population or their individual discomfort ratings. Since the data were collected on a twenty-four hour basis over a six-week period, it was felt that all of the nursing staff had equal opportunity to participate.

#### The hospital setting

The physical plan of the labor and delivery unit included six individual labor rooms with three lavatories shared among them. There were three delivery rooms, one of which was reserved as a caesarean section room and not utilized at the time the study was conducted. The two long desks comprising the nurses' station were located in one of the two parallel corridors opening off each side of the

---

<sup>6</sup>See Appendix B.

<sup>7</sup>See Appendix E.

labor rooms and running the full length of the unit. Thus, the labor rooms were in the center of the unit, and each individual room had two entrances, one off each corridor. The nursing station was centralized in one corridor midway between the doors to the labor rooms, which were usually kept open. A two-way intercom system linked the nursing station with each labor room. Therefore, the patients were accessible and audible at all times to the nurses at the nursing station.

#### Medical care

During the first week the study was conducted, patients were entirely cared for by obstetrical and gynecological residents. The medical students were on vacation and the intern staff had left (the new interns did not arrive until the second week of the study). Many of these doctors were known to the patients, because the majority of the patients had seen them prior to admission in the hospital's antepartal clinic.

From the second through the sixth week of the study, fourth-year medical students were present and/or on call on a twenty-four hour basis. All of them had completed their initial obstetrical experience so were familiar with the labor and delivery unit. These students did not sit in the rooms with the patients (unless intravenous induction was instigated) and for the most part they did routine medical tasks such as charting and performing sterile vaginal examinations.



Commencing the third week and during the remaining time the study was conducted, interns were also present and/or on a twenty-four hour call basis. At this same time, a different resident staff was assigned to obstetrics. During the third through fifth week of the study, this new staff seemed to have an effect on the patients' medical care. Caudal anesthetic was not given as often to the patients. This trend was decreasing toward the sixth week of data collection once the new staff gained more experience in giving caudal anesthetic to patients.

The residents and interns differed slightly in the types of medication they preferred to use for sedating patients and/or for relief of labor pain. However, all drugs used were of comparable dosages. Since the medical staff rotated hours of duty by a set pre-determined pattern, the opportunity to be cared for by a particular member of the staff depended on the time and date of a patient's admittance to the labor unit. No attempt was made to alter the medical care patients received for the purpose of this study. Both study and non-study patients received essentially the same medical and nursing care during their labor experiences, allowing for the individual differences of medical management mentioned previously.

### III. THE TOOLS UTILIZED FOR COLLECTION OF DATA

#### The Nurse Background Questionnaire

Descriptions of the nurses included in the study were

obtained by the use of a questionnaire.<sup>8</sup> A questionnaire was used because a nurse could fill this out at her convenience when she was not busy with nursing functions.

Only nurses who cared for study patients were included in the nurse population. Therefore, the questionnaire was not used for the entire nursing staff. These data were obtained only once, regardless of the number of study patients cared for by each nurse.

### The Patient Background Information<sup>9</sup>

Information on the patients' backgrounds was obtained from the patients' medical records with the exception of the following items: (1) sibling order, (2) ethne-racial background, (3) educational background of both husband and patient, and (4) the patient's occupation. These additional items were answered in interviews with patients either prior to the two-hour labor data collection period (when the patient was in early labor) or after delivery (before discharge from the hospital). The time for the interview was selected by the availability of the experimenter and at the convenience of the patient. Since each of the patients was in the hospital at least three days, there was ample opportunity to obtain this information.

There were specific reasons for the inclusion of the questions asked patients. Some studies in the Review

---

<sup>8</sup> See Appendix B.

<sup>9</sup> See Appendix C.

of Literature have explored interesting cultural variances in behavior. Schachter, in correlating personal opinions and emotional states, found first born and only children more likely to seek out others for support. Thus, his data supported earlier experimentation by Ehrlich and Wrightsman. In addition, it was clear that affiliative desires increased with anxiety.<sup>10</sup> For these reasons the questions of ethne-racial background, religion, educational background, occupation, and sibling order were included in the background information.

#### The Patient Vocalization and Nurse Response Record<sup>11</sup>

These data were collected during a two-hour period commencing when an eligible study patient reached five centimeters of cervical dilatation. The number of sheets used in the data collection for each patient varied according to the number of vocalizations a patient made. A total number of fifty vocalizations could be recorded, using four data sheets. If additional sheets were necessary, the numbering started over at one and continued again until the number fifty was reached.

The number of nurses caring for any one study patient was treated collectively as one group. No distinction was

---

<sup>10</sup>Stanley Schachter, The Psychology of Affiliation. Stanford, California: Stanford University Press, 1959, pp. 1-19, 42-90, 131-32.

<sup>11</sup>See Appendix D.

TABLE I

## DEFINITION OF PATIENT VOCALIZATION CATEGORIES

Categories	Criteria of a Vocalization			
	Intensity	Duration	Pitch	Urgency*
1	Barely audible	0-2 Lasting two seconds or less	Normal**	Implies no sense of urgency to the listener
2	Clearly audible	2-4 Lasting two to four seconds	A fluctuation of 2 tones above and/or below normal or 3-5 tones above normal	Verbally expresses discomfort in words
3	Two times louder than normal**	4-6 Lasting four to six seconds	A fluctuation of 3-5 tones plus peakedness of pitch with contractions	Vocally expresses physical discomfort
4	Shrill or piercing; uncomfortable to eardrums of listener	6-10 Lasting up to ten seconds	A fluctuation of 5-8 tones above and below normal plus the same peakedness with contractions	Conveys desire for relief from physical discomfort
5	A screamlike sound as intense as possible which pierces through all other ward activities	10-? Lasting at least ten seconds	One or more octaves above normal	The same as in Category #4 plus it implies pain is unbearable and of hysterical urgency

\*Urgency: the pressing insistency of the vocalization as related to physical discomfort and/or relief from the pain experienced in the human birth process.

\*\*Normal: the pitch and/or intensity of vocalizations between contractions when no discomfort is felt.

is indicated to the nurse.

2. A more clearly audible sound. If it is a word, it can be heard without straining. The distinguishing feature is a fluctuation in pitch three to five tones above normal voice (if a steady pitch), or a variance in pitch below and/or above normal of two tones. Duration is from two to four seconds. The patient uses words to indicate physical discomfort in the urgency category.

3. The vocalization is at least two times louder than normal. It can be heard outside the closed door and above other conversations which may be going on nearby. There must be a pitch variance of three to five tones that is clearly perceptible which rises as the contraction starts and comes down to a normal pitch when the peak of the contraction is seemingly over. The experimenter, from outside the door, should be able to discern when the patient is having a contraction and when the peak of the contraction is reached. This may not be one continuous vocalization. Although each vocalization lasts four to six seconds, several may be recorded for one contraction. Patients indicate the urgency of their physical discomfort to the nurse by the sounds they vocalize.

4. The intensity is shrill and piercing to the eardrums. The pitch varies from five to eight tones above and/or below normal and peaks with the contractions. The vocalization lasts from six to ten seconds. The patient's vocalization signifies that not only is she having pain,

but that she clearly wants relief from it.

5. This category expresses what (in the experimenter's experience as a nurse) would be the most intense vocalization of which this particular patient is capable. One would want to cover one's ears because of the intensity, which penetrates all other ward activity. A person who is on the unit cannot avoid hearing it. The pitch will probably be as high as humanly possible, at least one or two octaves above normal. The pitch may not vary to higher or lower tones. The duration may be prolonged or may be no longer than ten seconds. Not only does the patient convey to everyone that her pain is unbearable, she clearly is on the verge of becoming, if not already, hysterical. This patient should be indicating to the nurses that she cannot endure any more of the pain and is not responsible for her actions.

Nurse responses.<sup>14</sup> The nurses were checked as either responding or not responding to each vocalization. A response was defined as going into the patient's room; therefore, if a nurse was already in the room during the vocalization, this was counted as a response. Nurse responses were not classified as positive or negative. The total number of times the nurses entered the patient's room for any reason during this two-hour period was also recorded. A stopwatch was used to record the total amount

---

<sup>14</sup>See Appendix D.

of time within this two-hour period that nurses were in a patient's room. If the nurse-patient ratio was greater than one to two, it was decided that the data would be discarded because in such a case the work load of the nurse could have affected the number of times she was able to respond to a study patient. However, no such case occurred.

Scoring method. During a two-hour data collection period each patient vocalization had to be categorized by the criteria described in Table I.<sup>15</sup> Since there were four criteria by which each vocalization was judged, there existed the possibility that a single vocalization could be in a different one of the five categories for each of the four criteria. Thus a vocalization score had to be determined for each vocalization.

For example, a single vocalization could have: (1) been of the intensity for category five; (2) had the pitch of category four; (3) qualified for category three in duration; and (4) vocally implied the physical discomfort of category three. In such a case, the arithmetic mean, or average rating, would be determined by mentally adding the category number judged pertinent for each criterion and dividing by four (the number of criteria by which each vocalization would be judged). The formula for

---

<sup>15</sup>See page 44.

BOULDER - COLORADO

computing the arithmetic mean is:<sup>16</sup>

$$M = \frac{\Sigma X}{N}$$

Any total arrived at by adding the category values for each criterion was always divided by the constant number of four since this was the number of criteria used to judge a vocalization. This meant the answer was a whole number and had the possibility of having an additional fraction of a whole number, which could have been one-fourth (0.25), one-half (0.50), or three-fourths (0.75). If these fractions of whole numbers did appear when the arithmetic mean was calculated, the vocalization score was determined by rounding off the fraction to the nearest whole number. Then the fraction of one-fourth (0.25) was dropped, and three-fourths (0.75) increased the arithmetic mean by the value of one (1.0). In this study, if the fraction one-half (0.50) appeared when computing the arithmetic mean in determining a vocalization score, the answer was also rounded off to the next higher whole number.

Fortunately these computations were simple and could be calculated mentally in a matter of seconds after a vocalization occurred. However, the experimenter had a copy of the vocalization categories and could have used the data collection sheets to compute the vocalization score

---

<sup>16</sup>George A. Ferguson, Statistical Analysis in Psychology and Education. New York: McGraw-Hill Book Company, Inc., 1959, pp. 37-38.



manually if this had been necessary. In most cases the categories to which a vocalization was assigned were of similar value for each of the four criteria in a single vocalization. The single score thus derived was checked immediately in the Patient Vocalization and Nurse Response Record.<sup>17</sup>

The Nurse-Experimenter Discomfort Index<sup>18</sup>

The nurses were asked to rate their responses to each study patient on a seven-point scale immediately following the two-hour data collection period. A seven-point scale was selected on the advice of a clinical psychologist. He reported that subjects have a tendency not to rate on the extremes of a scale; thus, if a five-point variance was wanted, a seven-point scale would probably be needed.<sup>19</sup>

A simple check scale was used so that the nurse would have time to rate her responses immediately following the data collection period. It took less than three minutes to complete the Discomfort Index. By completing the index immediately following the experience, it was not possible for the nurses and the experimenter to base their reactions on subsequent patient behavior during labor and

---

<sup>17</sup>See Appendix D.

<sup>18</sup>See Appendix E.

<sup>19</sup>See Acknowledgments.

delivery. It was hoped that the nurses and experimenter would complete the index only on the basis of their experiences with a study patient during the two-hour data collection period. However, it was not possible to measure how the prior time spent with the patient might have affected the ratings.

The experimenter completed her Discomfort Index on the basis of two-hour, non-participant observations of each study patient. However, it was believed that there should be a positive correlation between nurse and experimenter ratings for the data to be valid. The correlation was important since both the experimenter and nurses were interpreting what they heard the patient vocalize. The nurses were capable of responding to the patient on the basis of what they heard. If they interpreted the same vocalizations differently than the experimenter, the nurses' and experimenter's discomfort ratings should have been negatively correlated and the data from the tools would have been invalid.

#### IV. STATISTICS USED FOR THE ANALYSIS OF THE DATA

To describe the nurse and patient populations, the background data of both groups were analyzed separately and means were computed.

The hypotheses were tested using correlation techniques by an IBM 709 computer. A correlation program (R MAT X) had been written at the University of Colorado

Graduate School Computing Center to analyze such data. Correlations were made among the categories contained within: (1) patient background data; (2) patient vocalization and nurse response data; and (3) nurse-experimenter discomfort ratings. Also, as a step in computing the correlation coefficients, standard deviations were computed for the various categories of data collected.

The statistical tests utilized in the analysis of the data were:<sup>20</sup>

1. The formula for calculation of the mean:

$$M = \frac{\sum X}{N}$$

2. The formula used for standard deviation:

$$S = \frac{1}{N} \sqrt{N \sum X^2 - (\sum X)^2}$$

3. The formula for calculation of the Pearson product-moment correlation:

$$r_{xy} = \frac{N \sum XY - (\sum X) (\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$$

## V. SUMMARY

This chapter describes the exploratory method and its relationship to the study. The steps taken in conducting the study are outlined. They include descriptions of the study setting, the nurse and patient populations, the tools developed for collection of the data, and the method of data analysis. The statistics used in Chapter IV

---

<sup>20</sup>Ferguson, op. cit., pp. 37-38, 56, 92.

for analysis of the data are presented.

## CHAPTER IV

### ANALYSIS AND INTERPRETATION

This chapter contains the analysis and interpretation of the data. The purpose of this analysis is to present the results of the following study hypotheses which were tested:

1. As the patient vocalization score increased, the amount of time the nurses spent in the patient's room decreased.

2. As the patient vocalization score increased, the number of times the nurses entered the patient's room decreased.

3. As the patient vocalization score increased, the nurses discomfort rating also increased.

4. Some of the patients' background data was positively correlated with the patients' vocalization scores.

5. As the vocalization score increased, the length of labor also increased.

6. The nurses' discomfort rating correlated positively with the experimenter's discomfort rating during the study situation.

In order that the analysis would be more informative, both nurse and patient populations are described. Statistical correlations were made among patient background data,

patient vocalization and nurse response data, and nurse and experimenter discomfort scores. The statistical results are illustrated in a correlation matrix. Any significant correlations are reported and interpreted in the body of the chapter. All results of correlations made to test the study hypotheses are analyzed in order to meet the purposes of the study.

## I. THE STUDY POPULATIONS

### Description of the nurses<sup>1</sup>

There were ten nurses included in the study; their ages ranged from twenty-two to thirty-one years, with the average 24.7 years. Eight of the ten nurses were Caucasian in race, one was a Negro, and the other was one-half Negro and one-half American Indian. Of the eight Caucasian nurses, two were exchange nurses from Australia who were also midwives. The average length of time any of the ten nurses had lived in this area was 3.2 years. Eight of the nurses were single, one was married, and one had been divorced. The married nurse had four children. Two of the nurses had graduated from college. Six graduated from three-year diploma schools of nursing, two completed an additional year of midwifery training, and two were licensed practical nurses.

The average length of nursing practice for the

---

<sup>1</sup>See Table II, pp. 55 and 56.

TABLE II

## NURSE BACKGROUND DESCRIPTIONS

Identifying Code	Age	Ethne-Racial Background	Residence in Community	Marital Status	Number of Children	Educational Background	Nursing Education
I	22	N/AI	22.0	S	0	H.S.	LPN
II	22	N	0.5	S	0	H.S.	LPN
III	27	C	2.0	D	0	B.S.	BSN
IV	24	C	1.0	S	0	H.S.	Diploma
V	26	C	0.5	S	0	B.S.	BSN
VI	31	C	2.0	M	4	H.S.	Diploma
VII	24	C	0.75	S	0	H.S.	Diploma & Midwifery
VIII	24	C	0.5	S	0	H.S.	Diploma
IX	23	C	2.0	S	0	H.S.	Diploma
X	24	C	0.75	S	0	H.S.	Diploma & Midwifery
Mean	24.7		3.2				

(continued on next page)

TABLE II (continued)

Identifying Code	Years of Practice	Areas of Experience	Current Position	Years in Position	Field of Nursing Preferred	Area of Obstetrics Preferred
I	2	Orthopedics L & D	LPN	0.5	Orthopedics and L & D	L & D
II	2	Medical- surgical	LPN	2.5	Anything but Pediatrics & Nursery	L & D
III	6	Obstetrics	HN	0.25	Obstetrics	L & D
IV	3	Obstetrics	SN	0.5	Obstetrics	L & D
V	5	Obstetrics	SN	0.5	Obstetrics	L & D
VI	3	Operating Room Medical-surgical Obstetrics	SN	1.0	Operating Room and Obstetrics	L & D
VII	4	General and Midwifery	EN	0.75	Obstetrics	L & D
VIII	4	Medical and Obstetrics	SN	0.5	Obstetrics	L & D
IX	2	Obstetrics	SN	2.0	Obstetrics	Postpartum; L & D
X	3	General and Midwifery	EN	0.75	Obstetrics	L & D
Mean	3.4			0.925		



population was 3.4 years. Two nurses had had wide general experience in nursing practice and all but one had prior obstetrical experience. The group as a whole had not worked very long in this hospital setting, possibly because the majority were young unmarried girls. The average length of time the group had held their current positions was 0.93 years, or 11.16 months.

All ten nurses enjoyed working on the labor and delivery unit. Seven nurses preferred working in obstetrics above any other field of nursing practice. One nurse indicated she had no preferences but disliked working in the nursery and in pediatrics. Two of the nurses like another area of nursing as well as they liked obstetrics. All ten nurses preferred to work in the labor and delivery aspect of obstetrics. However, one of the ten enjoyed working on the post-partum unit as well as she enjoyed her current position in labor and delivery.

#### Description of the patients<sup>2</sup>

There were fifteen patients included in the study population. Their ages varied from seventeen to thirty-one years. The average age of the group was 24.7 years. Over 50 per cent of the patients were nineteen or younger. Seven patients were either the eldest or the only child in their families. As to ethne-racial background, seven patients were Caucasian, five were Spanish American, one

---

<sup>2</sup>See Table III, pages 58 and 59.

EQUIPER. COLONIAL

TABLE III

## PATIENT BACKGROUND DESCRIPTIONS

Identifying Code	Age	Sibling Order	Ethne-Racial Background	Marital Status	Religion	Education:		Occupation:	
						Husband-Patient	Husband - Patient	Husband - Patient	Husband - Patient
I	21	3	AI	M	C	13	10	Unsk. Laborer	Housewife
II	17	1	N	M	P	12	11	Unsk. Laborer	Housewife
III	20	2	SA	M	C	11	10	Mechanic	Housewife
IV	18	2	SA	M	C	8	12	Unsk. Laborer	Has trade school plans
V	19	4	AI/C	M	C	8	11	Unsk. Laborer	Housewife
VI	19	3	C	M	P	9	9	Unemployed	Housewife
VII	26	7	SA	M	C	10	12	Sk. Laborer	Housewife
VIII	18	1	C	M	C	12	10	Barber	Housewife
IX	17	1	C	M	P	12	10	Unsk. Laborer	Housewife
X	23	2	C	D	P	10	9	Unsk. Laborer	Barmaid
XI	31	1	C	M	C	20	16	Doctor	Housewife
XII	18	1	SA	M	C	8	8	Unsk. Laborer	Housewife
XIII	22	1	C	M	C	16	13	Ins. Adjuster	Housewife
XIV	17	1	SA	S	C	?	12	?	Has college plans
XV	21	2	C	D	P	?	9	?	Lives with parents
Mean	20.466	2.133				9.933	10.80		

(continued on next page)

TABLE III (continued)

Identifying Code	Gravida	Comparison of Delivery Date to EDC	Length of Labor	Analgesics	Medications Received: Sedatives	Caudals
I	1	within 1 wk. of EDC	9	0	1	0
II	1	within 1 wk. of EDC	10	2	1	0
III	1	within 1 wk. of EDC	9	1	0	1
IV	1	1-3 weeks overdue	10	2	0	1
V	1	1-3 weeks overdue	7	1	0	0
VI	1	within 1 wk. of EDC	13	0	1	1
VII	3	within 1 wk. of EDC	9	2	0	0
VIII	1	1-3 weeks overdue	9	0	0	1
IX	1	within 1 wk. of EDC	11	0	0	0
X	2	1-3 weeks overdue	6	0	0	1
XI	2	1-2 weeks early	11	1	0	0
XII	1	1-2 weeks early	10	1	0	0
XIII	3	within 1 wk. of EDC	8	0	1	1
XIV	1	1-2 weeks early	20	1	0	0
XV	1	1-2 weeks early	16	0	1	1
Mean			10.533 hours			

was a Negro, one was an American Indian, and one was one-half American Indian and one-half Caucasian. Ten of the patients, two-thirds of the population, were Catholic; five patients, or one-third, were Protestant. At the time they delivered, 80 per cent of the population were married. Two patients were divorced and one was single. Therefore, it was not possible to obtain data from the mothers concerning fathers in two of the three cases.

Concerning levels of education, the husbands, on an average, completed a mean of 9.93 years of school compared with the patients' 10.8 years. The number of years spent in educational institutions varied from eight to twenty in the husband group. Study patients spent from eight to sixteen years in school. Only one patient had completed college, another attended college for one year, and three more patients had completed high school. This meant a total number of five patients had completed their secondary educations. In the husband group a total of six out of thirteen had finished high school and two had completed at least four years of college.

Seven of thirteen husbands were employed as unskilled laborers. One husband was unemployed, and the remaining five all had different occupations. One was a mechanic, another was employed as a skilled laborer, a third practiced the barber trade, a fourth worked as an insurance adjuster, and the other husband was a licensed physician. The women were not as varied in their occupations. Eleven

were housewives. Only one was employed, and she planned to return to her job as a barmaid following delivery. One patient hoped to enter college, another had plans to become a beautician later in the year, and one patient was living with her parents.

Antepartal history was uneventful in all cases; this was one criterion for inclusion in the patient population. Eleven of the patients were primigravidas. Of the remaining four patients, two were pregnant for the second time and two for the third time.

Although all patients were considered by the medical staff to be carrying full-term infants, only seven delivered within one week of their expected dates of confinement. Four patients delivered one to two weeks early, and four more delivered one to three weeks after their anticipated due dates.

The lengths of labor varied from seven to twenty hours. The mean length of labor for the population was 10.53 hours.

There was a variety in the types of medication patients received. Therefore, medications were grouped into three general categories of analgesics, sedatives, and caudal anesthetic. The dosages within each medication category were comparable in their effects; therefore, only the number the patient received was recorded in each category. It should be noted, however, that no attempt was made to record medications received by a patient after the

two-hour data collection period was completed. Also, no attempt was made to correlate the effect a medication had on a patient's vocalization score since the Review of Literature expounded on the view of the psychological nature of pain impulses. The study was limited to nurses' reactions to patient vocalization and thus could not explore possible causative factors of vocalization. Since medications comprise a portion of the medical care patients receive during labor and delivery, it was felt they should be included as a part of patient descriptions for the reader's information.

## II. ANALYSIS OF DATA FROM THE TOOLS UTILIZED

The data obtained from the tools utilized in the data collection process were correlated statistically by IBM computer. The Correlation Matrix was included in the body of the text in order that all correlations might be examined. Thus, subsequent text references to specific correlations will be based on data appearing in the Correlation Matrix.<sup>3</sup>

### Patient vocalization and nurse response data

The categories of data collected were correlated statistically. However, each patient's scores and the total nurse scores relating to each study patient were also

---

<sup>3</sup>See Table IV, p. 63.

TABLE IV

## CORRELATION MATRIX

Categories: =	1*	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Sibling order = 1*	1.00																		
Age = 2	.30	1.00																	
Ethne-racial background = 3	.21	-.28	1.00																
Marital status = 4	.08	.26	-.25	1.00															
Religion = 5	.15	.20	.15	-.53	1.00														
Patients' education = 6	-.01	.60	.06	-.37	.44	1.00													
Husbands' education = 7	-.10	.50	-.24	.00	.19	.48	1.00												
Patients' occupation = 8	-.15	-.08	-.11	.28	-.30	-.17	-.77	1.00											
Husbands' occupation = 9	-.10	.49	-.28	-.09	.24	.49	.72	-.52	1.00										
E.D.C. - delivery date = 10	-.13	-.06	.24	.22	.17	-.02	-.24	.32	-.27	1.00									
Gravida = 11	.37	.68	-.16	.13	.20	.49	.42	-.15	.53	-.20	1.00								
Length of labor = 12	-.23	-.21	-.10	-.38	-.14	.04	-.64	.64	-.29	-.13	-.33	1.00							
Vocalization score = 13	.20	.04	.26	-.06	.39	-.03	-.18	-.03	-.10	.06	-.07	.00	1.00						
No. of vocalizations = 14	.10	.06	.21	-.11	.39	.08	-.17	.01	-.10	.14	-.09	.08	.97	1.00					
No. of nurse responses = 15	.18	-.12	.31	-.17	.40	.02	-.14	-.13	-.09	.20	-.13	-.08	.90	.93	1.00				
No. of times entered patients' rooms = 16	.26	.25	.17	.13	.17	-.02	.26	-.36	.25	-.17	.09	-.41	.68	.58	.59	1.00			
Stopwatch time = 17	-.08	-.01	-.27	.69	-.24	-.55	-.13	.23	-.17	.55	-.04	-.29	-.08	-.09	-.10	-.16	1.00		
Nurse discomfort scores = 18	.19	-.35	.56	-.28	.26	-.17	-.61	.24	-.59	.38	-.53	.30	.66	.66	.68	.28	-.14	1.00	
Experimenter's discomfort scores = 19	.03	-.10	.27	.17	.14	-.15	-.54	.43	-.47	.39	-.24	.24	.73	.77	.65	.17	.21	.71	1.00

\* Corresponding numbers represent the same category on both horizontal and vertical axes.

listed. Means of the categorical ratings were computed.<sup>4</sup>

Of the fifteen patients, the average number of vocalizations per patient was 32.73. The number varied from none to 116 vocalizations during the two-hour data collection periods. Vocalization scores ranged from zero to 198. The mean patient vocalization score was 64.2. Two study patients did not vocalize and thus did not have a vocalization score. Five of the fifteen patients had total scores and number of vocalizations less than three. An individual's vocalization score equaled his number of vocalizations in each of these five cases.

Nurses' responses to patients' vocalizations also varied widely. Since being in a patient's room during a vocalization was tabulated as a nurse response (the nurse was capable of responding either positively or negatively), the total number of responses frequently was greater than the total number of times the nurses entered a study patient's room. The responses ranged from zero to fifty-three in number. The mean nurse response was 10.67, as compared to a mean of 8.27 for the number of times nurses entered a patient's room. The nurses entered patients' rooms from zero to twenty-one times during the two-hour study periods.

In six patient cases the nurses did not respond to patient vocalizations during the data collection periods.

---

<sup>4</sup>See Table V, p. 65.



TABLE V  
 PATIENT VOCALIZATION AND NURSE RESPONSE DATA

Identifying Code	Number of Vocalizations	Vocalization Score	Number of Nurse Responses	Number of Times in Patient's Room	Stopwatch Time*
I	0	0	0	6	16
II	1	1	1	6	10
III	78	195	27	21	7
IV	116	198	53	11	15
V	11	35	9	8	15
VI	17	32	11	10	16
VII	58	133	19	11	12
VIII	3	3	0	3	25
IX	13	14	0	6	11
X	1	1	0	10	31
XI	47	66	6	10	12
XII	85	177	28	10	27
XIII	0	0	0	6	13
XIV	27	36	6	2	6
XV	34	72	0	4	24
Mean	32.733	64.2	10.666	8.266	16.0

\* Stopwatch time was determined to nearest whole minute.

However, in these same six cases the patient's vocalization scores ranged from zero to thirty-four. The number of times the nurses entered the rooms of these six patients varied from zero to ten. Total time nurses spent with these patients was from thirteen to thirty-one minutes (the greatest amount of time spent in any one of the fifteen patients' rooms).

A stopwatch was used to determine the total amount of time (to nearest whole minute) nurses spent in any one study patient's room during a two-hour data collection period. Sixteen minutes was the mean time that nurses spent in study patients' rooms.

#### Significant correlations

To be significant at the 5 per cent level, with a population of fifteen, a correlation had to equal or be greater than  $\pm 0.51$ .<sup>5</sup> Six correlations were found to be positively significant among these data:

1. The vocalization scores versus the number of patient vocalizations. . . . . 0.97
2. The vocalization scores versus the number of nurses' responses to patient vocalizations. . . . . 0.90
3. The vocalization scores versus the total number of times nurses entered patients' rooms . . . . . 0.68
4. The number of patient vocalizations versus the number of nurse responses . . . 0.93

---

<sup>5</sup>Wilfrid J. Dixon and Frank J. Massey, Jr., Introduction to Statistical Analysis, Second Edition. New York: McGraw-Hill Book Company, Inc., 1957, p. 468.

5. The number of vocalizations versus the total number of times nurses entered patients' rooms. . . . . 0.58
6. The number of nurse responses to patient vocalizations versus the total number of times nurses entered patients' rooms. . . . . 0.59

These significant correlation levels indicated that the variables correlating positively were related to one another. However, the existence of a significant correlation between two variables is indicative of a functional relationship but does not necessarily imply a causal relationship. Whether a functional relationship can be regarded as a causal relationship is a matter of interpretation.<sup>6</sup>

The correlations between patient vocalization scores and the number of vocalizations were significant to a very high degree since the correlation coefficient was 0.97. The closer a correlation coefficient approaches  $\pm 1$ , the more perfect is the relationship between the variables. A correlation coefficient of  $-1$  indicates that a perfect indirect relationship exists, whereas a coefficient of  $+1$  between two variables shows a perfect direct relationship of one variable to the other.<sup>7</sup> However, it was logical that the score should have been directly related to the

---

<sup>6</sup>Ferguson, *op. cit.*, pp. 108-09.

<sup>7</sup>*Ibid.*, p. 105.

number of vocalizations. Knowing the correlation coefficient and having a specific value for one of the two variables, it would be possible to compute statistically the value of the second variable with a high degree of accuracy. In this study, it was known that the vocalization score was not the cause of the number of vocalizations or vice versa. Then this was a functional, not a causal, relationship between variables. It was assumed that a third factor, namely labor pain, was one causative agent of both the vocalization score and the number of patient vocalizations.

The number of nurse responses and the number of times nurses entered a patient's room has been reported to have a correlation coefficient of 0.59. It was also apparent that this was not a causal relationship. It was a direct functional relationship. There was a significant tendency for one variable to increase as the other increased, but other factor(s) were the causative agent(s) of both variables.

A comparison of vocalization scores with the number of times nurses entered patients' rooms or with the number of nurse responses to patient vocalizations may have shown a causal relationship. It was possible that one variable might have caused the other. The greater the correlation coefficient, the more significant the relationship between the variables becomes. However, further studies would have to be undertaken to prove whether or not an actual causal relationship did exist. This was a matter of interpretation

which could not be statistically validated from these data.

The number of patient vocalizations compared significantly with both the number of nurse responses and the total number of times nurses entered patients' rooms. This showed a relationship between the number of vocalizations compared with nurse response and with the number of times nurses entered patients' rooms. However, again it would be necessary to conduct further studies to validate these findings before a causal relationship could be indicated. It seemed possible in the interpretation of the data that a third factor, such as the vocalization score, could have been the cause of the positive relationship between the two variables.

It is recommended that additional studies be undertaken to validate these data. Using such a small population as fifteen in one specific study situation, no generalizations could be made to the population parameter without further investigation and validation of these study results. However, with such a small population, a very high coefficient of 0.514 had to be present for the data to be significant at the 5 per cent level. Since the data met this high criterion, this may indicate that a very high relationship may actually exist among the variables. In using a larger study population, where the requirements for significance are not so stringent, the data may indicate an even higher level of significance at the 1 per cent level.

Among the five categories of data, four were

significantly inter-correlated with one another. However, the stopwatch data for the total amount of time nurses spent in patients' rooms were not significantly correlated with any of the other four categories on the Vocalization and Response Record. This seemed very unusual and indicated that the amount of time nurses spent with patients was not related to patient vocalization.

Nurse-Experimenter Discomfort Index<sup>8</sup> data

The nurse and experimenter's discomfort ratings corresponding to each study patient were listed and the means computed in Table VI.<sup>9</sup> Thus, it is possible to compare the ratings at a glance.

Correlations were made comparing the nurses' ratings and the experimenter's rating on each of three questions.<sup>10</sup> Total nurse-experimenter ratings were included on the main correlation matrix, Table IV.<sup>11</sup> However, since these inter-question correlations were programmed separately in IBM analysis, the correlation matrix for these data was presented separately.<sup>12</sup>

To be significant at the 5 per cent level on either

---

<sup>8</sup> See Appendix E.

<sup>9</sup> See p. 71.

<sup>10</sup> See Appendix E.

<sup>11</sup> See p. 63.

<sup>12</sup> See Table VII, p. 73.

TABLE VI  
NURSE-EXPERIMENTER DISCOMFORT INDEX RATINGS

Identifying Code	Question one: Nurse-Experimenter	Question two: Nurse-Experimenter	Question three: Nurse-Experimenter	Total rating: Nurse-Experimenter
I	2	1	4	7
II	2	1	4	7
III	3	3	4	11
IV	5	4	4	13
V	4	3	4	12
VI	3	1	4	8
VII	3	2	4	9
VIII	3	1	1	7
IX	2	1	4	7
X	2	1	3	6
XI	2	1	4	7
XII	5	1	5	11
XIII	1	1	1	3
XIV	4	2	6	12
XV	4	1	4	9
Mean	3.066	1.666	3.933	8.733
	2.066	1.866	2.8	6.733

matrix, the correlations had to be equal to or greater than  $\pm 0.51$ . Seven variables were found to be of significant positive correlation. One appears on Table IV and six significant correlations are found on Table VII.<sup>13</sup>

There were significant positive correlations among the nurses' ratings for each of the three questions. This indicated that a similar factor(s) caused the nurses to react to a patient. The significant correlations also indicated that there existed strong probability that the three questions measured the same phenomenon, which hopefully was the discomfort of the nurse.

There was a significant positive correlation coefficient of 0.88 between the experimenter's ratings on questions one and two. However, her rating for question three did not significantly relate statistically with her discomfort rating on questions one and two. This suggested the following possibilities: (1) the experimenter believed that no relationship existed between patient pain and difficulty of patient care; or (2) the experimenter might have responded differently to question three had she actually cared for the patients.

There was a positive correlation between both the experimenter's and the nurses' ratings for question one. However, scores for the second question did not correlate between the nurses and the experimenter. Instead, the

---

<sup>13</sup>See pp. 63 and 73.



TABLE VII  
CORRELATION MATRIX FOR NURSE-EXPERIMENTER DISCOMFORT DATA

Categories:	1*	2	3	4	5	6
Nurse Question one**	= 1*	1.00				
Nurse Question two	= 2	.53	1.00			
Nurse Question three	= 3	.51	.11	1.00		
Experimenter Question one**	= 4	.85	.48	.21	1.00	
Experimenter Question two	= 5	.75	.31	.25	.88	1.00
Experimenter Question three	= 6	.40	.36	.54	.42	.45
						1.00

\* Corresponding numbers represent the same category on both horizontal and vertical axes.

\*\* The experimenter and the nurses answered the same questions.

nurses' ratings on question one were positively correlated to a significant degree with the experimenter's ratings of question two. This finding indicated a possibility that question two was viewed differently by the nurses as compared with the experimenter. The experimenter was a non-participant observer in the study situation whereas the nurse rated how she felt from actual direct contact with the patient.

It would seem that direct contact in caring for a patient might be related to how calm or upset a nurse felt in the situation. Possibly sitting outside a patient's room might not be as traumatic. However, the mean discomfort rating for the experimenter was 1.87 for question two as compared with a 1.67 mean rating for the nurse population. Further studies might yield significant data about a relationship of direct patient contact versus non-participant nurse observation with the amount of situational nurse discomfort.

The experimenter's and nurses' ratings of question three had a significant positive correlation coefficient of 0.54. Thus there was a significant amount of agreement on the amount of pain the patients actually experienced.

On Table IV<sup>14</sup> a positive correlation coefficient of 0.71 was shown for the experimenter's total rating as compared with the total score rating for the nurse population

---

<sup>14</sup>See p. 63.

on the Discomfort Index.<sup>15</sup> Therefore, the total discomfort ratings corresponding to each study patient were similar for both nurses and the experimenter. This indicated that, viewed as a whole, the nurse population's situational discomfort agreed with that of the experimenter's. It might be assumed that there was a strong possibility that both the nurses and the experimenter viewed a patient in the same manner and that a validation thus existed for the reliability of the experimenter's subjective vocalization ratings. If the nurses viewed patients' vocalizations differently, they probably would have given patients' vocalizations different scores than the experimenter did. There must be agreement among participants about the basic premises relating to phenomena studied in order that study data be valid.<sup>16</sup>

If the nurses and the experimenter viewed patients differently, there would have been no common base of agreement from which nurses' reactions could have been studied.

#### Correlation of patient background data

There were only nine significant correlations among the patient background data.<sup>17</sup> Some of the data showed no significant relationships with any other data. Sibling order was not significantly related to any data. Also,

---

<sup>15</sup>See Appendix E.

<sup>16</sup>Selltiz et al., op. cit., p. 178.

<sup>17</sup>See Table IV, p. 63.

patients' ethne-racial background and the relationship of the delivery dates to patients' expected dates of confinement were not related significantly to any other patient background data. In contrast, there was no relationship, or a zero correlation, between marital status versus husbands' occupations.

For the purposes of this study the significant relationships among background data could not be adequately interpreted. For instance, marital status versus patients' religion had a significant negative correlation of 0.53. However, with a patient population of only fifteen, even though ten were Catholics and twelve of the fifteen patients were married, it was not possible to say that the significant negative correlations applied to these two groups. The fact of patients' age correlating positively with their education and the number of times they had been pregnant seemed to be more meaningful and might have been expected. The negative correlation of husbands' educational backgrounds with their wives' length of labor and occupations also was impossible to interpret under the scope of the study problem. The fact that there was a significant positive correlation coefficient of 0.72 between husbands' educational levels and their occupations was meaningful and consistent with sociological studies of occupational groupings. The significant negative correlation between husband versus wife occupations was also quite without meaning at the time the study was conducted. Significant

positive correlations between husbands' occupations and the number of times patients had been pregnant, and between patients' occupations and their lengths of labor, might serve as guidelines for further research.

Currently not enough is known about the role of background factors in causing or determining behavior although psychological studies are being undertaken in this area. As more causal factors are identified, this background data may become more significant and lend itself to further analysis and interpretation. It is hoped that the significance of the findings will stimulate more specific research into these background areas which were only interesting sub-facets of the main topic of this research.

### III. SIGNIFICANT CORRELATIONS AMONG TOOL DATA

Previously in the body of this chapter only significant correlations among data of the same data collection tool were reported. Significant correlations of data from the various tools utilized in the data collection processes were also analyzed.

The following correlation coefficients were found to be significant at the 0.51, 5 per cent level of significance:<sup>18</sup>

1. Vocalization score versus total nurse discomfort scores. . . . . 0.66
2. Vocalization scores versus total experimenter discomfort scores. . . . . 0.73

---

<sup>18</sup>Dixon and Massey, loc. cit.

3. The number of vocalizations versus total nurse discomfort scores . . . . . 0.66
4. The number of vocalizations versus total experimenter discomfort scores. . . 0.77
5. The number of nurse responses versus total nurse discomfort scores . . . . . 0.68
6. The number of nurse responses to patient vocalizations versus total experimenter discomfort scores . . . . . 0.65
7. Total stopwatch time nurses were in patients' rooms versus patient marital status. 0.69
8. Total stopwatch time nurses were in patients' rooms versus patients' educational levels. . . . . -0.55
9. Total stopwatch time nurses were in patients' rooms versus the relationship of expected dates of confinement to actual delivery dates . . . . . 0.55
10. Total nurses' discomfort scores versus patients' ethne-racial backgrounds. 0.56
11. Total nurses' discomfort scores versus gravida, the number of times a patient had been pregnant . . . . . -0.53
12. Total nurses' discomfort scores versus the husbands' occupations . . . . . -0.59
13. Total nurse discomfort scores versus husbands' educational levels . . . . . -0.61
14. Total experimenter discomfort scores versus husbands' educational levels . . . -0.54

There was no correlation, or a zero correlation, between vocalization scores and the length of time patients were in labor. Thus it would seem that length of labor was not affected by the amount of vocalization.

The above listed correlation coefficients of positive significance indicated that there was a direct functional relationship existing between these variables.

The significant negative correlations signified an inverse relationship among these variables. It was not possible to distinguish causal relationships from the data. Such relationships are a matter of interpretation.<sup>19</sup> Since this was an exploratory study, it was felt that further investigation with a more specific and limiting experimental design would be needed in order to infer causal relationships among the significant correlations.

#### IV. RELATIONSHIP OF FINDINGS TO STUDY HYPOTHESES

The findings were reported as they related to each study hypothesis. The correlations upon which the findings were based can be found in the Correlation Matrix.<sup>20</sup> To be significant at the 5 per cent level, a correlation coefficient had to equal or be greater than  $\pm 0.51$ .<sup>21</sup>

##### Study hypotheses

The first hypothesis stated: As the patient vocalization score increased, the amount of time the nurses spent in the patient's room decreased. However, there was no significant correlation between these two variables. Therefore, it was concluded that for this study the hypothesis was invalid.

The second hypothesis stated: As the patient

---

<sup>19</sup>Ferguson, op. cit., pp. 108-09.

<sup>20</sup>See Table IV, p. 63.

<sup>21</sup>Dixon and Massey, loc. cit.

vocalization score increased, the number of times nurses entered the patient's room decreased. In comparing these two variables the correlation coefficient was found to be 0.68. This was a positive significant correlation and implied a direct functional relationship between the two variables. Thus the reverse of the hypothesis appeared to be the true relationship and the hypothesis as stated was invalid.

The third hypothesis stated: As the patient vocalization score increased, the nurse discomfort rating also increased. This relationship was proven to exist, for a significant positive correlation coefficient of 0.66 existed between these two variables. Therefore this hypothesis was valid for the purposes of this study. There was also a correlation coefficient of greater positive significance, signifying a direct relationship, between the experimenter's discomfort scores and the patients' vocalization scores.

The fourth hypothesis stated: Some of the patients' background data was positively correlated with the patients' vocalization scores. The background data were found to have no significant correlations when compared with vocalization scores. In fact, the duration of patients' labor versus vocalization scores was found to have a zero correlation coefficient, implying that no relationship existed between these two variables. Therefore, this hypothesis was proven invalid for the study under investigation. However, some background data did correlate significantly with other tool



data as was reported in Section III, Significant Correlations Among Tool Data. Thus, if the study population were larger and if more refined methods of analyzing background data were utilized, it might become possible to validate this hypothesis.

The fifth hypothesis stated: As the vocalization score increased, the length of labor also increased. The length of labor had a zero correlation when compared with the vocalization score. This meant there was no relationship existing between the length of labor and the vocalization score. Therefore, this hypothesis was invalid.

The sixth hypothesis stated: The nurses' discomfort rating correlated positively with the experimenter's discomfort rating during the study situations. This hypothesis was proven to be valid since the correlation coefficient was 0.71 between these two variables. This finding was very significant, for it showed that both the nurses and the experimenter felt similarly about each study patient. The vocalization scores were subjectively determined by the experimenter. Therefore, if this hypothesis was invalid and nurses viewed patients differently, there would have existed the probability that nurses and the experimenter felt differently about patient vocalizations. Since patient vocalization was the medium by which nurses' reactions were judged, it was necessary that the vocalizations be interpreted similarly by both nurses and experimenter in order for the nurse response data to be valid.

## V. SUMMARY

Background data of both nurse and patient populations were described and, when possible, means were reported. In the analysis of tool data, the totals and means of both the Patient Vocalization and Nurse Response Record and the Nurse-Experimenter Discomfort Index were cited.<sup>22</sup>

Correlations were made among: (1) patient background data; (2) patient vocalization and nurse response data; and (3) nurse-experimenter discomfort data.<sup>23</sup> The sets of data were correlated for each tool and inter-correlated among tools utilized in the data collection process. The total correlation coefficients for all the tool data were included in the Correlation Matrix.<sup>24</sup> Additional correlations were used in analyzing nurse-experimenter responses to the individual Discomfort Index<sup>25</sup> questions, which were reported in Table VII.<sup>26</sup> All significant correlations were reported.

From the analysis it was found that hypotheses three and six were valid: (1) as patient vocalization scores increased, the nurses' discomfort rating also

---

<sup>22</sup>See Appendixes D and E.

<sup>23</sup>See Table IV, p. 63.

<sup>24</sup>Ibid.

<sup>25</sup>See Appendix D.

<sup>26</sup>See p. 73.

increased; and (2) the nurses' discomfort rating correlated positively with the experimenter's discomfort rating during the study situations.

The data for the second hypothesis showed that there was a significant direct relationship between the variables of vocalization score and the number of times nurses entered the patient's room. Although a negative correlation was needed to validate the inverse relationship of the hypothesis, the positive correlation obtained was significant for the study.

The findings of the fifth hypothesis showed that there was a zero correlation between length of labor and vocalization scores. This meant that no relationship existed at all between these two variables. As opposed to this finding, correlations did exist between the variables in the cases of hypotheses one and four. However, the correlation coefficients were not of sufficient strength to be considered significant at the 5 per cent level and so hypotheses one and four were also declared to be invalid. If the study population had been larger, the statistics might have been significant since greater correlations are needed to prove significance in smaller samples. Other recommendations for further study plus a summary and conclusions will be presented in Chapter V.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### I. SUMMARY

The problem of the study was to explore the reaction of nurses to labor patients who vocalized pain.

The purposes of the study were: (1) to determine if a relationship exists between the amount of patient vocalization and the amount of nurse response; (2) to determine the effect of patient vocalization on the nurses' comfort during the situation; (3) to determine if the amount of patient vocalization could be related to a factor in the patient's background; (4) to determine if the length of labor was affected by the amount of patient vocalization; (5) to evaluate the amount of agreement between nurse and experimenter comfort during the study situation as an index for validity of the data; (6) to yield hypotheses worthy of further and more circumscribed investigation; and (7) to provide tools of data collection that would aid in further research.

The literature was reviewed as to the various psychological aspects of pain. The review indicated that a person perceives and responds to his pain on a purely psychological basis, for the physiology of pain impulses is the same for

all "normal" individuals. The literature supported the need for effective pain relief during labor, and studies revealed some patient dissatisfaction with the nursing care they received. No literature was found which discussed nurses' responses to labor patients.

The exploratory method was used to determine if any relationships existed among: patient background data; nurse-experimenter discomfort; time that nurses spent with patients; number of nurse responses to patients; number of times nurses saw patients; and patient vocalization. A population of fifteen patients and ten nurses was studied. Statistical correlations were made from the data obtained.

The backgrounds of the population were compared and means computed. The reaction of nurses was judged by the amount of time spent with patients plus both the total number of times nurses were in patients' rooms and the number of times they responded to patients' vocalizations. A tabulation record was devised to measure both patient vocalizations and nurse responses. Vocalizations were given a score based on four criteria: (1) intensity; (2) duration; (3) pitch; and (4) urgency. Following each two-hour data collection period, a discomfort index was checked to measure responses. Both the nurses and the experimenter individually rated, on seven-point scales, questions of how difficult the patient was to care for; how each nurse, or the experimenter, felt in the situation; and how much pain each thought the patient had experienced.

The purposes of the study were tested by means of study hypotheses. Statistical correlations were used to test relationships among the data obtained. Correlation coefficients were tested for validity at the 5 per cent level of significance. The hypotheses and the related findings were:

1. As the patient vocalization score increased, the amount of time the nurses spent in the patient's room decreased. There was no significant correlation between vocalization score and stopwatch-determined time that the nurses spent with each patient. Therefore, it was concluded that this hypothesis was invalid.

2. As the patient vocalization score increased, the number of times nurses entered the patient's room decreased. The reverse of this hypothesis was proven to be valid. As vocalization scores increased, both the number of times that nurses entered patients' rooms and the number of times they responded to patient vocalizations increased rather than decreased. This hypothesis as stated was therefore declared invalid.

3. As the patient vocalization score increased, the nurse discomfort rating also increased. This hypothesis was valid, for a significant positive correlation was found between these two variables.

4. Some of the patients' background data was positively correlated to the patients' vocalization scores. However, these correlations were not found to be significant.

Therefore, for the purposes of this study the hypothesis was invalid.

5. As the vocalization score increased, the length of labor increased. A zero correlation coefficient was found between these two variables. This meant that no relationship existed between these variables and, therefore, the hypothesis was invalid.

6. The nurses' discomfort rating correlated positively with the experimenter's discomfort rating during the study situations. This hypothesis was declared valid. There was a significant positive correlation coefficient between these two discomfort ratings.

## II. CONCLUSIONS

On the basis of the study findings, the following conclusions were made:

1. Patient vocalization did not influence the total amount of time nurses spent with patients.

2. Since the number and scores of vocalizations were highly correlated, the patients who vocalized the most also vocalized the loudest. Therefore, vocalization quality and frequency were highly inter-related.

3. The nurses responded to patient vocalizations and entered patients' rooms more frequently when the patients vocalized a greater number of times and had higher vocalization scores.

4. Nurses were more uncomfortable caring for the

more vocal patients.

5. The experimenter expressed more discomfort in the study situation when observing patients who were more vocal.

6. Patients' varying backgrounds had no effect on the amount or quality of patient vocalization.

7. The amount of patient vocalization had no effect on the lengths of patients' labor.

8. The nurses and the experimenter reacted similarly to the patients since they expressed corresponding amounts of discomfort in the study situations.

9. The data yielded hypotheses worthy of further and more rigorous investigation.

10. The Patient Vocalization and Nurse Response Record and the Nurse-Experimenter Discomfort Index proved to be useful in data collection and might serve as aids in further research.

### III. RECOMMENDATIONS

As a result of the study findings and the conclusions that were drawn, the following recommendations are made:

1. That studies be undertaken to discover reasons why nurses respond more often to vocal patients.

2. That reactions of nurses, obtained by the use of discomfort ratings and the amount of time nurses spent with patients, be studied and compared with results obtained by the use of other measures.



3. That studies be undertaken to explore in depth the four vocalization scoring criteria by correlating the subjective ratings with ratings obtained by the use of a decimeter and/or other precise measuring instruments.

4. That this study be replicated, using a larger population in a situation where one nurse would care for one patient. In such a setting it would be possible to test individual nurse reactions. The background data of the nurses might prove to be significant factors relating to nurses' responses to patients. Backgrounds of the nurse population might be compared with that of the patient population and group differences computed statistically. For example, it might be interesting to study if Caucasian nurses are more comfortable when caring for Caucasian patients. The use of larger samples would make the study findings more representative of the total population, and generalizations could be made to the population parameters. Also, correlation coefficients could be smaller and still be significantly correlated when using larger populations. There is a greater possibility with increased sample sizes that ratings at the extremes of a scale may distort the data.

5. That patient background data be analyzed more thoroughly for significance in comparison with patient vocalizations. The patient backgrounds were represented by both discrete and continuous variables; therefore, not all the correlation coefficients obtained were valid. It

is further recommended that either different statistical techniques be employed or that the data be represented by only one type variable. For example, a variable such as social class, which is rank-ordered, could be correlated more meaningfully with patient vocalization scores.

6. That a tool be developed by which nurses could rate patient vocalizations and the results be compared with the vocalization scoring method utilized by the experimenter in this study.

7. That experimental research be utilized to validate the study hypotheses further.

8. That the conclusions of this exploratory study serve as hypotheses to guide further research.

9. That the study findings and tools developed be made available to members of the nursing profession, student nurses, and nurse-educators in order to develop interest and awareness of the "self" as an important factor in patient care.

## BACKGROUND BIBLIOGRAPHY

## BACKGROUND BIBLIOGRAPHY

### A. BOOKS

- Cattell, Raymond B. Personality and Social Psychology. San Diego: Robert R. Knapp, 1964.
- Chertok, L. Psychosomatic Methods in Painless Childbirth. New York: Permagon Press of London, 1959.
- Finneson, Bernard E. Diagnosis and Management of Pain Syndromes. Philadelphia: W. B. Saunders Company, 1962.
- Klein, Henrieth R., Howard W. Potter, and Ruth B. Dyk. Anxiety in Pregnancy and Childbirth. New York: Paul E. Hoeber Inc., 1950.
- Noordenbos, W. Pain. New York and Princeton: Elsevier Publishing Company, 1959.
- White, James C., and William H. Sweet. Pain: Its Mechanisms and Neurosurgical Control. Springfield, Illinois: Charles C. Thomas, 1955.

### B. PERIODICALS

- Ball, H. C., D. J. Pearce, and J. A. Davies. "Experiences With Therapeutic Nerve Blocks," Anaesthesia. Vol. 19 (April, 1964), pp. 250-64.
- Caplan, Gerald. "Psychological Aspects of Maternity Care," American Journal of Public Health. Vol. 47 (January, 1957), pp. 25-37.
- Cattell, Raymond B. "The Nature and Measurement of Anxiety," reprint from Scientific American (March, 1963). San Francisco: W. H. Freeman & Co.
- Couper, Lewis. "Emotional Stress in Pregnant Women," Nursing Times. Vol. 57 (January 20, 1961), p. 7800.
- "Emotional Support for Women in Labour," Nursing Times. Vol. 58 (January 12, 1962), p. 52.

- Eysenck, S. B. G. "Personality and Pain Assessment in Childbirth of Married and Unmarried Mothers," Journal of Mental Science. Vol. 107 (May, 1961), pp. 417-30.
- Fromhagen, C. "Management of Emotional Disturbances in Obstetrical and Gynecological Patients," American Journal of Obstetrics and Gynecology. Vol. 87 (September 15, 1963), pp. 183-89.
- Gioseffi, William. "Culture as an Aspect of the Total Personality," Social Casework. Vol. 40 (March, 1959), pp. 115-19.
- Gordon, R. E., E. E. Kapostins, K. K. Gordon. "Factors in Postpartum Emotional Adjustment," Obstetrics and Gynecology. Vol. 25 (February, 1965), pp. 158-66.
- Hays, Dorothea. "Teaching a Concept of Anxiety," Nursing Research. Vol. 10, No. 2 (Spring, 1961), p. 109.
- Inglis, Thelma. "The Worst Patient on the Floor," Nursing Outlook. Vol. 6, No. 2 (February, 1958), pp. 99-101.
- Jansson, Bengt. "Psychic Insufficiencies Associated with Childbearing," ACTA Psychiatrica Scandinavia. Supplementum, 172:+1, Vol. 39 (1964), pp. 103-68.
- Kock, Dorothy M. "A Personal Experience With Pain," American Journal of Nursing. Vol. 59, No. 10 (October, 1959), pp. 1434-36.
- Levine, Seymour. "Stimulation in Infancy." Reprint from Scientific American (March, 1960). San Francisco: W. H. Freeman & Company.
- McDonald, R. L., and K. J. Parham. "Relation of Emotional Changes During Pregnancy to Obstetrical Complications in Unmarried Primigravidas," American Journal of Obstetrics and Gynecology. Vol. 90 (September 15, 1964), pp. 195-201.
- Rubin, Reva. "Basic Maternal Behavior," Nursing Outlook. Vol. 9 (November, 1961), pp. 683-86.
- \_\_\_\_\_. "Maternity Care in Our Society," Nursing Outlook. Vol. 11 (July, 1963), pp. 512-21.
- Simmons, Leo W. "Cultural Patterns in Childbirth," American Journal of Nursing. Vol. 52 (August, 1952), p. 989.

Taylor, E. Stewart, and William W. Jack. "A Critical Analysis of Local Anesthesia as an Agent for the Relief of Pain in Vaginal Delivery." American Journal of Obstetrics and Gynecology. Vol. 58 (August, 1949), p. 275.

Watson, Mary. "The Present Position of Pain Relief in Labour." Nursing Mirror (August 16, 1963), pp. 431-33.

#### C. UNPUBLISHED MATERIALS

McDonald, Mary. "Emotional Support During Labor." Paper presented to the Maternal-Child Nursing Department, June 1, 1964.

## BIBLIOGRAPHY

## BIBLIOGRAPHY

### A. BOOKS

- Beecher, Henry K. Measurement of Subjective Responses. New York: Oxford University Press, 1959.
- Bonica, John J. The Management of Pain. Philadelphia: Lee and Febiger, 1953.
- Bookmiller, Mae M., and George L. Bowen. Textbook of Obstetrics and Obstetrical Nursing. Philadelphia: W. B. Saunders Co., 1963.
- Buytendijk, Fredrick J. J. Pain. Chicago: University of Chicago Press, 1962.
- Davis, Edward M., and Reva Rubin. Obstetrics for Nurses. Philadelphia: W. B. Saunders Co., 1962.
- Dixon, Wilfrid J., and Frank J. Massey Jr. Introduction to Statistical Analysis. Second edition. New York: McGraw-Hill Book Co., Inc., 1957.
- Ferguson, George A. Statistical Analysis in Psychology and Education. New York: McGraw-Hill Book Co., Inc., 1959.
- Fitzpatrick, Elsie, and Nicholson Eastman. Zabriskie's Obstetrics for Nurses. Philadelphia: J. B. Lippincott Co., 1960.
- Freeman, Walter, and James W. Watts. Psychosurgery in the Treatment of Mental Disorders and Intractable Pain. Springfield, Illinois: Charles C. Thomas, 1950.
- Hardy, James D., Harold G. Wolff, and Helen Goodell. Pain Sensations and Reactions. Baltimore: Williams and Wilkins Company, 1962.
- Keele, K. D. Anatomies of Pain. Springfield, Illinois: Charles C. Thomas, 1957.
- Lesser, Marion S., and Vera R. Keane. Nurse-Patient Relationship in a Hospital Maternity Service. St. Louis: C. V. Mosby Co., 1956.



- Prescott, Fredrick. The Control of Pain. London: English Universities Press Ltd., 1964.
- Read, Grantly Dick. Childbirth Without Fear. New York: Harper and Brothers, 1953.
- Reynolds, S. R. W., Jerome S. Harris, and Irwin H. Kaiser. Clinical Measurement of Uterine Forces in Pregnancy and Labor. Springfield, Illinois: Charles C. Thomas, 1954.
- Schachter, Stanley. The Psychology of Affiliation. Stanford, California: Stanford University Press, 1959.
- Selltiz, Claire, Marie Jahoda, Morton Deutsch, and Stuart W. Cook. Research Methods in Social Relations. New York: Holt, Rinehart and Winston, 1964.
- Szasz, Thomas S. Pain and Pleasure. New York: Oxford University Press, 1959.
- Thorndike, Robert L., and Elizabeth Hagen. Measurement and Evaluation in Psychology and Education. Second edition. New York: John Wiley and Sons, Inc., 1964.
- Vellay, Pierre. Childbirth Without Pain. New York: E. P. Dutton and Company, 1960.
- Wolff, Harold G., and Stewart Wolf. Pain. Springfield, Illinois: Charles C. Thomas, 1958.

#### B. DICTIONARIES

- "Pain," "Reaction," and "Vocalize." Webster's New Collegiate Dictionary. Springfield, Massachusetts: G. C. Merriam Company, 1959.

#### C. PERIODICALS

- Allperin, Shirley Hope. "What They're Saying," Nursing World (February, 1959), p. 6.
- Bardwick, Judith Maria. "Uterine Contractions As a Function of Anxiety," Dissertation Abstracts. Vol. 25, No. 6 (December, 1964), p. 3083.
- Bergstrom-Walen, Maj-Briht. "Efficacy of Education for Childbirth," Journal of Psychosomatic Research. Vol. 7 (October, 1963), pp. 131-46.

- Davidson, Josephine E. "An Assessment of the Value of Hypnosis in Pregnancy and Labour," British Medical Journal, II (October 13, 1962), p. 7.
- Holliday, Jane. "The Exploratory Study Method," Nursing Research. Vol. 13, No. 1 (Winter, 1964), p. 39.
- Klein, Helen Therese. "Maternal Anxiety and Abnormalities of Birth: Relationship Between Anxiety Level During Pregnancy and Maternal-Fetal Complications," Dissertation Abstracts. Vol. 25, No. 3 (September, 1964), p. 2049.
- Liberman, Robert. "An Experimental Study of the Placebo Response," Journal of Psychiatric Research. Vol. 4, No. 4 (December, 1964), pp. 223-47.
- Martin, Purvis L., and Stewart A. Smith. "Public Relations in Our Maternity Wards," American Journal of Obstetrics and Gynecology. Vol. 81 (June, 1961), pp. 1079-85.
- Melzack, Ronald. "The Perception of Pain." Reprint from Scientific American, February, 1961. San Francisco: W. H. Freeman and Company, 1961.
- Riffaterre, Brigitte Berthe. "Determination of Pregnancy Depression and Its Relation to Marital Status and Group Affiliation in a Single Ethnic Group," Dissertation Abstracts. Vol. 25, No. 9 (March, 1965), p. 5390.
- Shainess, Natalie. "The Psychologic Experience of Labor," New York State Journal of Medicine. CLIII (October 15, 1963), p. 2924.
- Smith, Christine. "We Asked the Patients," Nursing Outlook. Vol. 6 (August, 1958), pp. 458-59.
- Thoms, Herbert, and Ernestine Weidenbach. "Support During Labor," Journal of the American Medical Association. CLVI (September, 1954), p. 216.
- Zborowski, Mark. "Cultural Components in Responses to Pain," Journal of Social Issues. Vol. 8, No. 4 (1952), pp. 26-30.

#### D. UNPUBLISHED MATERIALS

- Kann, Jules. "An Exploratory Study of the Relationship of Certain Psychological Variables to the Degree of Difficulty of Childbirth." Unpublished Ph.D. dissertation,

University of Pittsburg, Pittsburg, Pennsylvania, 1950.

Kline, Mary M. "The Effects of Fathers Upon Direct Nursing Care." Unpublished Master's thesis, University of Colorado, Denver, Colorado, 1960.

Stevens, Phillipa Brady. "A Social Psychological Study of Pregnant Women." Unpublished Ph.D. dissertation, University of Texas, Austin, Texas, 1954.

Zemlick, Maurice J. "Maternal Attitudes of Acceptance and Rejection During and After Pregnancy." Unpublished Ph.D. dissertation, Washington University, St. Louis, Missouri, 1952.

APPENDIX A

LETTERS REQUESTING PERMISSION  
TO CONDUCT THE STUDY

University of Colorado  
Graduate School of Nursing  
4200 East Ninth Avenue  
Denver, Colorado  
May 20, 1965

\_\_\_\_\_  
M.D., Chairman  
Department of Obstetrics and Gynecology

---

---

Dear Doctor \_\_\_\_\_:

This letter is to request formal permission to use the labor and delivery unit at \_\_\_\_\_ hospital as a source of data for my Master's thesis. In our conversation of May 17, 1965, I told you in more detail the subject of my study.

Generally, I wish to study verbal expressions of pain in labor patients. These observations would be made on a twenty-four hour basis starting June 1 to 4, 1965, to continue until a population of twenty patients, gravida one through three, could be studied.

I appreciate your oral permission to utilize sleeping quarters within the hospital. Please feel free to contact me if you have any further questions. Thank you for your cooperation.

Sincerely,

Sue Greenleaf,  
Graduate Student and

Marjory G. Hibbard,  
Assistant Director  
Graduate Programs in Nursing

University of Colorado  
Graduate School of Nursing  
4200 East Ninth Avenue  
Denver, Colorado  
May 20, 1965

\_\_\_\_\_, Director  
Nursing Service  
\_\_\_\_\_ Hospital

Dear \_\_\_\_\_:

This letter is to request formal permission to use the labor and delivery unit at \_\_\_\_\_ hospital as a source of data for my Master's thesis. In our conversation of May 17, 1965, I told you in more detail the subject of my study.

Generally, I wish to study verbal expressions of pain in labor patients. These observations would be made on a twenty-four hour basis starting June 1 to 4, 1965, to continue until a population of twenty patients, gravida one through three, could be studied. As we discussed, the unit's nursing staff will be asked also to rate these patients.

I appreciate your oral permission to utilize hospital facilities. Please feel free to contact me if you have any further questions. Thank you for your cooperation.

Sincerely,

Sue Greenleaf,  
Graduate Student and

Marjory G. Hibbard,  
Assistant Director  
Graduate Programs in Nursing

APPENDIX B

NURSE BACKGROUND QUESTIONNAIRE

## NURSE BACKGROUND QUESTIONNAIRE

Name \_\_\_\_\_ Age \_\_\_\_\_

Length of residence in this community \_\_\_\_\_

Ethne-racial background \_\_\_\_\_

Marital status \_\_\_\_\_ Number of own children \_\_\_\_\_

Education background:

General \_\_\_\_\_ Year of graduation \_\_\_\_\_

Nursing \_\_\_\_\_ Year of graduation \_\_\_\_\_

\_\_\_\_\_ Year of graduation \_\_\_\_\_

\_\_\_\_\_ Year of graduation \_\_\_\_\_

Years of nursing practice \_\_\_\_\_

Fields of nursing experience \_\_\_\_\_

Current position \_\_\_\_\_ Number of years held \_\_\_\_\_

What field(s) of nursing practice do you like best?

\_\_\_\_\_

What area of Obstetrics do you like best?

\_\_\_\_\_



APPENDIX C

PATIENT BACKGROUND INFORMATION

## PATIENT BACKGROUND INFORMATION

Name \_\_\_\_\_

Sibling order \_\_\_\_\_ Age \_\_\_\_\_

Ethne-racial background \_\_\_\_\_

Marital status and/or background \_\_\_\_\_

Religion \_\_\_\_\_

Educational Background:

Own \_\_\_\_\_

Husband's \_\_\_\_\_

Occupation: (Current employment)

Own \_\_\_\_\_

Husband's \_\_\_\_\_

EDC \_\_\_\_\_ Delivery date \_\_\_\_\_

Gravida \_\_\_\_\_ Para \_\_\_\_\_

Length of labor: (Stage I) Hours \_\_\_\_\_, Minutes \_\_\_\_\_

Medication received: (Stage I)

Type \_\_\_\_\_

Dosage \_\_\_\_\_

Route \_\_\_\_\_

Number of times given \_\_\_\_\_

APPENDIX D

PATIENT VOCALIZATION AND  
NURSE RESPONSE RECORD

Number of Responses	Categories					Comments	Patient Nurse Ratio	Number of Times Nurse in Room
	1	2	3	4	5			
Patient Nurse	-	-	-	-	-			
2.	-	-	-	-	-			
3.	-	-	-	-	-			
4.	-	-	-	-	-			
5.	-	-	-	-	-			
6.	-	-	-	-	-			
7.	-	-	-	-	-			
8.	-	-	-	-	-			
9.	-	-	-	-	-			
10.	-	-	-	-	-			
11.	-	-	-	-	-			
12.	-	-	-	-	-			
Totals	P	-	-	-	-			
	N	-	-	-	-			

Sum totals: Number of patient vocalizations \_\_\_\_\_  
 Number of nurse responses \_\_\_\_\_  
 Total nurse time with patient (stopwatch) \_\_\_\_\_  
 Total number of times nurse was in the patient's room \_\_\_\_\_

\*This includes all times the nurse entered the patient's room regardless of reason.

APPENDIX E

NURSE-EXPERIMENTER DISCOMFORT INDEX

## NURSE-EXPERIMENTER DISCOMFORT INDEX

Would you please rate this patient, \_\_\_\_\_, in the following areas based on your experience and feelings.

CHECK THE APPROPRIATE BOX:

1. This patient was    ? to care for (in relation to my past experience with labor patients).

	1	2	3	4	5	6	7	
Very easy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Very hard

2. I felt    ? when caring for this patient (in relation to my past experience with labor patients).

	1	2	3	4	5	6	7	
Very calm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Very upset

3. This patient experienced    ? pain (in relation to my past experience with labor patients).

	1	2	3	4	5	6	7	
No pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A great deal of pain (maximum)

RATING KEY:

1-3 = Below average

4 = Average

5-7 = Above average