TERRITORIAL BEHAVIORS AND THE EFFECT ON SOCIAL INTERACTION IN A NEONATAL INTENSIVE CARE UNIT

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> The writing of a great book like the making
> of fine wine takes time (Orson Wells, 1979).

I wish to express my appreciation and gratitude to my mother and father who have had great patience and who have given continued emotional, spiritual, and financial support during this ascension.

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CHAPTER I

INTRODUCTION

Within the last several years advances in neonatal and obstetrical medicine have resulted in tremendous sophistication in the equipment and methods of treatment of high-risk newborn infants. This improved methodology and increased knowledge has placed greater emphasis on protecting the infant during labor and delivery, and, therefore, has produced an increase in the number of immature and high-risk infants who survive and require specialized neonatal care. Within this decade, even the very tiny prematures (those less than 1,000 grams) are supported by nursing and medical staff in an intensive care unit which, as research has demonstrated, greatly enhances their chance for normal development.

There has been a corresponding increase in the number of neonatal intensive care units throughout the United States. These units are staffed by nurses who are highly educated and trained to be sensitive to infants' needs and to recognize subtle changes in their behavior which require immediate attention. To aid the nurse, a multitude of equipment has been adapted for use with sick infants. Multiply the electronic, electrical, and mechanical equipment by the number of infants in a unit and one is awed just by the "wizardry" used to help provide physical caregiving needs.

Another area of advancement in perinatal care has been in the area of meeting the emotional needs of parents and their newborn infants. Studies by Klaus, Kennell, and numerous others have documented the importance of the initiation of positive infant-parent attachments. Researchers believe that parental-infant contact should occur early and should be sustained in nature (Klaus and Kennell 1976). Frequently, limited caregiving activities can be performed in a neonatal intensive care unit by the parent under the supervision of nurses until eventually all activities are turned over to the parents. This process can provide the nurse with the opportunity to provide support and encouragement to the parent in the development of normal "mothering" skills, attitudes, and relationships.

As a result of these new data, re-evaluation of hospital policies that interefere with the development of normal infant-parent relationships is being undertaken and activities are being introduced which promote the establishment of this bonding relationship. While this re-evaluation is needed, one must not overlook the fact that intensive care is primarily a nursing activity. As such, it becomes imperative to look at dynamic forces which influence the nurse's thinking, decisions, and actions in dealing with the parent-infant dyad. She communicates and controls processes in the space of the neonatal intensive care unit.

Frequently, neonatal intensive care units are crowded with more than critically-ill infants. The physical size of the unit seems more compact than it is due to the presence and size of the equipment. In addition, a large number of various professionals and auxillary persons are required in the care of these newborns. Nurses who constantly work in the close confines of these busy units often develop an identity and security with the unit and the patients. It stands to reason that the environment of these units contributes to the stresses and reactions of individuals continuously working in these spaces.

The literature supports the assumption that a combination of environmental, bio-psycho-social, and communication processes work together in a neonatal intensive care unit to influence the care and nurturance of the infant and family. Discordance frequently exists between the nurse's emotional expression (observed by behavior) and her intentions, however, these messages are communicated primarily through non-verbal means to the parents of infants. If this is indeed the case, the result would be manifested in ineffective nurse-parent and subsequently infant-parent relationships. This study provided a framework in which the activities of nurses in a neonatal intensive care unit were analyzed in relationship to their effect on nurse-parent/infant relationships.

Statement of the Problem

The problem of this study was to determine if nurses exhibit territorial behaviors which control social interaction in a neonatal intensive care unit.

Purposes

The purposes of this study were to:

1. Develop a set of tools for measuring territorial behaviors in nurses in neonatal intensive care units

2. Determine if relationships exist between behavior of nurses and the personality characteristic of control of nurses in the environment of a neonatal intensive care unit

3. Determine if perceptional differences exist between nurses and parents participating in the social interaction

Definition of Terms

For the purposes of this study, the following terms are defined.

1. Territorial behavior--

> Territorial behavior is a self/other boundary regulation mechanism that involves personalization or marking of a place or object and communication that it is "owned" by a person or group. Personalization and ownership are designed to regulate social interaction and to help satisfy various social and physical motives. Defense responses may sometimes occur when territorial boundaries are violated (Altman 1975, p. 106)

2. Control--a concept which "accommodates the influence a person has over other people, inanimate spaces, and even ideas, and in both active (initiating or offensive) and passive (resistive or defending) ways" (Edney 1975, p. 1109)

3. Communication--

> . . . a cluster of transactional functions whereby a state of body and mind is conveyed from one person to another, and responses evoked. Both sender and receiver are supposed to take part in this rhetorical operation (Meerloo 1967, p. 131)

4. Social interaction--that which occurs "when two or more persons come into contact (not necessarily

physical contact) and a modification of behavior takes place" (Gould and Kolb 1964, p. 658)

5. Neonatal intensive care unit (NICU)--a distinct area staffed by personnel specifically trained in the care of newborn infants with complications or trauma of the perinatal period. The clinical functions of nurses and physicians in this unit include direct observation, physiologic monitoring with electronic equipment, biochemical monitoring by laboratory methods, diagnostic and therapeutic procedures, and promotion of maternal-child contact to the fullest feasible extent (Korones 1976)

6. Nurse--an individual functioning under the title of a nurse. This includes any registered nurse (RN), graduate nurse (GN) from an accredited school of nursing, or licensed vocational nurse (LVN), who has been working in the NICU forty hours a week for a minimum of six months

7. Nurse-parent relationship--an involvement between the mother and the nurse providing care for the infant in the NICU. Their common bond is the interest in the infant's intact survival and the eventual turning over to the family all caregiving activities

8. Infant/parent relationship--an involvement between the mother and infant leading to a bonding process. The capacity to form a healthy relationship is dependent upon reciprocal responses to cues emanating from both parent and infant during contact. This relationship is considered conjointly since the infant is the actual "patient." However, interactions to be observed will look at the parent since their interest and participation in this event also makes the family primary care receivers of nursing intervention

9. Perinatal period--the time extending from the twelfth week of gestation and to the twenty-eighth day after birth (Behrman 1977)

10. Sub-intensive care--infants admitted to this unit also meet admission requirements to NICU. These infants' conditions are less critical than those in the NICU but require close observation and special care. The nurse-patient ratio is one to four

Limitations

Limitations of this study were:

1. The density of the unit was not controlled

2. The largest sample of infants and parents was from a lower socioeconomic class

3. The course of hospitalization or outcome for the infants could not be predicted

4. The observer (investigator) of the interactions was present in the NICU

5. All observations were made and recorded by the investigator

6. The presence of other health care personnel in the unit during the observation period was not controlled

7. There was no distinction made between the educational preparation of the nurses

8. Requirements for individual's personal space were not controlled

9. Only English-speaking parents were included in the sample

Delimitations

Delimitations of the study were:

1. Interactions observed did not include the initial contact in the NICU between the infant and parent

2. Newborn infants with congenital anomalies were excluded as infant-parent dyads from the study

3. Infants had been patients in the NICU for forty-eight hours prior to data collection

4. Nurses had worked in the NICU a minimum of six months and were full-time (forty hours/week) employees

5. Infants were born in the institution in which the study was conducted

6. Infants suspected of having periventicular hemorrhages, as recorded on the problem list, were not included in the investigation

Assumptions

For the purpose of this investigation, the following assumptions were made:

1. Communication, a process by which people relate to each other, can be observed and experienced (Ruesch 1959)

2. Communication takes place simultaneously on levels of consciousness ranging from full awareness to out-of-awareness (Hall 1969)

3. Culture has an important influence on communication through verbal and non-verbal means (Spiegel 1959)

4. Man as a social being exists in and through communication (Duncan 1976)

5. Communication involves the arousal in an individual of the attitudes of the other (Mead 1976)

6. Communicative behavioral events exert influences on the receiver which lasts for a period of time (Frey 1975)

7. Man's attempt to satisfy his needs involves him in interactions and exchanges with his physical environment (Proshansky, Ittleson, and Rivlin 1976)

8. There is a mutual and a dual impact between people and the environment (Altman 1975)

9. Territoriality is a basic behavioral system characteristic of living organisms, including man (Hall 1969)

10. Territorial boundaries are associated with the psychological need for security, identity, and stimulation (Ardrey 1966)

Hypotheses

The hypotheses examined in this study were as follows:

1. There is no relationship between territorial behaviors of nurses in the NICU and the control of social interaction

2. There is no difference between intentions (emotional expressions) and actual behavior of nurses in the NICU

Background and Significance

Nearly everything man has and does involves the experience of space. Our culture, however, tends to play down or has caused us to repress and dissociate feelings about space (Hall 1973). In most instances, awareness of one's behavior and experience in a setting occurs only when a space or setting fails to work for the individual (Proshansky 1976). Within the last thirty years researchers have begun to examine the dual relationship which exists between man and the space of his environment--a relationship in which man and the environment participate in molding each other (Hall 1969).

After extensive study and observation of man in his natural setting, Hall (1969) designated the term proxemics to explain observations and theories of man's use of space as an elaboration of culture. This author identified four distance zones in Americans which specify the type of interactions that occur. Measured distances may vary according to environmental factors and the individual's personality. The distance zones are:

1. Intimate distance (0 to 18 inches)--At this distance there is an increased sensory input, visual distortion and an awareness of body heat, sound, smell, and the feel of one another's breath.

2. Personal distance (1-1/2 to 4 feet)--This distance provides a protective sphere which can be used to separate oneself from others. This distance also provides a kinesthetic sense of closeness but keeps others at "arm's length." There are no visual distortions, and olfaction sensations are not usually present.

3. Social distance (4 to 12 feet)--This distance provides a limit for domination. Intimate visual detail is not perceived. No one touches or expects to touch another unless there is a special effort. This distance requires continual eye contact to sustain interactions.

4. Public distance (12 feet and beyond)--This distance is outside the circle of involvement. One may take evasive or defensive action at this level of interaction. Public figures frequently utilize this phase (Hall 1969).

Man utilizes these zones identified by Hall (1969) to regulate social interaction between himself and others. Other mechanisms that assist in controlling the social exchange include verbal and paraverbal behavior (Birdwhistell 1970, Scheflen 1972). Horowitz (1968) identified three determinants of spatial behavior. He stated that spatial behavior and mechanisms used by individuals to achieve regulation are related to the extension of the body image into an attitude about space, the expectancy or fears of certain types of interpersonal transactions and the use of space as a communicative medium for transmission of spatial messages both in and out of awareness.

The concept of space plays a vital role in examining the relationship between the person's physical environment and human behavior. There are many dimensions to space. Territorial space and behavior are a significant aspect of man's use of space and how space affects man's interactions. Territoriality, as a behavior, is rooted in space and place. It is more distant than personal space, "somewhat removed from the immediate environment--and involves the use of places and objects in the environment" (Altman 1975, p. 105). Territorial space is a stationary area with regular formats and boundaries; however, the boundary of a territorial space does not necessarily have geographic reality. It may be defined by the behavioral responses of the individual who occupies or intrudes upon it (Horowitz 1968).

The personalization and ownership of a place or object inherent in the mechanisms of territorial behavior is used to regulate social interaction and to facilitate the satisfaction of social and physical needs (Altman

1975). Ardrey (1966) proposed that motivations for territorial behaviors originate in man's need for security, stimulation, and identity. Ardrey found it useful to define the three innate needs in terms of the opposites: "to think of security as the opposite of anxiety, of stimulation as the opposite of boredom, of identity as the opposite of anonymity" (1966, p. 170). Man shuns anonymity, dreads boredom, and seeks to dispel anxiety (Ardrey 1966).

The territorial imperative has a restrictive effect on the potential for providing maximum health care (Pluckham 1972). Within the context of nursing, only a few studies have investigated the concept of territorality. Allekian's study was to "determine whether intrusions of territory and personal space were anxiety-producing factors for the hospitalized person" (1973, p. 237). Data collected from a two-part questionnaire based on how adult patients felt about territorial intrusion supported the hypothesis that patients would experience anxiety when intrusion of their territory in the hospital occurred (Allekian 1973).

Minckley (1968) performed an informal study using recovery room patients. The author determined by observation that barriers in the recovery room were silently erected through verbal and nonverbal interactions of the patients and nurses. Minckley described a phenomena in which the nurses escaped into the "heart of their own territory . . . which was a small alcove at the end of the recovery room" (1968, p. 514). This action was identified as a response to the nurses' need for socialization and the release of tension and aggression after their territory was "overrun by patients whose needs may be so demanding as to be overwhelming" (Minckley 1968, p. 54). Patients were also noted to exhibit behavior that related to their feelings about the space they occupied. Some patients pulled the covers over their heads "to escape the forced territorial overlapping" (Minckley 1968, p. 514), while other patients turned toward the wall. Minckley (1968) concluded that nurses by their twenty-four-hour-a-day presence in a hospital have territorial rights. Furthermore, in agreement with Ardrey (1966) and other environmental psychologists, Minckley (1966) asserted that

> . . . if territorial instincts are operant, then the patient is the transgressor into the nurses' territory and already feels a burden of guilt and tension. Far from the center of his own ecologic domain, he is timid and apologetic, and more likely to lose any battles on this unfamiliar ground (Minckley 1968, p. 512).

There has been a lack of nursing studies performed on this concept.

Based upon the understanding of territorial space, it is apparent that persons respond through verbal and nonverbal mechanisms in an effort to control events that threaten their identity or security. In a neonatal intensive care unit, nurses diligently care for virtually helpless, sick infants. The nurses are comfortable and familiar with the activities and patients in the unit. There is a great expenditure of time and energy and expertise by nurses in a NICU. Parents must don gowns in order to gain entrance to the unit. The gown is literally to protect the unit against contamination from the outside. Based on responses of adults who violate the territory of others in different life spaces, there is no reason to believe that the parent entering the NICU to visit their child would not be timid as they entered the nurse's territorial domain. The critical point to be examined will be if nurses utilize cognitive, affective, and conative processes in their interactions with the parent to equalize threats in the environment felt by both parent and nurse.

The study of man's relationship to his physical environment is a relatively new area of scientific inquiry. It is, therefore, appropriate to present the methodological implications for the study of the relationship of human social events in the environment as outlined by Proshansky (1976) and adopted as a guideline for the development of this research. Proshansky delineated five methodological requirements related to the study of environmental psychology. Environmental psychology is defined generally as the study of the relationship between the person's physical environment and human behavior and experience. This approach to studying the environment is described as a "more descriptive than exploratory, more qualitative than quantitative" interdisciplinary approach to looking at real life physical settings in the context of broader sociocultural boundaries (Proshansky 1976, p. 68).

The methodological requirements are described as follows:

1. "Absolute integrity of personal/physical setting events" (Proshansky 1976, p. 63)

The process for meeting this requirement involves the utilization of analytic concepts and empirical dimensions for (1) studying the individual/physical setting relationships in a natural context, in a manner that it is the total individual acting and being acted upon, (2) the continual study of the phenomenon in the natural context in order to define its properties and boundaries, and (3) that technique and methods are developed and utilized in order to provide minimal intrusion yet provide cooperative involvement of those involved in the research process (Proshansky 1976).

2. "Behavior systems reactions and psychological system reactions" (Proshansky 1976, p. 64).

Proshansky differentiated the two elements by defining behavior system reactions as behavior and experiences of an individual that he/she is not aware of consciously. Psychological system reactions are those behaviors or responses which an individual is consciously aware of experiencing and doing. The distinction is necessary because environmental research has shown that

> . . . to a large extent the individual is not aware of his or her behavior and experience in the continuing process of responding to the kaleidoscope of physical settings that one enters and leaves in the course of a person's day-to-day existence (Proshansky 1976, p. 64).

3. "Content orientation" (Proshansky 1976, p. 65).

Content orientation requires the consideration of the meaning and nature of person/environmental setting events as defined by "geographical location, designed purposes, intended and actual activities, and the character of the actors involved" (Proshansky 1976, p. 65).

4. "Time orientation" (Proshansky 1976, p. 66).

In order to maintain the integrity of the individual, the person/physical setting, events must be studied over time. Like people, spaces and places change and the changes stimulate changes in the behavior and experiences of people who brought about the changes initially. This is acknowledged by Proshansky (1976) to be virtually impossible to achieve in many situations.

5. "Context orientation" (Proshansky 1976, p. 67).

Context orientation describes the effect of the social and cultural setting on the conceptualization and description of the physical setting of an individual in relation to how the individual acts upon it (and vice versa) (Proshansky 1976).

To summarize this methodological approach of studying individual/physical setting relationships, Proshansky stated:

> It is only by considering the pattern of social, organizational and cultural factors that define an observed physical setting that one is able to define the question of the use and consequences of that space in relation to the behavior and experience of the people who occupy it (1976, p. 68).

By studying the conceptual analysis paradigm expounded by Proshansky (1976) and applying it to the phenomenon of territoriality, which is rooted in space and place, one may discern that this dimension of space has many implications for nursing.

Theoretical Framework

The purpose of this section will be to clearly and concisely set forth the theoretical framework which forms the basis for the construction of this research. A holistic approach, developed by Rickelman (1971) known as the bio-psycho-social linguistic theoretical framework, examines nurse-patient interactions by considering the biological, psychological, and/or sociological nature of messages. The conceptual framework describes how messages are perceived and interpreted, by those in the interaction situation, through each individual's cognitive, effective, and conative personalities (Rickelman 1971).

Rickelman (1971) employed the nursing process to guide actions of the nurse in a nurse-patient interaction through the bio-psycho-social linguistic framework which is operationally defined in the following manner.

1. Messages (verbal and nonverbal) will be sent and received by both the nurse and the patient.
2. The messages exchanged may be of a biological, psychological, and/or social nature.
3. The messages exchanged are filtered through and influenced by the cognitive, affective and conative realms of the personality of the patient.
4. The nurse, with the awareness of the above three steps carries out the nursing process associated with nurse-patient interactions,

> identifies the need for, and then plans, ministers, and evaluates appropriate nursing care (Rickelman 1971, p. 402).

Essentially, the bio-psycho-social linguistic conceptual framework provides a means for conceptualizing nursing's approach to health care by combining the interrelated areas of the nature of the nurse-patient interaction, communication theory, and linguistic theory (Rickelman 1971). The nurse-patient interaction is described as a communicative process during which the nurse utilizes her knowledge in the biological and physical sciences, nursing, psychosocial sciences, and arts and humanities to facilitate caring for the patient (or individual[s] who are the recipients of nursing service) by

1. Identifying a patient's need for help
2. Determining how to best meet the need in an acceptable manner for the patient
3. Implementing the action decided upon
4. Validating the evaluating if the action achieved the desired result and met the patient's identified need (Weidenbach 1964, p. 52).

This nursing process is carried out on the basis of communication and linguistic theory. Rickelman (1971) described the five elements of communication theory as: (1) a sender, (2) a receiver, (3) a message, (4) a channel of transmission, and (5) a response or effect. Individuals, as communication units, may be sources and destinations of messages simultaneously.

Linguistic theory is closely related to communication theory. In the past linguistics has dealt primarily with the spoken language and secondarily with written language. Rickelman (1971) adopted an expanded definition of psycholinguistics which deals with "relations between messages and the characteristics of individuals who send and receive them" (Rickelman 1971, p. 398). Within this framework the term linguistics was defined as "the scientific study of language" (Rickelman 1971, p. 399). Language comprises the areas of any intercommunicative behavior, nonverbal or verbal, and behavior in which language plays a part. For clarity Rickelman broadly defined linguistics as a

> . . . concept which refers to observable human behavior which may be communicated both verbally and non-verbally and may be systematically assessed (1971, p. 399).

Messages transmitted between the nurse and patient (parent) may be observed through behaviors which are related to physical (biological), mental (psychological), and social (sociological) influences. The nurse receives (encodes) the transmitted messages from the patient through observation of his/her behavior, identifies the existence of the patient's need or problem, then analyzes and interprets (decodes) the message, decides how to best meet the need, implements the nursing care plan decided upon, and then evaluates the effectiveness of the action taken. Thus, the

> . . . nurse and patient [parent] interact with one another via a process of receiving (encoding) and using (decoding) bio-psycho-social messages that are filtered through the cognitive, affective, and conative realms of their personalities (Rickelman 1971, p. 400). (See figure 1.)

Behavior is divided into three dimensions--the cognitive, affective, and conative realms. These are examined separately but recognized by Rickelman (1971), as highly interdependent and relevant in discussing the nurse-patient interaction.

The Cognitive Realm

Rickelman (1971) proposed that the cognitive realm of an individual is the product of the following four determinants:

> 1. His physiological structure (Biological)
> 2. His wishes, desires, and goals (Psychological)
> 3. His physical and social environments (Sociological)
> 4. His past experiences (Bio-Psycho-Social) (Rickelman 1971, p. 399).

These determinants are the basis for an individual's perceiving, imagining, thinking, and reasoning about stimuli presented to him. In addition

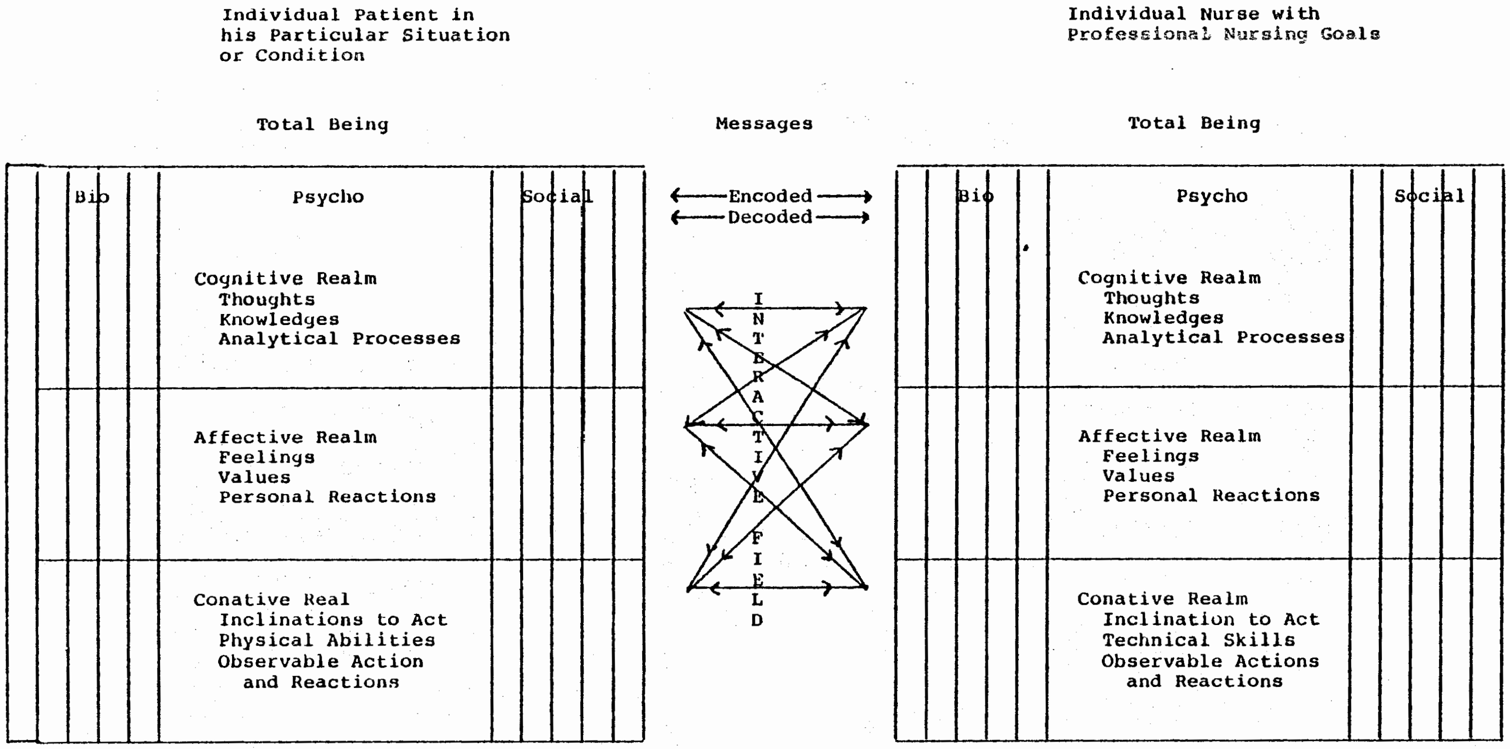

Fig. 1.--Bio-Psycho-Social Linguistic Nurse-Patient Interaction

Taken from: B. Rickelman. 1971. Bio-psycho-social linguistics: a conceptual approach to nurse-patient interaction. Nursing Research 20(5): 401.

cognition is noted to be selectively organized. The significance of this selectivity is that out of all of the items in an individual's environment, only a portion of the items, and only certain characteristics of these items will be perceived by the individual. Even then, the items and characteristics are perceived in ways which conform to the individual's psychological needs (Rickelman 1971).

The Affective Realm

Affect refers to the "feeling-life or emotional feeling tone of an individual" (Kolb 1968, p. 101). The feelings are determined by a combination of factors involving the autonomic nervous system, endocrine glands, chemical states of the body, and a variety of life experiences of the individual. The affective realm not only determines one's attitude about an experience, but also influences the cognitive realm of thought and the conative realm of behavior. Rickelman stated:

> . . . affective factors tend to facilitate those associations or events which magnify and enhance an individual's ego, or aid him in attaining some objective, and at the same time affective factors tend to inhibit those associations or events which are unpleasant to him, or are opposed to the gratification of some need or goal (1971, p. 399).

The Conative Realm

> The conative dimension of the personality involves an individual's conscious tendency to act, a conscious striving to act, and may be observed in the purposive activity of an individual (Rickelman 1971, p. 400).

In the bio-psycho-social linguistic theory this may be observed through overt behavior in social interaction occurring between the nurse and patient. Taking into account the affective and cognitive dimensions with the conative realm, the dimensions of personality offer a more complete and accurate assessment of the meaning of the interactive process. While Rickelman (1971) primarily discussed the theory from the aspect of the nurse assessing the patient through a bio-psycho-social situation, identifying needs, planning, ministering, and evaluating nursing care, the framework is adaptive and flexible. It also provides for evaluating how the nurse's cognitive, affective, and conative responses influence the nurse-patient interaction. The bio-psycho-social model provides a method to determine what type of messages the nurse communicates to the patient (parent) by considering how the nurse's needs and patterns of behavior are affected by what she thinks, feels, and does. This model represents a systematic method of describing professional nursing as

> . . . an insight, purposeful correlation of bio-psycho-social messages and cognitive, affective,

and conative characteristics of the nurse and patient in interaction (Rickelman 1971, p. 402). (See figure 2.)

Summary

This chapter proposed to investigate territorial behaviors and the control of social interaction in a NICU by nurses and parents. Rickelman's (1971) bio-psycho-social linguistic nurse-patient interaction model provided the theoretical framework against which subjects' needs for space and territory will be projected. The background and significance reviewed basic spatial and environmental elements inherent in the study of territoriality.

Chapter II deals more specifically with the evolution, functions, definitions, and taxonomies of the concept of territoriality. As in any attempt at developing a holistic approach to a phenomena, multidimensional and multifactorial elements exist. For the purpose of this study, these additional elements were limited to the concepts of environment, communication, and social interaction.

Chapter III presents the method of collecting the data and the modifications of the proposal to facilitate this procedure. Chapter IV presents the findings from the observational tool, perceptual questionnaires, FIRO-B

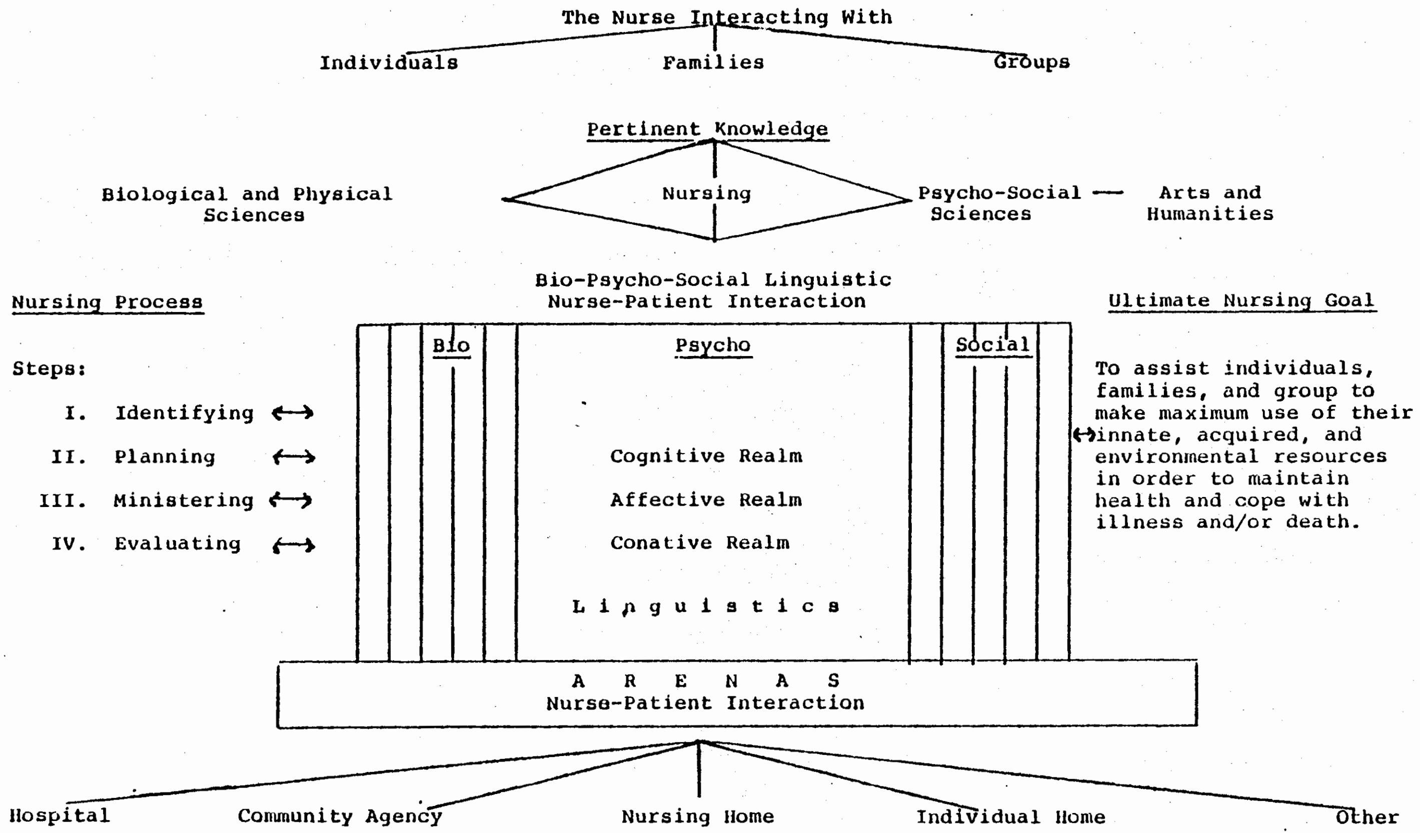

Fig. 2. Components of Professional Nursing

Taken from: B. Rickelman. 1971. Bio-psycho-social linguistics: a conceptual approach to nurse-patient interaction. Nursing Research 20(5): 402.

scales, and demographic data. The fifth chapter presents conclusions and implications for further study into the environment of a NICU and those interactions occurring within its boundaries with specific regard to possible consequences to parent-infant interaction and attachment behaviors.

CHAPTER II

REVIEW OF LITERATURE

Territoriality in humans is an established phenomenon; however, the role of territoriality in humans has been related to various biological, psychological, and social concepts. This review of literature is concerned with presenting existing theoretical issues and empirical evidence about human territoriality. The significance of this knowledge to nursing practice involving nurse-parent/infant interactions will be determined by its application to Rickelman's (1971) bio-psycho-social linguistic nursing framework.

Conceptual Issues

Origins of the Concept of Territoriality

Historically, the concept of territoriality has its origin in the study of animal behavior--particularly subhuman. As such, territoriality has been viewed as a complex system of checks and balances in which the survival of the species has been a major element (Fried and DeFazio 1974). The application of this concept to human behavior has been a recent development. Much of the early discussion to date has been a comparative nature between human and other animal species (Ardrey 1966, Calhoun 1966, Hediger 1968, Altman 1970, Eibl-Eibesfeldt 1970, Cheyne and Efran 1972). Edney (1974) stated that information on human territoriality is limited and unsystematic. Ideas about territoriality are loose, definitional problems exist, and theories have not progressed beyond elementary and informal stages.

Since the concept of human territoriality is relatively undeveloped, numerous authors believe it is appropriate and useful to utilize ethological findings in relating territoriality to humans. Kata (1926) in Eibl-Eibesfeldt (1970) stated:

> . . . in some aspects there exists a surprising agreement in the social behavior of animal and human groups, so that one may be encouraged to hope that animal psychology could be useful in discovering laws that also govern the social life of human groups (1970, p. 305).

Kortmulder (1974) similarly proposed several philosophical assumptions regarding ethology and the comparability of human and animal behavior. Kortmulder stated, "human behavior is fundamentally comparative with animal behavior. Man is a product of evolution and his behavior can and must be seen in this perspective . . . ." (1974, p. 57).

Hediger (1968) described a phenomenon in which animals showed strong psychic attachment to particular countries. "Here is a further instnace of similarity, between the spatial experience of men and of animals" (Hediger 1968, p. 32).

Ardrey (1966) maintained that man shares with other animals a drive that is innate, genetic, and ineradicable. He asserted that territoriality is governed by an "open" instinct.

Conversely, there are those who have reservations about drawing conclusions on human territorial behavior based upon cross species comparisons of animals. Sommer and Becker stated, "there is no need to assume that the mechanisms underlying human and animal behavior are identical" (1968, p. 92). They contended the lack of data regarding human territorial behavior makes it more reasonable to "assume that the mechanisms are analogous rather than homologous" (Sommer and Becker 1968, p. 92).

Proshansky, Ittleson, and Rivlin (1976) believed that while evidence can be found in animals and humans which subsume a behavioral relationship, the "analogy with territorial behavior in infrahuman species quickly reaches its limit" (Proshansky et al. 1976, p. 176). They further explained that

> . . . to assume that (territorial behavior) serves the same functions in man as in lower organisms, or that it is rooted in man in innately determined biological mechanisms, simply ignore the properties

> that distinguish man from all other groups of living organisms (1976, p. 176).

Van Den Berghe believed the "uniqueness of human behavior has been misunderstood (1977, p. 777).

> Man is not unique in transmitting socially learned behavior, and there is no reason to assume that our biological make-up does not effect our behavior when it so clearly affects that of other species (Van Den Berghe 1977, p. 777).

Similarly, Edney (1974) proposed that differences in animal and human territorial behavior indicate that animal territoriality can best be used as a set of analogies for human behavior, not a source of direct explanation.

Klopfer's opinion was that "extrapolations from the behavior of animals to that of man frequently err when they assume the behavior of vertebrates in question to be a unitary phenomenon" (1968, p. 399). He opposed Ardrey's (1966) concept of the "territorial imperative" on the basis that Ardrey's conclusions are just analogic reasoning. Klopfer (1968) specifically questioned the striking diversity in the kinds of territorial behavior man exhibits in light of Ardrey's (1966) claim that this behavior is biologically determined.

Likewise, Ardrey's (1966) thesis is opposed by Edney (1974). To assume that the underlying mechanisms of territorial behavior are the same in some animals and man has political consequences:

> It relieves man of the moral responsibility for his territorial aggressive acts and invites the rationalization of human territorial warfare as simple fulfillment of man's genetic predisposition (Edney 1974, p. 961).

Altman (1970) expressed that with few exceptions there is little willingness to infer an innate basis to human territoriality; however, this is generally accepted as true in animal species. That all living organisms observe some sense of territoriality (Lyman and Scott 1967) is not disputed. However, the generalization of animal findings to humans remains an open question.

Definitional Framework

Various authors (Altman 1970, 1975; Edney 1974) have presented a variety of definitions for animal and human territoriality. The definitional framework was used to facilitate development of a shared meaning of the term. The following definitions are composites of these definitional frameworks:

Hediger (1950)--Territory is an area that is in some way made distinctive by its owner and is defended by the owner.

Carpenter (1950)--Territoriality should be viewed as a "behavioral system which is expressed in a spatial-temporal frame of reference" (p. 228). Territories are geographic loci where an animal lives and prevents others of the same species from entering. Territorial areas serve such functions as feeding, mating, and rearing of the young.

Hall (1959)--Territoriality is "the act of laying claim and defending a territory" by a living organism.

Goffman (1963)--Territories are areas controlled on the basis of ownership and exclusive use.

Dubos (1965)--Laying claim to a territory and maintaining certain distances from one's peers are as real biological needs in man as they are in animals, but their expressions are culturally conditioned.

Stea (1965)--Territorial behavior expresses the desire to gain and occupy particular areas of space and to defend it against intrusion when necessary.

Ardrey (1966)--A territory is an area which an animal or group defends as an exclusive preserve, primarily against some species members.

Sommer (1966)--A territory is an area controlled by an individual or collectivity which may reflect actual or potential possession rather than evidenced by physical aggression.

Altman and Haythorn (1967)--Territoriality is defined in terms of consistent and mutually exclusive use of particular objects and space.

Altman and Haythorn (1967)--Territoriality implies an active response to intrusion.

Lyman and Scott (1967)--Territoriality involves the attempt to control space and is regarded as a fundamental human activity.

Lorenz (1969)--Territorial behavior is the defense of a given area.

Sommer (1969)--Territory is a personalized area marked and defended by its owner.

Altman (1970)--Territoriality in humans includes possessiveness of ideas and objects as well as space.

Eibl-Eibesfeldt (1970)--Territoriality is any space associated intolerance where the territory owner will cause the same species invader to retreat. The ownership may be limited to established periods of time.

Becker and Mayo (1971)--Territoriality refers to a geographical or topographic area with boundaries defined by one or more sense modalities.

Becker (1973)--Territory refers to a particular place or area in which the satisfaction of important needs or drives occur.

Sundstrom and Altman (1964)--Territorial behavior is the habitual use of particular spatial areas.

Edney (1974)--Territoriality is phenomenon which joins an organism's physical environment directly to his behavior.

Van Den Berghe (1974)--Territoriality is the defense of a relatively fixed space against occupation or use by co-specifics.

Altman (1975)--Territorial behavior is a mechanism that involves personalization of a place or object and communication that it is owned by a person or group. Personalization and ownership are attempts to regulate social interaction and satisfy social and physical needs. Defense responses may occur with violations of territorial boundaries.

Pastalan (1970)--A territory is a defined space an individual or group uses and defends as an exclusive preserve.

Proshansky, Ittleson, and Rivilin (1976)--Human territoriality is the achieving and exerting control over a specific segment of space.

Scheflen (1976)--Territoriality refers to the process by which a unit of space is defined for a period of time by some kind of human behavior.

Several classes of common themes have been identified within the context of these definitions. Edney (1974) described three groups within the definitions. First, definitions which implied active defense by an individual or group; second, those definitions using defense and other defining characteristics; and third, those definitions not including defense reactions.

Six points of reference named by Altman (1975) were definitions which made use of: (1) consistent references to place, (2) implied mechanisms of fulfilling various needs or motives, (3) conveyed the concept of ownership of place, (4) involved personalization of space by marking, (5) involved domination of an area by an individual or group, and (6) those which included the protection of territories from intrusion through active and passive defense (Altman 1975). In an earlier analysis of the concept of territory, Altman (1970) recognized the following recurrent components in a definitional framework. First, a consistent reference to place or geographical locale in which organisms behave for relatively enduring periods of time. Second, functioning within fixed geographical areas is usually associated with important needs or drives. Third, characteristic behaviors appear to be associated with territoriality, such as marking and defense of areas by visual, verbal, nonverbal, and physical displays of aggression. Fourth, the involvement of a behavior unit occurs in the form of an individual, family unit, or larger collective. No doubt, the phenomenon of territoriality is multifaceted and has been approached in a variety of ways.

Animal and Human Territoriality

There has been frequent comparison made between animal and human territoriality to determine if the governing mechanisms and manifestations of territorial behavior are similar (Altman and Sundstrom 1964, Ardrey 1966, Lorenz 1969, Altman 1970, Edney 1974). Data and anecdotal observation suggest that animals and humans are territorial as individuals and as members of a group. Groups used by humans in establishing territorial domain include couples, families, social clubs, and work areas. Animals frequently unite in groups through mating, hunting, and in defense of land and families. Altman (1975) pointed out that human territories may include areas much greater in scope than animals. Humans also belong to a greater number of groups.

Diversity of group membership is another characterization of animal and human territoriality. Humans exhibit territoriality through a multitude of roles and at various times--mother, father, husband/wife, professional, club member, and so forth. Animal roles are usually limited in numbers and social roles--mate, leader, and parent. Another distinction between animal and human territoriality concerns needs or motives. Carpenter (1950) listed thirty-two functions of animal territoriality. For the most part, they are associated with biological functions such as reproduction, food gathering, and care of the young. Some studies suggest that human territorial behavior is learned and related more to social rather than biological motives.

Comparisons between human and animal behaviors are also made in regard to geographical nature of the territories. Animal territories are considered more restricted and governed primarily by population, food supply, and capability for mobility (Altman 1970, 1975). Human territories vary within time and place. Humans frequently maintain several non-adjacent territories (home, office, mountain retreat) at the same time. The greatest difference in human and animal behavior is believed to occur in human's "possessiveness for others is more durable over time and extends beyond the confines of a geographically present person or group" (Altman 1975, p. 75). Edney (1974) added another provocative difference between human and animal behvavior. He noted that only humans engage in territorial warfare without physically trespassing. They are also the only territorial organism which entertain conspecifics without antagonism (Edney 1974). Idea or cognitive territoriality seems to be a distinctly human property, as illustrated by copyrights, patents, and the possession of ideas (Altman 1975).

An area which lacks empirical support in the comparison of human and animal behavior involves the finding that

> people seem to have a very subtle and sensitively graduated response repertoire in relation to territory, involving complex blends of verbal, nonverbal, and environmentally related behaviors. The result is a rich and sensitive communication system that allows for a wide array of alternate responses of both a preventive and reactive nature (Altman 1975, p. 109).

Generally, the comparisons do not suggest that comparative analysis is not useful, but rather it is important to be alert to differences.

Several authors have attempted to organize the body of existing knowledge on territorial behavior in humans. The literature contains two conceptual analyses and four taxonomies which will be presented. To date, a theory on territorial behaviors has not been developed.

Altman defined human territoriality in a broad basis as:

> . . . (encompassing) temporally durable preventive and reactive behaviors including perceptions, use and defense of places, people, objects, and ideas, by means of verbal, self-marker and environmental prop behaviors in response to the actual or implied presence of others and in response to properties of the environment, and is geared to satisfying certain primary motivational states of individuals and groups (Altman 1970, p. 8)

Human territoriality, as described by Altman (1970), has a multifaceted meaning and requires simultaneous attention to the following four behavior categories: behavioral response, situational context, antecedent factors, and organismic factors.

Behavior responses are characterized by various modes of territorial responses, both reactive and preventive. This facet of territorial behaviors can include subjective perceptions and feelings, verbal reports, selfmarker behavior, and the use of environmental props to show possession, use and defense of objects, space, or ideas (Altman 1970).

Situational context is related to physical-social determinants including the design and arrangement of space, group size, degree of crowdedness, confinement, and other settings (Altman 1970).

Antecedent factors are involved with those conditions which precipitate and affect territorial behavior, such as interpersonal compatibility, role relations, social power, and dominance relationships (Altman 1970).

Organismic factors are referred to as the satisfaction of primary and second motivational states by individuals and groups. There is a strong suggestion for the role of social-motivational factors in the human territorial phenomena (Altman 1970).

Altman (1970) proposed that ideally one could talk about the construct of territoriality only if all of the generic elements described were present. His analyses of the territorial phenomena included knowledge of internal cognitive motivational processes studied in systems terms, serving determinant and resultant functions (Edney 1974).

Taxonomies

Taxonomies are useful representations of an organizational system to which a concept may be applied, thus bringing together a variety of perspectives. Four taxonomies are presented to facilitate the conceptualization of the phenomena of human territoriality.

Territorial forms

Lyman and Scott (1967) presented a taxonomy of four territorial forms. First, public territories are those areas in which a person has freedom of access, but not necessarily of action, by virtue of his claim to citizenship. These territories are accessible to everyone, but there are expectations of appropriate behavior and some modifications of freedom to some categories of individuals. Public territories are frequently a testing ground of challenges to authority. The second type of territory, home territory, is an area where regular participants have "a relative freedom of behavior and a sense of intimacy and control over the area" (Lyman and Scott 1967, p. 238). Home territories may be established when a person or group claims a previously free territory by virtue of discovery, regular usage or a peculiar relationship (i.e., the claimed area of a street gant).

Interactional territory, the third type, refers to areas where social gatherings may occur. Territorial boundaries are maintained for the length of the interaction. Entrance and exits are governed by a code of unofficial rules understood by the members. These mobile and fragile territories are constantly tested by newcomers. The fourth type, called body territory, includes the space encompassed by the human body. The rights to view and touch the body are subject to restriction as the "most private and involate of the territories belonging to an individual" (Lyman and Scott 1967, p. 240). The body territory, however, may be changed to a home territory. This is commonly seen in marriage in a monogomous society, where sexual access to the woman is considered an exclusive right of the husband. Body territories carry meaning beyond the anatomical space. Humans exercise extra-territorial rights over space which immediately surrounds a person (Lyman and Scott 1967).

Encroachment

Three forms of territorial encroachment are identified by Lyman and Scott (1967) as violation, invasion, and contamination. Violation of a territory was described as unwarranted use of it. Violators are those individuals who attempt to repulse or circumvent those who deny them access to a territory. The nature of their actions make the violators claimants of the space they have violated. The claim may vary in scope, intensity, and purpose. Examples of territories which may be violated are cemetaries where children dig for treasure; toilets, public baths and nunneries restricted by sex; and interactional territories when at least one of the legitimate interactants behaves out of character (Lyman and Scott 1967).

Invasion of a territory occurs when someone not entitled to entrance or use of the area crosses the boundaries and disrupts, stops, takes over, or alters the social meaning of the territory. Invasions may be temporary or during in time (Lyman and Scott 1967).

Contamination entails the defilement of a territory with respect to its definition and usage. Public territories may be contaminated by diseases or even by lower class individuals walking in a particular area. Home territories are contaminated by pollution or destruction of home symbols, i.e., accidental mixing of milk and meat dishes in an orthodox Jewish home or heterosexuals leaving a bar previously frequented because known homosexuals began to meet at the same bar. Interactional territories may be contaminated by odors or obscene language, especially if they originate from one of the interactants (Lyman and Scott 1967).

Body territories may be contaminated when the area immediately around the body is polluted. This occurs in a variety of ways: smell, touch, look, and proximity to contaminated persons or things. Bodies contaminated by unacceptable contacts may be restored to their "pure state" by apologies (Lyman and Scott 1967).

Reactions to encroachment

Reactions to the encroachment may occur in the following ways: turf defense, insulation, or linguistic collusion. Turf defense is an aggressive response in which the violator cannot be tolerated. American street gangs arm themselves with knives, tire irons, et cetera. Turf defense is considered an ultimate response used infrequently in the human territorial phenomenon. There are a variety of more subtle responses available to those attempting to maintain territorial control (Lyman and Scott 1967).

Insulation is the erection of a barrier, often anticipatory, between occupants and potential invaders. Lyman and Scott (1967) cited several examples of this form of reaction, including: use of uniforms in the military to distinguish status, rights, and prerogatives between groups such as officers and enlisted men, professors and students, physicians and patients. Civil inattention is the use of the mouth, nostrils, and eyes in controlling interaction (Lyman and Scott 1967).

Linguistic collusion is a term used to describe the process of maintaining territorial integrity of a group through the use of special jargon or idiosyncratic exchanges. For example, the defending interactants will speak to each other in a language unfamiliar to the intruder (i.e., Jewish storekeepers speak Yiddish or Chinese owners speak Cantonese when discussing prices in the presence of a customer or physicians and nurses conversing in medical terminology in front of a patient and to their exclusion). Another strategy employed to call attention to the exclusive culture of the interactants is to engage in the same behavior except in an exaggerated and staged manner. Such behavior suggests to the intruder he is an outsider and does not have the credentials to participate in the interaction (Lyman and Scott 1967).

Territories of the self

Goffman (1971) offered a taxonomy in which the concept of "claim" was at the center of social organization. The claim is an entitlement to possess, control, use, or dispose of the object or state which is in question. Territory, an example of a claim, is classified as (1) fixed--having geographical reality and belonging to one claimant, the claim being supported by the law of the land, (2) situational--part of the equipment in a usually temporary setting which is available to the people while that claim is in use, (3) egocentric--preserves territories which move around with the claimant, and is usually maintained for a long term (Goffman 1971).

Eight "territories of the self" were delineated by Goffman as personal space--the space described as a portable "bubble" (Sommer 1969) surrounding and carried around with an individual, seen as part of the interpersonal distance; stalls--well bounded space where individuals place temporary claims with possession being on all or none basis; use space--the space around or near a person which is respected because of instrumental value; the turn--the order in which one receives an object of some form relative to others involved in the situation; the sheath--skin and clothing which cover the body; possessional territory--personal objects or effects which are identified with the self and are arrayed around the body; informational preserve--those facts about one's person an individual expects to control access of by others; conversation preserve--the right of persons to have control over who can engage them into conversation and when they can be summoned. Also included here is the right of a group of individuals already engaged in talk to have their circle free from intrusion and overhearing by others. The general feature of the eight territories of the self are their socially determined variability (Goffman 1971).

Markers are a visible means to claim a preserve. Goffman (1971) categorized these as central markers, objects which originate from within territorial boundaries but radiate out to announce a claim (i.e., a purse in a seat, a drink at a bar stool); boundary markers, objects used to designate the line between two adjacent territories (i.e., common armrests, the bar used in the grocery store to divide one customer's goods from the next); ear markers, signatures placed on any object to claim it as a possessional territory (i.e., names burned into sports equipment, livestock, placed in books); words, the use of language to make known a claim (i.e., no trespassing, ring buzzer for admittance); and relationship markers, the use of a hand or foot to touch another person thus making a claim known.

Forms of violations

Like Lyman and Scott (1967), Goffman (1971) identified forms of territorial violation. Modalities of violation included incursion, intrusion, encroachment, presumption, transgression, defilement, and besmearing or contamination. These are categorized into six forms: (1) invasion by a body, (2) touching or defiling the sheath or possessions of another person, (3) penetration of eyes, (4) intrusion through sound, (5) inappropriate addressing through words, and (6) contamination by body excreta including odor, body heart, or markings left by the body (Goffman 1971).

Territorial offenses

Three forms of territorial offenses are listed by Goffman (1971). Offenses may be in the form of encroachment where there is intrusion, entering a territory to which one has no right of access; or obtrusions, the capacity of one to force territorial demands into a wider sphere than others feel is deserved; self-violations such as with excreta; and preclusiveness, the maintaining of inappropriately exclusive preserves (Goffman 1971).

Territorial types

Altman (1975) offered a taxonomy which utilized those concepts and taxonomies presented previously. In this classification there were three types of territories described--primary, secondary, and public. Two dimensions of this classification are that they refer to how central a territory is to a person or group or how close it is to their everyday lives and secondly, the length of time or permanence of territories (Altman 1975).

Primary territories are owned and exclusively used by individuals or groups. They are central to the everyday lives of the owners. Altman (1975) regarded these territories as powerful privacy regulation mechanisms which illustrate the close relationship of privacy regulation, territorial mechanisms, and self-identity (Altman 1975).

Secondary territories are not as central, exclusive, or pervasive. Some secondary territories have a blend of public or semipublic availability and control by frequent users. Altman described them as a bridge "between the total and pervasive control allowed participants in primary territories and the almost-free use of public territories" by all individuals (1975, p. 114). Secondary territories often have unclear rules pertaining to their use and are susceptible to encroachment, sometimes inappropriately, resulting in social conflict. Because of ambiguity of ownership and control there is probably more miscommunication and more conflict associated with secondary territories (Altman 1975).

Public territories have temporary qualities and there is freedom of access and occupancy to almost all. Generally, public territories are fragile mechanisms for the control of self or other boundaries. They depend on institutions, norms, and customs rather than rules set by the occupants (Altman 1975).

Altman (1975) postulated that territorial behavior, expressed through one of these forms, is one of several interpersonal boundary mechanisms which serve as a means to the end of a desired privacy level.

Territorial forms

Finally, an abbreviated taxonomy was proposed by Brower (1965). This minor taxonomy was composed of four types of territorial forms--personal occupancy, such as in a home where persons are ready to accept restrictions regarding entrance and controls over behavior and action community occupancy, as in a private club where one accepts the restrictions and control of behavior and actions when they are congruent with the framework of community purpose; and occupancy by society, such as the street where there is open access to all members of the society and all restrictions and control of behavior are in the interest of the public (Brower 1965).

Empirical Evidence

Empirical studies on human territoriality have been few in number until the last decade. A variety of methodological strategies and operational definitions have been used resulting in what appears to be a disjointed accumulation of research. This section reviewing empirical studies will be divided into three areas. These areas are the role of markers in territories; the relationship between dominance, power, or status hierarchy of persons, individually and in groups; and studies which involve the role of territorial behavior as a social regulation mechanism.

The Role of Markers

In animal studies markers have a preventive function, that of letting others know who "owns" and occupies a particular place (Ardrey 1966). The primary mechanisms used by animals to delineate particular boundaries include glandular secretions, bodily excretions, vocal sounds, and other body activities (Heidger 1950, Calhoun 1958, Ardrey 1966). Altman defined markers as "symbols that help define self/other boundaries," (1975, p. 129) and function to regulate social interaction. Markers used by humans tend to involve the use of objects and symbols rather than body secretions. Empirical studies addressing humans' use of markers examine if markers are effective in maintaining a territory and whether markers protect territories from invasion by others (Sommer 1966, Sommer and Becker 1966, Altman 1975).

In a study by Maslow and Mintz (1956), as reported by Sommer (1966), a phenomena was described which supported the view that the environment and man's use of it affect people beyond their focus of awareness. Lab assistants tested subjects in one of three types of rooms: a modern attractive office, an office of average appearance, and a room resembling a janitor's storeroom. Maslow and Mintz found that examiners in the less attractive room usually finished testing subjects more quickly than an examiner in the attractive room. Most of the students did not mention anything unusual about the testing rooms during debriefing sessions after the experiment (Sommer 1966).

Sommer and Becker (1966) conducted a series of experiments in a university library, soda fountain, an eating place, and a dorm study hall. They tested the strength of markers ranging from the physical presence of a person to impersonal items in the setting. The first study used a popular soda fountain on a university campus. The converted building was set up so patrons obtained their refreshments at a central counter and retired to a smaller room to eat and talk. A twenty-year-old female, appearing to be studying, placed herself at a table facing the door. During other times she placed herself down the hall so she could observe those entering the experimental room. Results were not statistically reliable. However, the experimenter maintained the room to herself in one out of ten sessions. The average time before the room was occupied during the experimental sessions was 5.8 minutes compared to 2.6 minutes during control sessions. The experimenter was able to protect the table where she studied (the other three seats were occupied once during the experimental sessions, $p < .01$) compared with thirteen occupancies during the control sessions.

In another study, Sommer and Becker (1969) investigated the effectiveness of different types of markers. A sandwich wrapped in cellophane, a sweater draped over a chair, and a stack of two paperback books were used as markers at a university soda fountain. An experimenter found two adjacent empty tables and randomly placed a marker on one. The other was used as a control. The experimenter sat away from the area. Sessions took place during what was described as moderate room density. There were eight sessions involving the sandwich, thirteen involving the sweater, and twenty involving the books. Analysis of the data revealed the unmarked control tables were occupied significantly sooner than the marked tables. Only in three sessions did anyone (all males) sit at the marked chairs. The markers protected the particular chair almost totally, delayed the occupancy of the entire table, and diverted groups away from the table.

In a similar study Becker and Sommer (1969) explored the use of occupants and markers and their effects on seating locations, occupancy, and seating time in the periodical room in a university library. Room density was described as high and the pressure for obtaining seats great. In twenty-five experimental sessions lasting two hours each, two notebooks, a textbook, four journals placed in a neat stack, four journals scattered on a table, and a sports jacket draped over a chair (in addition to the notebooks) were used as markers. An experimenter would arrive at a designated seat and place a marker then move to another table ten minutes later to observe any occupancy. There was a designated unmarked chair used as a control. Results showed that all markers were effective. Seventeen of twenty-five marked chairs remained empty the entire session versus occupancy of all control chairs during the sessions. In addition, the personal markers (notebooks and sports jacket) kept away all invaders. Impersonal library journals merely delayed the occupancy of the seat. An interesting finding was eight of the nine students (89 percent) who sat down, despite the markers, were male (Becker and Commer 1969).

In supplementary studies, Sommer and Becker (1969) sought to determine the role of the "neighbor" in a property-ownership system. Utilizing college libraries, three stacked books as markers, and six chaired tables, several variables were manipulated. The variables were the amount of verbal and nonverbal communication made with a subject, the length and number of engagements with the subject, and the presence of personal markers. In one study of thirty-nine trials, an intruder took a seat without the neighbor defending. It was determined by the authors that one had to directly question a neighbor to obtain information about occupancy in this particular regulatory system. Other conclusions were that the amount of time the experimenter spent in a chair had no effect on the willingness of the subject to defend the space. However, the length of time away had a significant effect. None of the sixty-four marked chairs were occupied (Sommer and Becker 1969).

In two follow-up studies, Becker (1973) continued to examine the meaning and function of spatial markers in relationships to personal distance, territorial, and jurisdictional concepts. In the first experiment, the researcher discovered that the choice of seating and the time a person stayed at a table in a library was influenced more by the presence of other people than by markers. Becker (1973) concluded that markers protected the space around them by provoking responses to the decreased personal distance and not by signifying the area was occupied.

In a second experiment, using photographs and a questionnaire, the authors found that no subjects would sit in a marked location. Furthermore, subjects indicated a desire to avoid confrontation with an intruder or the owner of a marker. This reluctance to defend seats (Becker and Mayo 1971, Becker 1973) in high density areas led Becker and Mayo to conclude that markers may function to maintain personal distance and not to establish a territory. These authors characterized a territory as an area both demarcated and defended.

Becker's (1973) studies suggested the effectiveness of markers in reserving claims occurs not because the markers signals an area is occupied, but because potential invaders space themselves from markers as they would from other people. In humans, like in animals, markers function to reduce aggression and hostilities by providing effective warning devices that invaders can recognize and obey. Becker (1973) proposed that libraries be termed "jurisdictions" since they are used temporarily and for specific purposes.

Becker and Mayo (1971) argued that space claims in the library and cafeteria settings are not real territories unless the claimants rebuff (defend against) invaders. In a university cafeteria twenty-six male and twenty-two female students were observed during a high density time. Three conditions were involved using confederates: first, an invade condition--the experimenter sat where the subject's standard marker had been placed without interaction with the return of the subject; secondly, an adjacent condition--the experimenter sat next to the subject's marked seat; and thirdly, an across condition--the experimenter sat across and diagonal to the subject's marked seat. In the invade condition, all fifteen subjects moved rather than defend their marked space; in the adjacent condition, one female of fifteen subjects moved. Becker and Mayo (1971) concluded that marked claims at cafeteria tables are simply expressions of comfortable interpersonal distances. The investigators suggested the use of the term "territoriality" be restricted to situations involving demarcation and defense. Obviously, a definitional problem exists.

Edney (1972) studied home residents use of markers. Homes with markers such as fences, private property signs, and hedges were compared with unmarked homes. The researcher found that residents of marked homes had occupied the homes for longer periods. The residents also answered the doorbell or a knock more quickly than occupants of relatively unmarked homes. The residents' response was identified as indicative of a greater sensitivity to potential territorial invasion by those who had a long-term commitment to a place and who had more elaborate boundary marking systems.

Fried and DeFazio (1974) described a territorial phenomena on a subway system in New York. Territories were occupied and marked. Defense behaviors increased as passenger density increased. Pocket books were used as a means to mark spaces which then were not occupied despite the fact that many passengers were required to stand. Body position and tenseness also marked spatial areas. However, once again, there was little verbal interaction between the passengers. These authors concluded that territoriality and other forms of spacing behaviors exhibited by subway riders were an expression of an "inherent, largely unconscious species survival mechanism" and was the result of a desire for interpersonal separation (Fried and DeFazio 1974, p. 56).

In an exploratory study by Johnson (1978) conducted in two nursing homes, fifty-six residents were selected to participate in a study dealing with territorial behavior. A territory was defined as any area in which the resident was observed for 25 percent of the total observations. Residents ages sixty-five through ninety-five lived in the nursing home one week to nine years. Analysis of the data revealed all residents claimed specific territories in the nursing home. Residents relied on self-markers (eye contact, body position, gestures, and other nonverbal behavior) more than spatial markers to indicate ownership of spaces. The range of these studies illustrates that humans use a variety of means to claim territories and that other person's response is based upon the nature of the markers. Markers do function in regulating social interaction; however, there is some disagreement if this behavior reflects territorial or personal space needs (Johnson 1978).

Dominance and Territorial Behavior

Dubos (1964) indicated that in all animal species each group probably develops a social organization based on territoriality and a social hierarchy made of subordinate and dominate members. The hierarchy and territoriality relationship has ethological origins (Calhoun 1958, Carpenter 1958, Lorenz 1969, Sarwer-Foner 1970, Mazur 1973) and has been considered in animals, as a means to limit species specific aggression. There appears to be a fundamental contradiction in territoriality and hierarchy, in that while they both appear to regulate aggression, both are aggressively defended and challenged (Van Den Berghe 1974).

Mazur (1973) described small established human groups as having status orders with the following characteristics: (1) group members are ranked such that higher members have more power, influence, and valued prerogatives than those ranked lower; (2) low ranked members exhibit more symptoms of stress than higher ranked members; (3) generally, members interact more with others of similar rank; (4) high ranked members usually participate in group interactions more than low ranked members, (5) high ranked members perform service and control functions for other members and ror the whole group, (6) individual rank depends partly on external attributes which are not obvious prerequisites for status in the group; and (7) status rank is usually established and maintained without physical or overt threats. The status ranking (hierarchy) is expressed through dominance-submission behavior (Van Den Berghe 1974). The following studies address the relationship of dominance/ hierarchy and the possession of territories by individuals and groups.

In an early study on dominance and territorality, Esser et al. (1964) observed twenty-two schizophrenic patients in a mental hospital for sixteen weeks. The ward was divided into three foot by three foot grids. A territory was defined as an area occupied by a person for more than 25 percent of the observation time. Dominance was determined by multiple factors such as the number of personal contacts made by patients, the duration of contacts, and the length of each contact that was patient initiated. The study related the dominance patterns to the territorial behaviors. Results demonstrated 50 percent of the patients were territorial based on the definition. Furthermore, a negative relationship was suggested between dominance and territorial behavior. Patients in the top third of the dominance hierarchy had no fixed territory, but moved freely about the ward without interference. Patients at the bottom of the hierarchy had places in secluded and undesirable areas. Those patients located in the middle of the hierarchy claimed larger territories in the central portion of the ward where their chance for interaction was heightened.. Territorial patients tended to restrict their activities away from areas claimed by others (Esser et al. 1964).

In a similar study Esser (1968) obtained results which suggested no relationship between the dominance hierarchy and territorial behavior. A group of hospitalized boys six to ten years of age with severe psychiatric problems were observed for six weeks. Boys who were rated high on dominance did not claim fixed areas where they spent a predominant amount of time. Those who were located at the bottom of the hierarchy again used space in a restricted way. In this study territoriality was defined on the basis of frequency of use or on the basis of active defense.

In a later study by Esser (1970) reported by Edney (1974), data were collected using the same paradigm for six weeks on twenty adult patients in a mental hospital. Territoriality was defined as the occupation of a particular space for more than 15 percent of the observations and standing ground against attempts of higher-ranking patients. Territoriality was shown by seven of twenty patients. These seven won 85 percent of attacks of dominance on the home territory and 55 percent of those off-home territory. Analysis of the data inferred a "relative hierarchy" or social dominance which was related to home territory instead of absolute hierarchy.

Another study (Esser 1968) demonstrated no relationship between dominance and territorial behavior. Nineteen six- to ten-year-old boys were observed on a psychiatric ward of a hospital. Nine boys claimed territories; however, only four placed in the upper half of the dominance hierarchy (Esser 1968).

Esser in a later study in 1973, again illustrated the concepts of dominance and territoriality on behavior within institutions. Over a twenty-five-week period, observations were recorded on seventeen institutionalized boys in one residential unit. For the purpose of this study, territoriality was defined as occupation of one place for more than 9 percent of the observation period. Dominance ratings were determined by the staff. Findings showed territory holders generally had higher ranks than nonholders. Territorial defense (fighting) was positively related to the subjects' position in the hierarchy. The conclusion was it seemed "territorial adaptation" was effective in increasing the boys' status inside the unit, but not particularly for functioning on the outside (Esser 1973).

Sundstrom and Altman (1974) stated that the previous studies provided mixed support for the dominance-territorial relationship in that there was evidence for a positive relationship, a negative relationship, and no relationship. In Sundstrom and Altman's (1974) study of dominance-territory relationships, a field observational study was conducted in a residential facility for juvenile offenders. Twenty-three boys in what was termed a somewhat unstable population were observed for ten weeks following a habituation and pilot period. Two operational definitions of territory were used: (1) "individual territorial behavior" or the degree one limits space use to one or a few spaces, and (2) "area territorial behavior," or the degree to which an area's use is fairly exclusive to one user. Dominance was defined as a relationship in which one person has the ability to influence another. The desirability of the areas was assessed in structured interviews. The study was divided into three periods: first, a time of relatively stable population; second, a turnover of the population involving two highly dominant boys; and third, a time involving minor changes. Results showed a positive dominance-territory relationship during the time of well-established and relatively stable group composition. Highly dominant members of the group were the most territorial and made the most frequent use of desirable areas (Sundstrom and Altman 1974). Edney in 1975 supported the study as notable because it introduced a quantifying territorial behavior. Generally, Sundstrom and Altman (1974) concluded that the results of this study indicated that group structure was reflected in the individual members' behavior toward the physical environment. Furthermore, territorial behavior was communicated by the subjects who used nonverbal and environmental message systems.

Support for Sundstrom and Altman's (1974) conclusion regarding the dominance-territory relationship and group composition are evidenced in studies by Delong (1970, 1973). Delong observed a college seminar group during a sixteen-week semester. Territorial behavior was based on an individual being seated in a particular location around the seminar table and peer rankings of "demonstrated leadership abilities." Analysis suggested a positive dominance-territory relationship. Over time there was a tendency for higher-ranking students to be more territorial.

A final study which illustrated the relationship between dominance and territoriality examined how territory claimants and invaders behaved on their turf. Altman (1975) retrospectively examined the football and basketball scores of a university's home and away games. Two-third of the home games were won by both teams. The basketball team won one-fourth of the away games and the football team won less than one-half of its away games. Altman (1975) stated the results confirmed the hypothesis that being on one's own turf is an advantage.

One may generally conclude from these studies that high dominant individuals tend to have more territories than low-dominant individuals and that people tend to be more dominant and influential in their territories (Hall 1969, Goffman 1971, Altman 1975). Many of the studies cited in the literature involved persons in institutions--mental and corrective behavior--where other boundary mechanisms of these individuals should also be considered. However,

> . . . territoriality, whether achieved through dominance, mutual consent, aggression, or administrative authority, establishes areas of a physical setting, and therefore, to what extent the needs of each will be satisfied (Proshansky, Ittleson, and Rivilin 1976, p. 177).

Territorial Behavior and the Mechanism of Social Regulation

Altman stated:

> It seems reasonable to assume territorial behavior has an important function in regulating social interaction, in easing the stresses of life, in clarifying roles, and in providing visible cues about social actors in groups (1975, p. 143).

Various authors have proposed a multitude of functions territorial behavior serves and postulate how the phenomenon is expressed. There is an area of overlap involving the use of markers and territory-dominance behaviors at this point. For clarity the relationship between territoriality and the mechanisms of control, privacy, identity/security/stimulation, freedom of choice, culture, and evolutional adaptation are examined.

Control

Numerous writers have suggested a relationship between territoriality and control (Goffman 1961; Sommer 1966; Roos 1968; Edney 1974; Laufer 1976; Proshansky, Ittleson, and Rivilin 1976; Delong 1978); however, empirical validations of this relationship are sparse. Edney (1974) proposed that control, a concept related to but broader than dominance, accommodates the influence one has over other people, inanimate spaces, and ideas in active and passive ways. This influence can also be extended to groups of institutions (Edney 1974).

Goffman (1959) expressed the belief that an individual will have many motives for attempting to control the impression he projects to others in a given situation. Furthermore, an individual will often find it useful to maintain strategic secrets from those he wishes to direct. Control is achieved largely by influencing the meaning of the situation which others have formulated. A member influences the meaning of a situation by expressing himself in a manner which gives others the impression they are acting voluntarily, while in actuality it is in accordance with their plan (Gorrman 1959).

At the institutional level, if a member has been adequately indoctrinated, one's behavior at transactions of the institution will be easily controlled by symbols, kinesic monitors, and actions of peers and superiors (Shefelin 1972). Shefelin stated that institutions characteristically have a low tolerance for paracommunication variation, and traditionally regulates and restricts the mobility and conduct of members. Members are indoctrinated to believe the selected ideas of the institution, so that information is more carefully controlled than is seen in groups of peers or friends

(Shefelin 1972). At the opposing end of the spectrum, institutionalization also consists of varying degrees of social control which forces individuals to adjust to imposed rules and regulations (Delong 1978).

Van Den Berghe (1974) described an interesting phenomena regarding individuals meeting in a territory which may have implications for members of an institution and the visitor in an institution. Basically, boundaries of the members' territory can be crossed by the visitor, but he is subject to conditions which do not apply to the member. The visitors must give warning of their presence and must engage in a "ritual of harmless intent." Above all, Van Den Berghe proposed, the visitor must not show any aggressiveness, "but must assume a meek subservient posture, unless he is prepared to face aggressive territorial defense behavior" (Van Den Berghe 1974, p. 783).

More specifically, Proshansky, Ittleson, and Rivilin (1976) related that territorial behavior not only is instrumental in the definition and organization of various role relationships, but that "the prescriptions for social and occupational roles often include the meaning and use of particular objects and spatial areas for carrying out these role assignments" (Proshansky et al.

1976, p. 177). Frequently this role relationship establishes exclusive or near exclusive use and control of a given space (Proshansky et al. 1976).

Edney (1975) provided the only available empirical study testing the territoriality-control relationship. One hundred and sixty undergraduates were paired and observed in resident and visitor dormitory rooms. One subject was placed in control over the other. The behavior of college students in their own dormitory rooms was compared with visitors to the room when control dynamics were artifically manipulated. Space was claimed using a string. The dependent variable measures utilized were spatial, evaluative, attitudinal, and perceptual measures. Results demonstrated a link with a passive form of control. The territory residents showed more passive (resistive) control than visitors. Residents also saw their territories as more pleasant and private than the visitors. Edney (1975) found that active control, which was uncorrelated with passive control, related to other forms of spatial behavior such as crowding, interpersonal distance, perceived room size, and minimal space needs for individuals.

Privacy

Altman (1975), Pastalan (1970), and Proshansky et al. (1976) proposed an interrelational phenomenon between the concepts of privacy, territoriality, crowding, personal space, and freedom of choice. Freedom of choice was presented as a key concept in understanding privacy, territoriality, and crowding by Proshansky et al. (1976). A view slightly opposed to this view is presented by Altman (1975) in which the concept of privacy is central to understanding the environment and behavior relationships. Privacy was a key link in the concepts of crowding, territorial behavior, and personal space. Due to the differences in perspective, the concept of freedom of choice and territorial behavior are considered separately.

Pastalan defined privacy as "the right of the individual to decide what information about himself should be communicated to others and under what conditions"(1970, p. 89). The relatedness between four privacy states and definitional properties of territories are presented in figure 3. A person subjectively desires an ideal amount of privacy at specific points in time. The ideal level of privacy is based on internal, personal states where individuals or a group have desired for particular levels

Privacy	Behavior Form	Situational Context	Antecedent Factors	Organismic Factors
Solitude	Physical withdrawal from view from primary and secondary associates as well as the public; verbal reports; full range of occupancy and defense responses.	Environmental props to control informational flow; location; single person.	Pressures of multiple role playing, role incompatibility; interpersonal incompatibility; defeat.	Relief from visual observation; self-evaluation; to unmask and be oneself; to perform bodily functions.
Intimacy	Physical seclusion from secondary associates and public; anticipatory preventive responses; full range of occupancy and defense responses.	Environmental props to control informational flow, location; small group.	Role relations and interpersonal compatibility or incompatibility.	Need for close, relaxed, frank relationships; egalitarian; sharing of confidences.
Anonymity	Psychological and physical blending with the public; defense through self-markers and verbal reports.	Information flow is controlled through merging into the situational landscape; use of open space; mass numbers of people and objects.	Role responsibilities demand full adherence to expected behavior; anonymous relations.	Need to escape personal identification and responsibility of full rules of behavior and role; anonymous sharing of confidences.
Reserve	Psychological barrier against unwanted intrusion; defense through self-markers and verbal reports.	Control of informational flow through self-restraint and willing discretion of associates.	Reciprocal reserve and indifference; mental distance to protect the personality.	Need to limit communication about the self.

Fig. 3. Privacy states and definitional properties of territoriality

Taken from: L. Pastalan. 1970. Privacy as an expression of human territoriality." In Spatial behavior of older people. Edited by Leon Pastalan and Daniel Carson. Ann Arbor: University of Michigan--Wayne State University Institute of Gerontology, p. 96.

of input and output to and from others (Altman 1975). These desired levels of interaction can change over time as the situations and interpersonal relationships change. Furthermore, Altman (1975) proposed that privacy is a central regulatory process and the concepts of personal space and territorial behavior are used to achieve desired levels of privacy. Crowding is a condition resulting when privacy mechanisms have been ineffective and an excess of undesired social contact occurs (Altman 1975). Figure 2 gives an overview of the relationship among privacy, personal space territory, and crowding.

Apparently there is a control dimension of privacy. Laufer (1976) stated the need and ability to exert control over the self, objects, information, and behavior is a critical element to the concept of privacy. Control over access is noted to possibly be a self-protective device (security), a self-enhancing device (identity), or simply a functional device (stimulation) (Laufer 1976).

Only a few empirical studies which examine privacy and territorial behavior are available. Altman, Taylor, and Sorrentino (1968) conducted a study where a subject interacted with a confederate. The confederate acted to create either a compatible or incompatible relationship. The subjects were U.S. Navy personnel who thought they

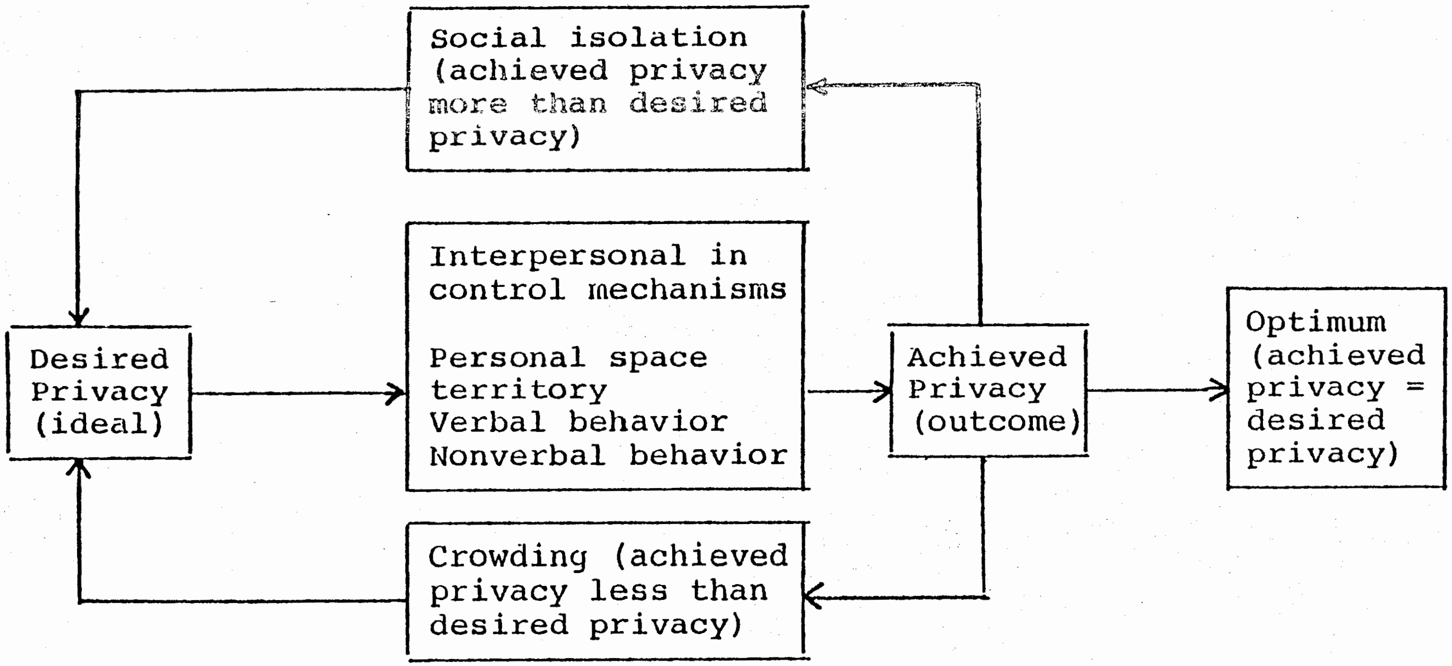
Social isolation (achieved privacy more than desired privacy)
Desired Privacy (ideal)
Interpersonal in control mechanisms
Personal space territory
Verbal behavior
Nonverbal behavior
Achieved Privacy (outcome)
Optimum (achieved privacy = desired privacy)
Crowding (achieved privacy less than desired privacy)

Fig. 4. Overview of relationship among privacy, personal space territory, and crowding.

Taken from: I. Altman. 1975. <u>The environment and social behavior</u>. Monterey: Brooks/Cole Publishing Company, p. 6.

were selected for an assignment at a two-man undersea vehicle without opportunity to leave the situation. Some of the subjects were told they could change teammates after three weeks. The men were asked to evaluate architectural design plans of their undersea capsule following three hours of discussion. The plans were (1) a "separate territorial" plan where each man had his own compartment and work equipment; (2) a "joint territorial" plan where two men lived in one room and worked in the other; and (3) a "joint random" room layout where the men would live together and work in another room, but the furniture and equipment would be arranged in a way that did not give each man a distinct area. Results suggested those in negative interpersonal situations preferred separate territorial plans; those in positive interpersonal situations favored the joint territorial plan; 4 percent of the subjects preferred joint random plans. Additionally, design preference was affected by situational constraints. When men expected a long-term assignment there were no clear-cut preferences. When there were short-term expectations men were more likely to choose to live together. Possibly in long-term conditions the subjects felt conflicting needs for privacy and independence as opposed to the need for social stimulation and companionship. Of particular significance was the finding that the effects of interpersonal compatability and situational expressions demonstrated properties of the environment. Antecedent relationships with others affected territorial behavior. Also, signs of preventive behavior were present. The selection of desirable living arrangements reflected an anticipatory attempt by the subjects to deal with a future situation and attempt to avoid interpersonal conflict (Altman et al. 1968).

Efran and Cheyne (1974) presented a thesis that overcrowding represented an end point on a continuum. To test the thesis thirty-nine university students were required to intrude on the shared space of two conversing confederates. The subjects were forced by the lab setup to either walk between the two confederates, to walk around two confederates, or to walk down an empty hall. Measurements of response were made using a zoom close-up filming of facial expression, EKG, and a mood indicator test. Results indicated that subjects in the intrusion conditions displayed more antagonistic facial responses. They also reported less positive mood ratings than controls. The conclusions indicated that brief encounters between strangers cause a variety of antagonistic displays and negative affective reactions. Even simple routine encounters result in unpleasant, even stressful events. "The ubiquity of these events may make them more potent contributors to the stress of modern life than has previously been assumed" (Efran and Cheyne 1974, p. 225).

Johnson (1978), in an exploratory study, presented earlier, (1) examined residents' perceptions of territorial rights in a home for the elderly, and (2) examined if the perceptions vary with respect to residents' physical activity and social disengagement. Findings showed that the majority of residents from two nursing homes established territories in their rooms. Resident's behavior was identified as an effort to gain privacy and protect their autonomy.

Freedom of choice

Proshansky et al. (1976) suggested that the inner determinant of territorial behvavior is an individual's desire to maintain or achieve privacy. Territoriality is a mechanism used to increase the options available and minimize one's freedom of choice in a situation. Three propositions offered by Proshansky et al. (1976) in their conceptualization of freedom of choice and behavior in a physical setting were:

> 1. Man, in almost all instances and situations, is a cognizing and goal-directed organism

2. Man's attempts at need satisfaction always involve him in interactions and exchanges with his physical environment.
3. In any situational context, the individual attempts to organize his physical environment so that it maximizes his freedom of choice (Proshansky et al. 1976, pp. 171-172).

Several statements of explanation are derived from these propositions. Notably, each person interprets and gives meaning to their environment and to this degree the real differences among individuals and groups lie not in how they behave, but in how they perceive (Proshansky et al. 1976). Proshansky, et al. (1976) maintained that to the degree individuals can claim and secure areas or objects, they maximize their freedom of choice to perform any behavior relevant to the area or object. "When he controls the available alternatives and the means to these alternatives, he can achieve privacy and satisfy other relevant needs" (Proshansky et al. 1976, p. 180). These authors further suggested that the psychological significance of privacy

> . . . whether achieved by structuring the physical environment or by learning to relate in specific ways to others who are continuously present, is its capacity to maximize the individual's freedom of choice. Whether for reasons of personal autonomy, emotional release or self-evaluation, the individual in privacy can satisfy these needs on his own terms (Proshansky et al. 1976, p. 180).

Based upon an understanding of this conceptualization of privacy it may be concluded that the presence of others may be inhibiting as well as distracting. Additionally, the invasion of territory reduces the individual's freedom of choice by minimizing one's ability to control what happens in a particular area of space which is significant for the behavior of the individual (Proshansky et al. 1976).

Empirical evidence for the relationship between freedom of choice and territoriality is limited. At this time it is closely related to studies described under markers and privacy.

Identity, security, and stimulation

Territoriality is also described as a means for satisfying what Ardrey (1966) determined to be psychological motivating behaviors of man: identity, security, and stimulation. Much of Ardrey's work was criticized and questioned becuase it was derived theoretically but unsubstantiated by sufficient scientific data. Ardrey (1966), who relied heavily on ethological observations and findings, projected this on to the human condition. As examined earlier, many scientists strongly project that human behavior should be conceptualized as the product of a complex interplay of bio-genetical environmental, and socio-cultural forces (Dubos 1964, Van Den Berghe 1974, Scheflen and Ashcraft 1976), as opposed to the approach which more heavily relies on the innate and instinctual assumption for explaining human behavior. However, despite Ardrey's (1966) lack of empirical support, there is support for the theoretical presentation that an individual's attempts to acquire and defend territory may satisfy man's struggle for identity: the quest to achieve recognition of oneself as an individual in one's own eyes and the eyes of one's kind; stimulation--the release from boredom and the compulsion for competition; and security--the fight to gain or conserve the self and destroy the forces which threaten it (Ardrey 1966). The author acknowledged that there is a "hierarchy of value" among the three needs--which may vary between individuals and species. The need for identity is regarded as the most powerful and pervasive among species, with the need for stimulation close behind. Ardrey (1966) also noted that security will be sacrifieed for either of the other needs.

The development and maintanence of an identity in a person is a result of not only how others react to one's behavior, skills, and achievements; but it is also a matter of places and things and the obtaining them which help define and evaluate the identity of the person for himself and others (Proshansky et al. 1976). These authors proceeded to state:

> The loss of valued objects or places, or unwilling separation from familiar physical settings for long periods of time may contribute to a blurring or even a loss of identity (Proshansky et al. 1976, p. 178).
>
> Place identity is an aspect of self identity (i.e., there are experiences in and with places that contribute to the development of a sense of self). Places have specific meanings for self--they may enhance, threaten, or simply define (Laufer 1976, p. 212).

If one assumes territoriality is one means of establishing and maintaining a sense of personality, this may facilitate explaining why in social isolation territorial behavior is manifested. Altman and Haythorn (1967) studied nine pairs of sailors over a ten-day period who were socially isolated from outside contact. Compared to controls, the isolated pairs laid early claim in the form of exclusive use of beds and gradually increasing exclusive use of chairs and seating locations (Altman and Haythorn 1967).

To study the effects of interpersonal compatability, groups were composed of needs of dominance, affiliation, achievement, and dogmatism. Pairs incompatible on need dominance and need affilitations manifested more territorial behavior. Incompatibility on affiliation led to social withdrawal. Thus, need affiliation incompatibility was found to be associated with high territoriality and social withdrawal. Pairs incompatible on dominance showed high territorial behavior, but an increase in interpersonal-social activity. Data on stress reactions demonstrated an inability of some groups to finish the experience successfully and their exhibition of physical and verbal aggression indicated they were interpersonally volatile. Thus, it was concluded that confinement to one area limited need satisfactions of several dimensions (Altman and Haythorn 1967).

Coleman (1968) described striking changes in behavior and appearance of a husband-wife dyad when the dyad moved from a hospital setting to their own home. The observations particularly focused on the husband. Coleman (1968) discovered a disparity between the appearance of the man in the hospital and at home. The husband impressed Coleman as a "weak ineffectual husband" in the hospital setting. This impression did not hold up when they sat in the husband's own home.

Coleman concluded

> . . . couples in which one or both members appeared emotionally disturbed away from home had rigid, constricted, yet personally significant home environments which seemed to be an important factor in maintaining the family equilibrium (1968, p. 465).

In visiting with the husband at home a shift in dominance with territoriality was evident in the changed relationship when the meeting was in the client's territory (the home) versus the physician's territory (the hospital). Although the husband's living quarters were designed in a manner which exhibited what Coleman (1968) described as an

> externalization of poorly integrated and conflicting aspects of his personality, his needs for situational control, which made his behavior so unpleasant and even bizarre in the hospital, were satisfied by . . . the security he felt in his self-styled rooms (1968, p. 467).

Furthermore, the author's impression was that for some individuals who find interpersonal relationships difficult, "territoriality and idiosyntonic territorial structuring may provide useful personality support" (Coleman 1968, p. 467).

Minckley (1968), who observed more than six hundred patients in a hospital recovery room offered some noteworthy generalizations regarding identity and the concept of territoriality. The author identified that patients' disorientation seemed to be increased by the environmental conditions in the recovery room. Conditions of time, place, and physical discomforts seemed to reduce the patients' returning senses of territoriality and thus retarded the return of their sense of identity. Minckley (1968) suggested that patients' utilization of nonverbal cues in the recovery room to avoid or block some interaction was a means of suppressing enmity and displaying amity for obtaining the services they know they need. As the patients become conscious enough to evaluate the environment they became less tolerant of the arrangement and desired to be returned to a more personal and familiar territory (Minckley 1968).

Barnett (1972), in developing a theoretical construct of the concept of touch as related to nursing, asserted the belief that "man's instinctive territoriality represents his basic need for identity" (1972, p. 106). In this presentation of methods of hospital communication, the hospitalization, the hospital atmosphere, and certain procedures were identified as threats to the patient's psychological well-being--their need for identity and for a sound self-concept. In relation to territoriality, Barnett (1972) asserted when patients enter a hospital they enter a strange and unfamiliar territory. Furthermore, "because of the nurses' 24-hour presence there, it is usually considered their territory" (Barnett 1972, p. 106). A physician patient supported these findings when he wrote,

> . . . by entering the hospital as a patient, I was exposing myself to all the indignities, to the loss of privacy that are part of the nature of institutions in general and hospitals in particular (Abram 1969, p. 221).

Allekian (1973) designed an exploratory study to determine if intrusions of territory and personal space were anxiety producing for the hospitalized person. Seventy-six adult patients in four metropolitan hospitals (three acute care and one extended care facility) completed a two-part questionnaire. Questions were based on an analysis of factors which made up territorial intrusion and personal space intrusion. Analysis revealed that anxiety involving territorial invasion appeared to be greater when the intrusion was more strongly identified with the patient's territory. "There seemed to be less territorial claim on objects that were somewhat unrelated to the patient's sense of identity" (Allekian 1973, p. 240).

Johnson (1978) designed an exploratory study to examine residents' perceptions of territorial rights in a home for the elderly. Also studied was the variance of perception with respect to individual activity and social disengagement. Data showed the residents appeared to have increased anxiety with territorial intrusions which were more strongly identified with their territory (i.e., moving the bedside table out of reach, going through personal possessions without permission). The findings were similar to Allekian's (1973). Johnson (1978) suggested that older people were more vulnerable to environmental stresses than many other age groups, and therefore, needed the sense of security obtained with claiming a territory. Furthermore, the author asserted this sense of security to be essential for the mental health of residents, and that this may aid them in adapting to changes which have occurred in the lives of the residents.

> Lack of this security may result in maladaptation where the resident reacts with increased anxiety, overdependence, regression, and other behavioral symptoms which have commonly been called "senility" (Johnson 1978, p. 50).

Culture

Scheflen (1972) described human behavior as a program of behavioral units whose progression is evolved and transmitted in culture. Accordingly, man's use of space or territory meshes subtly with culture (Hall 1973). Culture being "the configuration of learned behavior, the results of behavior whose component elements are shared and transmitted by the members of a particular society" (Linton 1945, p. 31). One may, therefore, draw the conclusion that underlying the perception of space are man's senses. Individual's perceptions and use of space are functions not only of information available to them by sensory modalities, but also of the perceptual screen provided by their culture (DeLong 1970).

Again, only a few empirical studies have undertaken to examine cultural and social values of ethnic groups as related to spatial needs and behavior. Studies involving race, sex, and age are presented.

In a study by Jones and Aiello (1973), 192 children in the first, third, and fifth grades from an upper-lower class black school and a middle-class white school were observed for proxemic behavior. A high degree of homogenicity was noted within the schools. Children were paired with someone whom they would usually interact and observed. Results demonstrated that blacks stood closer than whites at the earliest grade level, but this disappeared by the fifth grade. There appeared to be distinct patterns of behavior acquired by the first grade (axis orientation) which seemed to remain beyond that level. An additional finding was that males of both subcultures stood less directly in interactions than females. Jones and Aiello (1973) suggested this indicated children began to acquire adult proxemic sex-role behavior in elementary school.

Willis and his co-workers were involved in a series of studies which pursued the development of touch interactions in primary school children, junior high school children, and high school children in relation to age, sex, and race (Willis and Hofman 1975, Willis and Reeves 1976, Willis et al. 1976). Findings supported the generalization that differences in touch and personal space reported for various cultural and subcultural groups reflected important differences in basic relationships. A significant statistical finding showed sexual and racial segregation begins early. Primary school children were more likely to stand behind children of the same race and sex. This was the same for junior high and high school children. Touch was most evident between black females and least evident across races. The occurrences of touching behaviors for junior high and high school students were about half of those touching behaviors observed in primary school children. From these studies Willis et al. concluded that "the absence of touch that characterizes the interaction patterns of American adults is primarily related to sexual taboos and racial discrimination"(1976, p. 847).

Efran and Cheyne (1972) conducted a study with the purpose of comparing the number of people walking between two conversing confederates, and the number of people who walked between two confederates who were not interacting, or two inanimate objects. The authors suggested that the defense of territory was a male prerogative in most species. Therefore, males would be more likely to exhibit dominance behavior. Also, joint dyadic defense of shared territory in most species involved mated pairs, therefore, opposite sex pairings might be the most effective in defending shared space. Efran and Cheyne (1972) hypothesized that male-female and male-male pairs would be more effective territorial defenders than female-female pairs. Results regarding the sexual hypothesis indicated male dyads deterred fewer passerbys than female-female or mixed dyads. For non-interacting male-male and male-female dyads there was no significant difference between them and the proportion who walked between two inanimate objects. There was a significant proportion of people who walked between two non-interacting females. However, it may also be significant that there was a 5:1 male-female ratio at the university utilized for the study (Efran and Cheyne 1972).

In a second study Efran and Cheyne (1972) examined sex differences in a non-university setting with wider halls and the invasion of group controlled territories. Results showed all confederates were able to reduce significantly the number of passerbys who walked between spaces 40 inches and 46 inches apart. None were able to alter the number of intrusions when the distance was greater than 52 inches. Mixed pairs were the most effective in defending territory. Male-male groups were the least effective in stopping intrusions. The hypothesis that men would better defend their territory than females was not supported. Efran and Cheyne (1972) proposed that there was a relation between proximate behavior and affective states in the study of territorial behaviors.

Bailey, Hartnett, and Gibson (1972) investigated the assumption that there is a human territorial factor, predominately in males, which operates primarily in situations of real or implied threat of territorial intrusion. The hypothesis in this study was that under implied threat the greatest show of territorial behaviors would be male-male dyads, as opposed to female-female and male-female conditions. Subjects were college students and the experiment was conducted in a laboratory setting. Results illustrated that subjects stayed farther from male object persons in a head-on approach than the female object persons. Males exhibited the strongest sex of object of approach effect. Subjects of both sexes allowed the object person to invade their personal space to a greater extent than vice-versa. Bailey, et al. (1972) concluded this was additional support for the assumption the laboratory was more the territory of the object person.

Johnson (1978) in a previously presented exploratory study about territorial behavior of residents in a home for the elderly, described age, race, and sexual demographic variables in relationship to territorial behavior. Residents who were above the seventy-eight-year-median age exhibited more anxiety toward territorial intrusion and more territorial behavior. Findings were that black residents exhibited less territorial behavior and less anxiety toward territorial intrusion than white residents. Johnson (1978) postulated this was probably due to the blacks' adaptation to confinement and resignation to a situation one was not able to control. Due to their past history of oppression, black residents appeared to cope with the environment more readily than white residents. Male residents showed less territorial behavior and less anxiety toward territorial intrusion than female residents. Likewise, the author suggested this may be the males' manner of coping with a female-oriented environment (Johnson 1978).

Evolutional adaptation and stress

Survival and health depend on the organism's ability to maintain an internal environment in a relatively constant state, in spite of various and often extreme fluctuations of the external environment (Dubos 1964). Bowlby (1969) asserted that to maintain a relationship over time (i.e., possession of territory) implies the organism is equipped with the means to utilize and activate systems which promote the survival of individuals and/or species within the environment. One learns through the experience of social interaction to control the overt manifestations of their emotional responses. Individuals frequently hide impatience, irritations, and hostile feelings behind masks of civil behavior. However, internally people react to emotional stress by physiologic mechanisms. "The ancient fight and flight response still operates . . ." (Dubos 1964, p. 277). Dubos (1964) proposed that this type of response probably leaves scars that threaten the body and the mind as they accumulate.

According to Dubos (1964) adaptability is the one attribute which distinguishes most clearly the world of life from that of inanimate matter. Living organisms do not submit passively to the forces of the environment;

however, all organisms try to respond adaptively to these forces. These responses "express the individuality of the organism and determine whether it will experience health or disease in a given situation" (Dubos 1964, p. 256).

In relating man's instinctual drive for adaptation to environmental forces, Sonnenfield (1966) suggested that sensory adaptation allows one to accommodate to spatial need through either an increasing or decreasing sensitivity to change which require overt adjustment. Van Den Berghe warned:

> Our cultural capability has allowed us to transform our environment so profoundly as to make our biological adaptation obsolete, or, worse maladaptive . . . our territorial imperative has become rapaciously acquisitive beyond any need for survival (1974, p. 787).

Few empirical studies deal specifically with territorial behaviors as an adaptive response to environmental stimuli. This perspective could lead to constructs which deal with understanding cognitive-motivational roles and subsequently the predictive components to behavioral responses involving territorial relationships.

Sommer (1966) examined perceptions of university students and preventive territorial actions. Subjects indicated in a pen-paper exercise that they would sit at a library table to avoid others or to actively discourage others from sitting at the table.

Altman's (1970) analysis of these data was twofold. He felt there was support for recognization of the importance of internal cognitive-motivational mediating processes in human territoriality. Secondly, there was support for broad criteria of territorial behavior, if preventive actions are pervasive and successful in manifesting overt defense behavior.

Social Interaction

"Life may not be much of a gamble, but interaction is" (Goffman 1959, p. 243). As it is accepted there are essential basic needs for life, likewise, there is a need for order in social relationships. "If there are no common set of expectancies, if we do not know how others will respond to us when we respond to them, social existence becomes impossible" (Duncan 1967, p. 253). The purpose of this section is to examine the nature of human interaction and to examine the nature of nurse-parent interactions. Following a brief review of communication theory, these areas will be related to Rickelman's (1971) bio-psycho-social linguistic framework.

Social Institutions and Order

Wherever it occurs, human interactions on a face-to-face level have formal similarities (Bales 1950).

Blumer presented the following premises about the nature of human group life and human conduct.

> 1. Human beings act toward things on the basis of the meanings that the things have for them.
> 2. The meaning of such things is derived from or arises out of the social interaction that one has with one's fellows.
> e. These meanings are handled in, and modified through an interpretive process used by the person in dealing with the things he enounters (1969, p. 2).

Blumer (1969) stated the meaning of a situation for an individual stemmed from the way other individuals act toward the person in regard to the situation. Argyle (1957) earlier maintained a similar stand when he affirmed individuals hold positions in several social structures simultaneously, and their behavior can/will change dramatically as they move between situations where different structures are important. Perhaps Goffman (1959) provided a clearer framework for understanding human behavior in social situations and the way people appear to each other by adding an additional concept--that of definition of the situation. The metaphor of theatrical performance was used by Goffman (1959) to illustrate this framework of social relationships.

Within Goffman's (1959) framework, any place surrounded by a fixed barrier to perception where a particular type of activity regularly occurred was described as a social establishment. Within the social establishment is a team of performers who cooperate to present the audience a given definition of the situation. Goffman (1959) reminded one (the reader) the concept "own team" and "audience" required acknowledgement of rules and politeness and decorm as guest. A back region (where the performance of a routine is prepared) and a front region (where the performance is presented) exists in the social establishment. Access to these areas are controlled to prevent the audience from seeing backstage and to stop outsiders from entering a performance which is not addressed to them. Agreement is usually stressed within the team and opposition underplayed. The working consensus tended to be contradicted by the attitude toward the audience which the performers express when the audience is gone and by controlled communication out of character conveyed by the performers when the audience is present. Discrepant roles develop when persons who are apparently teammates, or audience, or outsiders acquire information about the performance and relations to the team which are not apparent and that complicate putting on the show. Occasionally disruptions occur as a result of unmeant gestures, faux pas, and scenes which discredit or contradict the definition of the situation.

The performers, audience and outsiders use techniques for saving the show, by avoiding likely disruptions, correcting unavoidable disruptions, or making it possible for others to correct disruptions. The team tends to select members who are loyal, disciplined, and circumspect, and to select an audience which is tactful to ensure utilization of these techniques. This is the description of social interaction in Anglo-American society as seen by Goffman (1959).

In an analysis of the social establishment as a closed system, Goffman (1959) suggested four perspectives in which the establishment should be viewed. They are:

1. technically--"in terms of its efficiency and in efficiency as an intentionally organized system of activity for the achievement predefined objectives;"
2. politically--"in terms of the actions which each participant (or class of participants) can demand of other participants, the kinds of deprivations and indulgences which can be meted out in order to enforce these demands, and the kinds of social controls which guide this exercise of command and use of sanctions;"
3. structurally--"in terms of the horizontal and vertical status divisions and the kinds of social relations which relate these several groupings to one another;"
4. culturally--"in terms of moral values which influence activity in the establishment--values pertaining to fashion, customs, matters of taste, to politeness and decorum, to ultimate ends and normative restrictions on means, etc." (Goffman 1959, p. 240).

Goffman (1959) stated that all the facts which can be found out about an establishment is relevant to each of the perspectives, but each perspective has its own order and priority in regard to the facts.

In an effort to study human interactions, Goffman (1959) added the concept of "definition of the situation" to the concepts of individual personality, social interaction, and society. The author proposed that when persons present themselves to others they also project a definition of the situation and a conception of themselves in that situation. If an event occurs that is not compatible with the impression, these performance disruptions have effects on the individual personality, interaction, and social structure. Thus, the primary concern in social encounters is maintaining a "single definition of the situation, this definition having to be expressed, and this expression sustained in the face of a multitude of potential disruptions" (Goffman 1959, p. 254).

Interactions in the Hospital Environment

The literature available on the effects of the environment, specifically territoriality, presents a void in studies which investigate how this may affect the developing relationships between a sick premature infant and its mother in interaction. Additional relationships which exist in the neonatal intensive care units are (1) the relationship between the nurse and parent; (2) the relationship between the nurse and infant; and (3) the relationship between the nursing group members. The primary purpose for this section is to present information regarding the unique needs and problems of interacting groups--mothers and infants and nurses (primary representatives and providers of health care). After a review of basic conceptual and empirical data, it should be clear why the application of territorial behavior and environmental concepts are not only valid but commonly overlooked in the attempt to promote and strengthen human interaction between individuals, families, groups, and societies.

> It is better by far to put the little one in an incubator by its mother's bedside, the supervision which she exercises is not to be lightly estimated (Pierre Budin).

Maternal-infant interaction

There is little doubt that the birth of premature and lowbirth weight infants is a multi-factorial phenomenon. Most of these infants come from environments where the socioeconomic status is a significant determinant (Mercer 1977). In the United States one delivery in ten results in a premature birth (Mercer 1977). Out of one hundred expectant women (pregnancies greater than twenty weeks), three will leave the hospital without a live infant. An additional 5 of 100, or 150,000 women will deliver infants which are so immature or sick that they require intensive care (Schwartz and Schwartz 1977). As many as 20 percent of pregnant women fall into a "high risk" category and their infants account for over half of the fetal and neonatal deaths (Mercer 1977). Again, there exists a high correlation between infant survival and socioeconomic class (Schwartz and Schwartz 1977).

However, improvements in perinatal care and advances made within neonatal intensive care units have resulted in the survival of infants whose physical and psychosocial environments are aberrant and threatening. In spite of the remarkable technical advances in the physical care of these infants, there is concern that too frequently the psychological and emotional needs of the infant-parent dyad are minimized (Klaus and Kennell 1976, Lancaster 1976, Schwartz and Schwartz 1977). Vaughn reflected:

> . . . it may really be a disaster that the medical model--or, still worse, the surgical model--has been adopted for the birth of a

> a baby, which is actually a social event . . . (Klaus and Kennell 1976, p. 241).

Vaughn further proposed that this social event be recreated by taking it out of the medical arena and returning it to parents and families. This may be more difficult to do with infants who initially have acute physical needs which appear to overshadow psychosocial needs that may be dealt with when the infant's condition stabilizes. It is exactly this fine area of providing physical nurturing and psychosocial-emotional nurturing to parents and infants to which nursing attempts (or should be attempting) to respond (Klaus and Kennell 1976).

Mercer (1977) presented the following four assumptions underlying a conceptual framework for nursing care of patients at risk. First, a sensitive period is present during the early postpartum period for mother and infant. Secondly, early mother-infant exchanges of cues and personalities effects the attachment process and the development of the child. Thirdly, the sensitive period does not continue automatically nor intuitively in humans (it can be interrupted). Fourth, there are approaches which facilitate mother-infant interaction and provide support to parents experiencing a crisis in the sensitive period. These assumptions are consistent with empirical findings of many animal studies and an increasing number of studies on human infants. The assumptions are adopted as a background for providing nursing care in light of an operant territorial phenomena (Mercer 1977).

The premature delivery of an infant may be regarded as the physiologic result of a stressful life situation either socioeconomic or psychological in origin (Wortis 1960). When she delivers, this mother "whose experience was associated with stress continues to act like a stressful person" (Wortis 1960, p. 79). Kaplan and Mason (1960) also viewed the birth of the premature and resulting maternal reactions as a crisis--an acute emotional disorder (Kaplan and Mason 1960).

An acute emotional disorder results from a person trying to cope with a threatening event for which they are not psychologically prepared. Interviews of mothers have demonstrated that despite impending signs and explanations of their premature labor and delivery, these women are surprised and unprepared for the ensuing birth which occurs. The crisis is apparent on at least two levels:

> . . . for the infant, the crisis is frequently life threatening and leads to active and vigorous medical intervention. For the mother the crisis is both physiological and psychological (Schwartz and Schwartz 1976, p. 56).

In the process of grappling with the premature birth of an infant, Caplan, Mason, and Kaplan (1965) identified specific patterns of behavior parents exhibited and classified them into developmental tasks posed by prematurity. The successful mastery of the phases are considered essential for coping with the situations and for developing a sound mother-child relationship. Caplan et al. identified the tasks as:

1. Anticipatory grief--the preparation for the possible loss of the child. It involves a withdrawal from the relationship thus far established. The parent hopes the baby will survive but simultaneously prepares for its death.

2. Acknowledges her maternal failure to deliver a normal full-term infant--anticipatory grief and depression are signs of struggling with this task.

3. Resumption of the process of relating to the baby which had been previously interrupted--as the baby improves the mother responds with hope and anticipation of having the infant she previously prepared to lose. This usually occurs over the extended period the infant may stay in the nursery.

4. The mother must come to understand how a premature infant differs from a normal infant in terms

of its special needs and growth patterns--this prepares the mother for her subsequent caregiver position. It necessitates recognition that the special needs of the premature are temporary and the child will eventually catch up to normal infants its age (Caplan et al. 1960).

Three phases were developed during a nursery era when parents essentially were not freely allowed in to see and touch their infants. Today most nurseries have liberal visiting hours and encourage active interaction with their infant. Consequently, although the phases remain, there is often an overlap in the parents' mastery of each. Thus, when the infant survives, the mother may have withdrawn a portion of her attachment to the infant through anticipatory grief, and she is not yet ready to hope and give to the infant (Caplan et al. 1965).

Klaus and Kennell (1977) warned that the formation of close affectional ties can remain permanently incomplete between an infant and its mother if an extended separation exists and if the anticipatory grief becomes too advanced. In the neonatal intensive care unit extraordinary circumstances of life separate mothers and infants for prolonged and inconsistent time intervals. Studies of maternal behavior in nonhuman animals are suggestive that the restriction of interaction between the mother and infant in the early postpartum period influence maternal performance and may result in incompetent mothering (Seashore, Leifer, Barnett, and Leiderman 1973; Klaus and Kennell 1976; Schwartz and Schwartz 1977).

For the parent whose infant is in the intensive care unit, there is less interaction in the form of contact and less caregiving than observed with a "normal delivery," at best. Without contact the resulting separation means the mother is unable to test her perceptions of her ability to mother against her performance. The mother is denied the opportunity to learn and to receive feedback on her infant's response to her care (Seashore et al. 1973). Seashore et al. (1973) demonstrated that mothers who are separated or denied contact exhibited lower self-confidence levels than mothers who were allowed early contact. Similarly, other studies show that mothers who were denied early contact with their infants held their babies differently, changed positions less, burped less, and were less skillful in feeding (Salk 1970, Klaus and Kennell 1976).

Perhaps influencing the parent's response to the infant as much as the separation itself, is the role the infant plays in eliciting responses from the parent. Although a newborn infant's cognitive abilities do not begin until approximately two months of age, the psychological phase is termed by Mahler, Pine, and Bergman (1975) as one of normal autism. During this period the infant elicits attachment by crying, sucking, grasping, and eye contact. Bell (1974) suggested these behaviors are symbols that not only promote and maintain attachment but also are responses which maintain mothers in social interaction. The premature's reciprocal response is frequently diminished which places the parent-infant dyad at an additional risk for attachment and bonding behavior disorders (Bell 1974, Schwartz and Schwartz 1977). The salient point is that without proximity, there can be no social interaction.

When two people confront one another it is impossible not to interact, rather one must speak in terms of positive or negative interactions (Brazelton, Koslowski, and Main 1974); however, the stability of the interaction depends in part on the stability of the environment (Scheflen 1972). The entering of a neonatal intensive care unit is done at a high emotional cost to parents. The parent is frustrated in their efforts to see the baby. The nursery is frequently on a different floor, their infants are difficult to view through windows, incubators, and other mechanical equipment.

When the parents finally see the infant, the infant's appearance may be frightening. Kennell (1978) attributed a parent's difficulty with attachment to three factors: (1) they are not psychologically ready for the birth, (2) the appearance of the infant is different from that the parent expected, and (3) the environment of the neonatal intensive care unit involves a great degree of anxiety and distress. A further description of the nursery is offered by Kennell: ". . . the environment of the nursery, where the parents see their babies for the first few weeks, is hardly conducive to attachment or 'love making' with the baby" (1978, p. 224).

Additional factors which frequently influence a parent's response to this environment are staff-to-parent communication and the mother's expectations of interacting with her infant (Kaplan and Mason 1960, Seashore 1973, Kennell 1978). Often the parent deals with a multitude of professionals at various times of the day and night who deliver a variety of messages. On the other hand, the staff may find it difficult to respond supportively without futilely raising her hopes or confirming her feelings of failure. Seashore (1973) intimated that including the mother as part of the caregiving team will provide social support and positive reinforcement for the woman who has been denied the opportunity to test her ability to care for her infant due to separation. An essential nursing function in this environment is to decrease the distressful effects of separation (physical or emotional) and of social interactions between mothers and infants in the neonatal intensive care unit (Seashore 1973).

Nurse-parent interaction (communication)

> Wherefore, from Magic I seek assistance,
> That many a secret perchance I reach
> Through spirit-power and spirit-speech
> And thus the bitter task forego
> Of saying the things I do not know--
> Which binds the world, and guides its course:
> It gives, productive powers explore,
> And rummage in empty words no more.
> Goethes *Faust*, Act I Scene II

Peplau stated that "nursing care occurs within an interpersonal relationship of nurse to patient" (1969, p. 347). Clearly, for a relationship to exist there has to be a reciprocal response, an exchange of perceptions, feelings, and understandings of the situation, selves, and expectations of one another based upon present and past experiences. This exchange essentially occurs in the context of communication; the conveyance of meaning involves the arousal in one person of the attitudes of the other and their response to these responses; whereby, behaviors results which sustain, mediate, correct, and integrate the individual's or group relationships (Scheflen 1964, Duncan 1967). Principles of Ruesch's (1959) psychiatric theory of human communication are presented, followed by a description of the process of communication. The application of this will then be made to nurse, parent/infant dyad and nurse-parent/infant dyad interactions.

Communication theory

Ruesch (1950) introduced a theory of human communication which outlined basic principles occurring within any communicative process. These principles are presented as a resource for understanding the exchange which occurs between nurses and parent/infant dyads in this study.

1. People relate to each other through communication--a process which can be both observed and experienced.
2. The unit of study is not confined to a single individual but comprises all the people with whom a person habitually stands in communicative exchange.
3. The artificial division of individual, group, and society . . . need not be maintained.
4. In order to be able to communicate, any organism or social organization must be equipped with the function of perception, that is the ability to register incoming signals. Such an organism also must be able to evaluate, that is, to store previous impressions, to scan new impressions against the background of

> old ones, and to make decisions. Finally, any such organism must be able to transmit messages--to express the results of internal deliberations and to signal those to others.
>
> 5. In order to be understood, signals must be phrased in terms which are understandable to others. The technical aspects of this process are referred to as codification. When the receiver understands the code, the signal to him becomes a sign. Language is a sign system by which people have agreed to abide. It is characterized by the fact that the significance of the language signs must be known to a number of interpreters and has to remain relatively stable, regardless of the situation.
> 6. The accumulation of signs and their orderly arrangement is referred to as knowledge if it exists inside of a person and as information if it is accessible to others. Knowledge and information enable people to predict events to come, to react in a meaningful way at the moment, and to recall past events.
> 7. Regardless of what code or language is used and what kind of information is transmitted, specific instructions have to accompany any message if it is to be interpreted properly.
> 8. When a person or group has expressed a statement, this action, when perceived by others, will have an impact. (Eventually the reaction of the other person is relayed back to the sender and serves to clarify, extend, or alter the original idea. Feedback, therefore, refers to the process of correction through incorporation of information about effects achieved. This function is basic to all learning, correction, and self correction.)
> 9. The success of all of the communication therapies is determined by the extent and the type of feedback processes that take place (Ruesch 1959, pp. 897-898).

Spiegel (1958) recognized each individual as a communication circuit which consisted of the sender of the message, the message, the receiver, integrator, an interpreter of the message, and their response to the message.

Man requires a certain amount of gratifying communication to learn, grow, and function in life. Any event that interferes with communication will eventually result in serious disturbances which may exert an effect on the individual's behavior indefinitely. When communication provides a sharing of information and an exchange of knowledge, an individual receives a sense of mastery and relief. However, when communication becomes too frustrating, individuals experience anxiety and develop ways of protecting themselves by withdrawing, or controlling the exchange. In the case of controlling the exchange, feedback elements often are lost with a resulting loss of the purpose of communication--correction of information and performance (Ruesch 1959).

Often verbal communication has been associated with intention expressions and nonverbal communication with unintentional expression. Hall (1969) maintained communication happens simultaneously on different levels of consciousness, ranging from full awareness to out of awareness. More impressive is that the behavior of Americans is learned primarily out of the learner's awareness. Goffman (1959) pursued the out-of-awareness concept of learning a step further. He proposed that this learning produced behaviors in which an individual may be calculating in their activity, but be relatively unaware this is what was occurring.

Proshansky (1976) related the communication of out-of-awareness behavior to responses in a physical setting. He stated that research revealed, to a large extent, the individual is not aware of his behavior and experience in responding to the kaleidoscope of physical settings encountered in the course of day-to-day experience. Proshansky (1976) maintained that in most cases awareness of one's behavior and experience in a physical setting, the development of attitudes, values, preferences, likes, and dislikes about a setting occur only when the setting fails to work for the individual.

It is necessary to explore how communication affects the relationship between nurses and parent-infant dyads in the setting of a NICU. This will be done by examining the roles of the nurse, the parent-infant dyad, and the relationship between nurses and parent-infants.

The nurse

If one purpose of nursing is to help patients grasp the meaning of their health problems and to learn from their experience with these problems (Peplau 1969), then an analysis of the nurse's role should attempt to clarify what the nurse is doing for the patient. Nursing is viewed as a process occurring within a social system where there are expressive and instrumental functions (those dealing with diagnosis, treatment of an illness--getting the patient well). The nurse is described as an expressive specialist (managing the tension of system members which are in part generated by activities necessary to restore the patient to health) who does not share these functions equally with other members of the health care delivery system (Skipper and Leonard 1965).

The nurse perceives, thinks, feels, and acts according to the way she experiences her participation in nurse-patient situations ("Behind the Theory . . ." 1963). In order to fully participate as a coordinator, mediator, and observer for patient services, the nurse must understand about her own actions and reactions to understand the distinct meaning to the patient ("Behind the Theory . . ." 1963, Skipper and Leonard 1965, Peplau 1969). Then can the nursing process, through which the nurse makes a clinical judgment, have a positive and corrected effect for the patient.

The nurse has a variety of needs in a social system ranging from biological to acquired, not all of which are useful in the nursing situation (Peplau 1969). Peplau provided additional support for the idea of a nurse becoming aware of her own behavior. The author stated, "An awareness by the nurse of her own behavior is important, for it is all that she can change" (Peplau 1969, p. 349). The nurse cannot change patient responses or demand responses different from those received. Rather, what she can do is manage her own behavior as the stimulus to which the patient's behavior is a response (Peplau 1969).

The meaning of this is clearly illustrated in Rickelman's (1971) Model of Bio-Psycho-Social Linguistic Nurse Patient Interaction and then more globally in Components of Professional Nursing (see figures 1 and 2).

Parent/patient role

By far, for the majority of individuals entering the hospital as patients or recipients of health care services, as in the case of parents, the pool of past experiences to draw from is relatively limited. As a result, the patient/parents' expectations are relatively vague. The initiative for most social intercourse is passed to the hospital staff, "which is exceedingly ready to exercise it in the service of expert knowledge and mundane convenience" (Wilson, in Skipper and Leonard 1965, p. 236). While patients are passive creatures for the most part, they are often oversensitized to the reactions of other individuals and the individual's behavior toward them. The patient observes and privately interprets what she sees and thinks nurses are doing in her behalf (Wilson, in Skipper and Leonard 1965; Peplau 1969). Frequently, the regression and passivity that occur with hospitalized individuals lead to a leverage on which the treater may further end up manipulating the patient either in or out of awareness. In an effort to find relief from this anxiety, patients withdraw, strike out in anger, and often develop somatic disturbances, or attempt to control the staff (Peplau 1969). In the case of a parent visiting a sick, premature infant, relief may be found by abstaining from visiting their child in this climate.

Nurse-parent/patient

The behavior of the nurse stimulates the patient to use and develop competencies to understand situations and problems. On the other hand, nurses have a need for personal and professional satisfaction in performing nursing functions. Clearly, a spectrum of concepts are involved in dealing with human behavior in a hospital setting. Lewis (1971) stated that behavior is the result of a field of perception at the moment involving (1) how the individuals see themselves, (2) how they see the situation in which they are involved, and (3) interrelationships between individuals. Lewis (1971) suggested one must acquire an understanding of the other's perceptual field by communicating effectively with him.

Summary

This review of the literature has been a limited attempt to investigate a variety of interrelated concepts of bio-psycho-social linguistic nature in the perspective of a human territorial phenomena which influences social interactions between individuals in various roles. Placing everything within a holistic point of view one must consider Scheflin's viewpoint that:

> There is not one cause or one villain. Not only must one search oneself and the behavior of one's associates, one must also examine the nature of social structures, communication systems, and cultural ideation (1972, p. 201).

CHAPTER III

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The investigation was a hypothesis-testing field study. This design was used to make predictions about the relationships between the social environmental situation of a NICU and attitudes and behaviors of nurses (Kerlinger 1973). Direct observations by the investigator combined with the use of self-report questionnaires were utilized to assess if nurses communicate what they think and feel to patients through interactive social exchanges. A bio-psycho-social linguistic theoretical framework directed the investigation and provided a basis for the evaluation and prediction of the findings.

Setting

The setting of this study was the NICU of a large non-profit health care institution located in a metropolitan area of over one million persons in the Southwestern portion of the United States. The NICU consisted of three separate areas utilizing 350 square feet of space. One area was used for storage of equipment; the second area consisted of scrub sinks and the nurses' station (stock supplies and medications are also stored and prepared in this area). The third area was the actual patient care area. Bed capacity provided accommodations for six critically-ill infants and six sub-intensive care infants. Separate facilities were available for infants who were primarily low birth weight or whose health had progressed so that they no longer required the intensive care facilities of the NICU.

Criteria for admission to the NICU are:

1. Infants with suspected or proven necrotizing enterocolitis.
2. Severely asphyxiated infants.
3. All pre-operative or post-operative infants.
4. All infants less than 1500 grams, regardless of clinical condition.
5. Infants of insulin dependent diabetics. (These will be admitted routinely to the sub-intensive care unless otherwise indicated.)
6. Infants requiring an environment oxygen concentration of greater than 30% ($FiO_2 > 0.3$)
7. Infants with signs of shock.
8. Infants with meconium aspiration syndrome (Rosenfeld 1977-1978, p. 5).

Nurses working in the NICU had two months to four years of experience with these infants and families. All nurses were required to participate in a six-weeks orientation period of didactic and clinical instruction prior to working in the NICU. Additional personnel authorized to be in the NICU included medical students, house staff, attending staff, and paramedical personnel who provide supportive care. Families are encouraged to visit their infants in order to see and touch them. Nursing staff members are free to provide information and answer questions posed by the parent. The nurse-infant ratio is one to two, and occasionally, one to one.

The following measures were taken to protect the human rights of each study participant prior to beginning the data collection phase of the study:

1. Each subject volunteered to participate
2. Each subject signed a written consent form agreeing to participate in the research study
3. Each subject was given freedom to withdraw from the study at any time without loss of care for parent/infant dyads and loss of benefits for nurses
4. Each subject was assured anonymity of the data, which were coded by number
5. Each of the parent subjects was told they would be informed about general results if they provided the investigator with a self-addressed envelope
6. Each nurse subject was told there would be a nursing conference at the end of the study to discuss general results of the study
7. The research proposal was submitted and approved by the Human Rights Committee of Texas Woman's

University (appendix A), the University of Texas Health Science Center--Dallas, Texas (appendix B), and Parkland Memorial Hospital (appendix C)

8. The research proposal was submitted on approval by all staff physicians in the Department of Newborn Medicine University of Texas Health Science Center, Dallas, Texas (appendix D)

Population

A non-probability method of sampling was utilized for obtaining the population of this study (Kerlinger 1973). The nurse sample consisted of all nurses working in the NICU who voluntarily consented to participate in the study.

Between shifts the investigator approached individual nurses regarding their participation in the research study. The investigator identified herself as a nurse who was also a graduate student and explained the purpose of the study as stated in the Nurse Information Form (appendix E). This form was given to each nurse, and if she agreed to participate in the study, the Nurse Consent Form was completed (appendix F). Answers to questions about the study were further explained or clarified by the investigator as needed. Arrangements were made with the individual nurse to complete the Nurse

Demographic Data Form (appendix G) and the FIRO-B Scales (appendix H) prior to or following her shift. Of those nurses who agreed to participate, the sample consisted of those involved in any infant/parent interaction during specific observation periods. Each nurse participated in one interaction with a different infant.

The second sample group consisted of infant/parent dyads where the infants met the following criteria: (1) they had no congenital anomalies, (2) they were not suspected to have periventricular hemorrhage, as recorded on the problem list at the front of the chart, (3) they were patients in the NICU for a minimum of eight hours, (4) they were born in the institution in which the research was conducted, and (5) the interaction observed was not to be the initial infant/parent contact. The parents were informed of the purpose and procedure of the study and written consent was obtained prior to the interactions observed (appendix I). The parent(s) was approached in the NICU by the investigator. Parents were taken into a private waiting room used by families of NICU infants. The investigator identified herself as a nurse and a graduate student. The parent was given an oral explanation of the purpose of the study as delineated in the Parent/Infant Consent Form (appendix I).

If the parent agreed to participate in the study, the consent form was signed. At this time the parent completed the Parent Demographic Data Form (appendix J).

At the beginning of data collection, all infant/parent dyads meeting the criteria of this study were approached by the investigator and asked to participate. Thereafter, parents of infants admitted to the NICU were approached regarding the study, not earlier than eight hours after admission of the infant to the NICU. This time period hopefully allowed for some return of the mother to a homeostatic condition and allowed time to gain a grasp of the infant's situation.

Tool

There were three sections to the data collection tools in the study. The first section applied to the nurses participating in the study. A demographic data form was given to these participants (appendix G), to obtain information regarding length of professional career, length of employment in the NICU, age, and sex. In addition, the nurses were asked to complete the standardized FIRO-B (Fundamental Interpersonal Relations Orientation-Behavior) scale which measures a person's characteristic behavior toward other people (appendix H). This scale assessed the interpersonal need to establish and maintain a satisfactory relationship with people in respect to control, inclusion, and affection (Schutz 1967).

> The primary purposes of the FIRO-B are: 1) to measure how an individual acts in interpersonal situations and 2) to provide an instrument that will facilitate the prediction of interaction between people (Schutz 1967, p. 5).

The FIRO-B scales assess two aspects of behavior--the behavior an individual expresses toward others, and the behavior he wants others to express toward him (Schutz 1967). The FIRO-B scales are non-independent scales which are designed to measure individual characteristics as well as to assess relationships between people (Schutz 1967).

Section two contained demographic data forms on the infant (appendix K) and parent (appendix J). The infant demographic data form provided information about the infant's gestational age, chronological age, and diagnosis. This was filled out by the investigator from information in the infant's chart and the kardex after a nurse-parent/infant interaction was recorded.

A Nurse Interaction Form (appendix L) was given to the nurse involved in the interaction following completion of the interaction. There were statements on the demographic data form to determine how the nurse perceived the interaction process. Information collected on the Parent Demographic Data Form pertained to their relationship to the infant (mother, father, grandmother), gravidity, parity, age, and race. Additional statements on a Parent Interaction Form (appendix M) were completed by the parent after an interaction period, in the NICU waiting room. These statements were designed to determine how the parent perceived the interaction. This was completed with the assistance of the observer (investigator), if necessary.

The third section contained a data collection tool which was used to evaluate the nurse-parent/infant interaction by the observer (appendix N). The tool was designed by the investigator after reviewing the literature on parameters of territorial behaviors, communication, and social interaction theories as delineated in the bio-psycho-social linguistic framework. The tool was pilot-tested on graduate nurses and unlicensed staff nurses working in the NICU full- or part-time following the evaluation and incorporation of suggestions by a committee of experts (appendix O) and prior to being utilized in the actual collection of data for this study.

The Nurse-Parent/Infant Interaction Data Collection Form was pilot tested in the same institution in which the study was performed. This form was tested on three interactions after obtaining proper consent from the participants.

Data Collection

Data were collected from nurse and parent-infant dyad subjects in the NICU and followed a habituation period, a pilot study, and evaluation of tool reliability.

Pilot Study

During a one-week period prior to the collection of data for this investigation, twenty-five interactions between parents and nurses were recorded for the purpose of establishing minimum and maximum visitation times. Based upon these findings, it was determined that observations of any parent would be made for not more than twenty minutes plus the termination event of the interaction. This was done to prevent a skewed result if some parents spent an inordinately unusual period of time with their infant.

This week also provided time for staff members to habituate to the investigator's presence in the unit. Additional time for habituation was deemed unnecessary since significant time had previously been spent in an observational situation in this unit by the investigator during clinical rotations during her master's program.

Data-recording Periods

Data collection began August 8, 1978, and was completed on October 5, 1978. Data were collected on the day and evening shifts. Nurses who rotated nights to one of the other shifts were included in the study. All shifts were unpredictable with regard to staffing and activity.

Data were generally gathered from 10:00 a.m. to 3:00 p.m. and 6:00 p.m. to 11:00 p.m. at least five days a week. Saturday and Sunday were utilized a minimum of every other weekend during the entire data collection period.

There were three distinct phases of data collection. During the first phase, signed informed consent was obtained from the nurses and parents of infants presently available in the NICU. The second phase consisted of the observation of interactions between parents and nurses meeting criteria for participation in the study. The final phase of data collection was the last week of time. During this period several limitations were removed from the parent and nurse criteria to facilitate collection of the data.

Data-recording Procedure

Data were collected by the investigator who located herself within the NICU in a position to see face-to-face interaction between the nurse and parent and to hear their conversation during the interaction. The investigator recorded observations on the nurse-parent data record. Following the interaction, the investigator accompanied the parent into the NICU waiting room where the parent demographic data record was completed. The waiting room was located directly across from the entrance to the NICU.

The nurses had completed the Nurse Demographic Data Form and FIRO-B scale before the first day of nurse-parent interaction data collection. Following each particular interaction, the nurse was asked to complete an information form which contained statements that were designed to determine how she perceived the interaction that occurred.

Interactions were recorded on each nurse/patient-infant dyad on one occasion. The data collected were analyzed and the results related to the bio-psycho-social linguistic framework of Rickelman (1971) in order to draw conclusions and make recommendations.

Problem of Data Collection

During this particular time of data collection, visits by parents of infants appeared to be minimal. Frequently visits were not recorded for several days. Combined with the limitations placed on eligibility for participation in the study, it was impossible to collect data within a reasonable period of time. Consequently with approval of the study committee, the following changes were made during the third phase of data collection. Three nurse-parent/infant interactions had been observed when the following delimitations were modified.

1. The limitation regarding the amount of time the nurse subjects had practiced nursing in the NICU was removed
2. Graduate nurses were RNs, LVNs, and any graduate of an accredited school of nursing
3. Nurses were employed either full- or part-time
4. The minimum time for occupancy in the NICU for infants was decreased from forty-eight hours to eight hours
5. The data, initially to be collected twice--separated by a two-week time interval--to facilitate testing the reliability of the study tools, were collected one time

It is unknown what influence the changes had on this study. The changes were instituted when after six weeks of data collection, three subject's interactions fulfilled the initial criteria for inclusion in the study.

Problem of Nurse/observer Interaction

The most acute procedural problem encountered during data collection involved the observer (investigator) interaction with the nursing staff in the unit. Interactions consisted primarily of casual conversations and requests for help.

Requests for help were in the form of resetting monitors and checking the respiration and color of infants when nurses were involved in the care of other infants. Requests were made and fulfilled during periods when observations were not being recorded.

Conversations involved casual remarks, greetings, and information about infants' conditions. The nurses usually greeted and conversed with the observer before the interaction period occurred. Some nurse subjects attempted to persist in nonverbal forms of interaction with the observer during parent-infant/nurse interactions. Several times the observer was asked by the nurse "What do you want me to do?" when a parent entered the unit.

Thus, it was impossible for the observer to remain in the unit for an eight-hour shift and not engage in minimal conversation with the staff. The observer did attempt to overcome some of these problems by not reciprocating to nonverbal cues during the interactions. Also, the observer spent the majority of time in the unit so nurses were not able to determine which infants were involved in the study (as opposed to entering the unit only when the parent of a participating parent-infant dyad was present).

Treatment of Data

The statistical analysis of the data involved a variety of measurements. Descriptive statistics were utilized to describe the samples and information received from the demographic data forms and Parent and Nurse Interaction Forms. Frequency distributions, median, mean, and range were the primary descriptive statistics utilized. To assess the strength of the relationships between the perceptions of the nurses, observed behaviors, and data from the FIRO-B scales, and cross-tabulations of scores were made.

The McNemar test was applied to determine significant differences between inconsistent responses on the Nurse and Parent Interaction Forms. In addition, descriptive statistics such as mean, median, and range were utilized in analyzing data from the nurse-parent/infant interaction form. Results were analyzed, tabled, graphed, and are presented in Chapter IV.

Summary

This study was proposed to investigate if territorial behaviors of nurses control social interactions in a NICU. A search of the literature substantiates there is sufficient cause to investigate the possibility that nurses communicate thoughts and feelings of control to others (in this study, parents of critically-ill infants) during social interaction. The basis for approaching this study was the holistic bio-psycho-social linguistic theory. The implications of this investigation are useful potentially in understanding and enhancing relationships between the nurse and family and the environment in which they function.

CHAPTER IV

ANALYSIS OF DATA

A hypothesis-testing field study was conducted to determine if nurses exhibit territorial behaviors which control social interaction in a neonatal intensive care unit. This chapter is concerned with the analysis of data gathered from self-report questionnaires completed by the nurses and parents, the FIRO-B scale completed by the nurses, and the nurse-parent/infant direct observations form completed by the observer (investigator). Ten nurses and parent/infant dyads were subjects in this investigation. Data collected from the sample are presented and interpreted in this chapter. Significant findings are presented in terms of perceptions of interactions made by nurses and parents, observed behavior, and personality factors of nurses.

Description of the Sample

Nurses

The nurse sample consisted of ten nurses who had between two months to four years of NICU experience. All nurses had participated in a six-week orientation period of didactic and clinical instruction prior to working in the NICU. During the investigation, there were twenty-seven nurses working the day and evening shifts. Nineteen (74 percent) nurses agreed to participate in the investigation. Of the consenting nurses, eleven had worked in this unit over six months and sixteen nurses had worked less than six months. Ten out of eleven (99 percent) of the more experienced nurses agreed to participate and nine out of sixteen (56 percent) of the less experienced nurses agreed to participate. Ten observations were recorded. Fifty percent of the observations recorded were made of the more experienced nursing staff members, and 50 percent of the observations were made with less experienced nursing staff members.

Specific demographic data obtained from the nurse sample are presented in appendix P. In summary, however, the following information was obtained about the nurse sample. The range of nursing experience was three months to thirteen years with a mean of four and one-half years of total nursing experience.

The range of total NICU experience was two months to nine years with a mean of 2.7 years. The NICU at this particular hospital has existed for five years. The range of experience in this institution was two months to five years, with a mean of two years. The distribution of experience was similar for both groups which suggested the majority of nurses (90 percent) had not worked in another NICU setting.

Ninety percent of the sample held staff nurse positions. Fifty percent of the sample were relatively new employees and were in the process of completing requirements for charge nurse responsibilities.

The sample of nurses was primarily educated in a baccalaureate degree program of nursing. The licensed vocational nurse (LVN) had returned to school and was completing requirements for an associate degree in nursing.

General demographic data described the entire nurse sample as female. The median age of the sample was twenty-seven years with a range of twenty-one years to thirty-eight years of age. The sample was predominately white (80 percent) with no Black or Latin-American nurses working in the NICU. Two nurses were Indian.

There was a wide distribution of religious preferences; 70 percent stated a religions affiliation. Two members (20 percent) of the sample stated no religious preference and one time (10 percent) the affiliation was unknown. Forty percent of the sample were single and had not been married, an additional 50 percent were married, and 20 percent were divorced.

Parents

The parent sample consisted of ten mothers from the parent/infant dyad. The parent delivered her infant at Parkland Memorial Hospital. The mother was observed in the NICU a minimum of eight hours after delivery of the infant who required intense observation and supportive care. Specific demographic data obtained from the parent sample are found in appendix Q.

In summary, the following information was obtained about the parent sample. The mean age of the parent was twenty years with a range of fourteen years to twenty-nine years. Sixty percent of the parent sample were single. The highest educational degree obtained was a high school diploma or Graduate Equivalency Diploma (50 percent of the sample). One parent was a junior student in a upper division college. Fifty percent of the sample had not finished high school or were presently in high school.

Seventy percent of the sample were Black. The remainder of the sample (30 percent) was White. A lack of Latin-American respondents may be partially attributed to the exclusion of any parent unable to speak English from participation in the investigation. Seventy percent

Seventy percent of the mothers were either working or going to school prior to the pregnancy. In contrast with the nurse sample, the parent sample's religious affiliation was predominantely Baptist (60 percent).

This pregnancy was the first for 40 percent of the sample. One woman had been pregnant four times. A mean of 2.1 pregnancies per woman was calculated. The parent with a history of four pregnancies failed to produce a live infant in one confinement. All members (100 percent of the parent sample) responded that they would be the primary caregiver when the infant was discharged from the hospital. The parent was asked to project how many times she thought she would be able to visit her infant after maternal discharge from Parkland Memorial Hospital. Fifty percent projected they would visit several times a day. There was no method devised to validate if the parent's projections and behavior on this point were congruent.

Infant

Demographic data were obtained about the ten infants of the parent/infant dyad. Specific information pertaining to the infant's gestational age, size for age, birth weight, and chronological age at the time of observation is located in appendix R.

The infant sample's mean gestational age was thirty-two weeks. Ninety percent of the infants were delivered preterm. In the preterm infants, 40 percent were small for gestational age and 50 percent were appropriately grown for their gestational age. One infant was delivered postterm and appropriate for its gestational age. The mean birth weight of the sample was 1,344 grams. The birth weight range of the infant sample was 650 grams to 3,085 grams. All of the infants were admitted directly to the NICU from the delivery room.

In addition to their prematurity, a variety of other complications were experienced by the infant sample. The following problems were among the most frequently occurring complications: respiratory distress syndrome, asphyxia, sepsis, pneumothorax, congestive heart failure, respiratory failure, hyperbilirubinemia, meconium aspiration syndrome, pulmonary hypertension, hyponatremia, graft versus host response, sepsis, bruising, and interstitial emphysema. This information was obtained from the bedside problem lists maintained for each infant and recorded by the investigator on the Infant Demographic Data Form.

Analysis of the Nurse's and Parent's Perception of Interactions

Self-report questionnaires were developed as investigative instruments to obtain data for this study. A Likert-type scale was developed to assess the strength of agreement or disagreement about caregiving activities occurring in the NICU between nurse-infant/parent dyads. Data were categorized and the frequency of responses were determined for nurse and parent/infant samples. Percentages were calculated for agreement and disagreement responses to the statements. A cross-tabulation was made for comparison to determine consistency of responses between the nurse and parent groups.

Summary of Nurse's Perceptions of Interactions

For the purpose of this study responses marked 1 (disagree very strongly), 2 (disagree strongly), and 3 (disagree) were grouped and considered as disagreement with the statement. Responses marked 4 (agree), 5 (agree strongly), and 6 (agree very strongly) were grouped and considered as agreement with the statement. Each statement was presented individually and discussed.

Statement 1

> I let the parent participate in caregiving activities such as changing the diapers, or feeding (or holding the gavage tube).

Fifty percent of the nurses agreed they let the parent help in caregiving activities during an observed interaction. Forty percent stated they did not let the parent participate in caregiving activities with the infant. One nurse (10 percent) marked the statement as not applicable.

Statement 2

> I encouraged the parent to touch and talk with their infant.

Nurse response was to strongly agree with statement 2. Ninety percent of the sample reported they encouraged parents to touch and talk with their infants.

Statement 3

> I talked to the parent about the infant as soon as he/she entered the unit (patient care area).

Strong agreement was obtained from nurses on this statement. Ninety percent of the sample agreed they spoke with the parent immediately after the parent entered the NICU. One nurse (10 percent) disagreed with the statement.

Statement 4

> I think the parent understands the infant's condition.

Seven out of ten (70 percent) nurses felt the parent understood the infant's condition. Thirty percent of the nurses did not agree with the statement. The strength of agreement to this statement was divided, with only 30 percent marking strong or very strong agreement.

Statement 5

I did things I could have allowed the mother to do.

Seventy percent of the nurses agree they did things during the interaction which the mother could have done. Thirty percent of the nurses did not agree with the statement. Three of the seven (43 percent) nurses who agreed with the statement responded strongly.

Statement 6

I let other nurses help me take care of this infant readily.

Eighty percent of the nurses agreed that they let other nurses help them provide care to this infant. Twenty percent of the nurses disagreed with the statement. Closer analysis showed one response which agreed strongly. One response showed strong disagreement.

Statement 7

I feel like I helped this parent feel more secure in this situation.

Ninety percent of the nurses responded in agreement with this statement. One nurse (10 percent) responded that she did not feel like she helped the parent feel more secure. Four of the nine nurses (44 percent) who agreed they helped the parent feel more secure in the situation agreed strongly.

Statement 8

I feel like the nursery is my territory.

A variety of responses characterized the nurse's perception about this statement. Sixty percent of the nurses agreed they felt the nursery was their territory. Two of the six nurses agreed strongly. Two out of four nurses (50 percent) who disagreed with the statement disagreed strongly.

Statement 9

I am strongly attached to this infant.

There were not any nurses who agreed strongly or disagreed strongly with the statement. Sixty percent of the nurses disagreed with the statement; four nurses (40 percent) agreed.

Statement 10

I feel my clinical load for today is heavy.

Eighty percent of the nurses agreed with the statement; whereas 20 percent disagreed strongly.

Statement 11

I think this infant is going to survive.

Eighty percent of the nurse sample felt the infant was going to survive the NICU. One nurse of the two nurses who disagreed with the statement disagreed strongly.

Summary

Tables 1 and 2 present a summary of responses made by the nurses on the Nurse Interaction Form from a more specific to more general analysis. Individual nurse responses to each question are found in appendix L.

Summary of Parent's Perceptions of Interactions

Identical procedure was used to analyze the parent's perceptions of interaction during an observational period. Statements marked 1 (disagree very strongly), 2 (disagree strongly), and 3 (disagree) were grouped and considered as disagreement. Responses marked 4 (agree), 5 (agree strongly), and 6 (agree very strongly) were grouped and considered as agreement with the statement. Each statement was presented individually and discussed.

Tables 3 and 4 present the responses made by specific and general statistical analysis of the Parent

TABLE 1

SPECIFIC SUMMARY OF NURSE INTERACTION FORM

Statement	Disagree Strongly (1, 2)		Middle Score (3, 4)		Agree Strongly (5, 6)		Responding Not Applicable		Total Responding	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	2	20	3	30	4	40	1	10	10	100
2	1	10	0	0	9	90			10	100
3	0	0	1	10	9	90			10	100
4	2	20	5	50	3	30			10	100
5	3	30	4	40	3	30			10	100
6	1	10	8	80	1	10			10	100
7	0	0	6	60	4	40			10	100
8	2	20	6	60	2	20			10	100
9	0	0	10	100	0	0			10	100
10	2	20	8	80	0	0			10	100
11	1	10	5	50	4	40			10	100

N = 10

TABLE 2

GENERAL SUMMARY OF NURSE INTERACTION FORM

Statement	Disagree (1, 2, 3)		Agree (4, 5, 6)		Total Responding	
	Number	Percent	Number	Percent	Number	Percent
1	4	40	5	50	10	100
2	1	10	9	90	10	100
3	1	10	9	90	10	100
4	3	30	7	70	10	100
5	3	30	7	70	10	100
6	2	20	8	80	10	100
7	1	10	9	90	10	100
8	4	40	6	60	10	100
9	6	60	4	40	10	100
10	8	80	2	20	10	100
11	2	20	8	80	10	100

N = 10

TABLE 3

SPECIFIC SUMMARY OF PARENT INSTRUCTION FORM

Statement	Disagree Strongly (1, 2)		Middle Score (3, 4)		Agree Strongly (5, 6)		Total Responding	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	4	40	4	40	2	20	10	100
2	0	0	2	20	8	80	10	100
3	0	0	1	10	9	90	10	100
4	0	0	1	10	9	90	10	100
5	3	30	3	30	4	40	10	100
6	7	70	1	10	2	20	10	100
7	0	0	1	10	9	90	10	100
8	8	80	2	20	0	0	10	100
9	1	10	0	0	9	90	10	100

N = 10

TABLE 4

GENERAL SUMMARY OF PARENT INTERACTION FORM

Statement	Disagree (1, 2, 3)		Agree (4, 5, 6)		Total Responding	
	Number	Percent	Number	Percent	Number	Percent
1	6	60	4	40	10	100
2	1	10	9	90	10	100
3	0	0	10	100	10	100
4	0	0	10	100	10	100
5	4	40	6	60	10	100
6	8	80	2	20	10	100
7	0	0	10	100	10	100
8	9	90	1	10	10	100
9	1	10	9	90	10	100

N = 10

Instruction Form. Individual parent responses to each question are found in appendix Q.

Statement 1

> I helped care for my baby by changing his/her diaper, or feeding (holding the feeding tube).

Forty percent of the parent sample agreed they helped care for their baby during the observed interaction. Sixty percent of the caregivers stated they did not help care for their baby.

Statement 2

> I touched and talked to my baby when I visited him/her.

Ninety percent of the parent sample agreed they touched and talked with their infants. Within the group of parents who agreed with the statement, eight of the nine agreed strongly (89 percent). One parent disagreed with the statement.

Statement 3

> The nurse talked to me about my baby as soon as I came into the nursery.

One hundred percent of the sample agreed the nurse talked with them as soon as the parent entered the NICU. Ninety percent of the sample agreed strongly.

Statement 4

I understand how sick my baby is.

One hundred percent of the sample agreed they understood the seriousness of their infant's condition. Again, 90 percent of the parent sample agreed strongly.

Statement 5

I think the nurse does things for the baby I could help do.

Sixty percent of the parents agreed the nurse does things for the baby they could do. Four out of six (67 percent) of the parents who agreed responded strongly.

Statement 6

I am frightened by the baby.

Eighty percent of the parent sample disagreed with the statement. Seven of the eight (88 percent) parents who disagreed did so strongly. All of the parents (20 percent) who agreed with the statement, agreed strongly.

Statement 7

I feel better after talking with the nurse.

One hundred percent of the parents agreed with this statement. Ninety percent (nine of ten) agreed strongly that they felt better after talking with the nurse.

Statement 8

I feel like I am intruding when I go into the nursery.

Ninety percent of the sample of parents disagreed with this statement. Eight of the nine (89 percent) who disagreed did so strongly. The parent who agreed with the statement did not show strong agreement.

Statement 9

I think my baby is going to live.

All parents responded strongly to this statement. Ninety percent agreed they thought their baby was going to live. One parent (10 percent) thought her infant would not live.

Summary

Statements 1, 2, and 5 were designed to obtain information about caregiving activities from the parents. Statements 3, 5, 7, and 8 were designed to obtain information about the parent's perception of the NICU as a territory. Statements 4 and 9 were designed to obtain information from the parent about how they perceived the environment around them in the NICU. The following analysis deals with consistency in the answers of the nurses' perception and the parents' perception of the interaction. Final analyses will utilize data from a third parameter--the observed behavior recorded on the Nurse-Parent/Infant Interaction data collection form.

Consistency in Response Between Nurses' Perception and Parents' Perception of an Interaction

Seven statements from the nurse interaction form and seven statements from the parent interaction form were designed to identify and rank areas of consistency or inconsistency in grouped nurse-parent paired responses.

Data pair I (P_1) was composed of agree/agree and disagree/disagree responses where nurse-parent pairs either agreed (a score within a ±1 range of each other) or disagreed, but grouped responses (each nurse-parent dyad) were not any combination of agree and disagree. The sum totals (T) of data pair I (P_1) equals the consistent response in data pair II, or

$$(A/A + D/D) = CR$$

Data pair II (P_2) was made of consistent responses (CR) and inconsistent responses (IR). Consistent responses were stated mathematically as:

$$(CR = (A/A + D/D)$$

Inconsistent responses (IR) were grouped responses that were combinations of agree and disagree (i.e., agree/disagree or disagree/agree). Inconsistent responses were derived mathematically as:

$$IR = (N - CR)$$

The total responses (TR) of data pair II (P_2) were derived mathematically as:

$$TR = (CR + IR)$$

Data pair III (P_3) was composed of data indicating the total paired agreement or paired disagreement with the statements. Paired agreement (A) was the nurse and parent scores within a range of ±1 of each other. Agreement (A) was derived mathematically as:

$$A = (P_s - N_s) = \pm 1 \text{ or } 0$$

where P_s = numerical value for parent score

N_s = numerical value for nurse score

Paired disagreement (D) was the nurse and parent scores greater or less than ±1. Disagreement (D) was derived mathematically as:

$$D = (P_s - N_s) > \pm 1$$

The total responses (T) of data pair III (P_3) were derived mathematically as:

$$T = A + D$$

The following statements were analyzed in this manner: (1:1) indicated statement 1 from the nurse interaction form and statement 1 from the parent interaction form.

Statements 1:1

(1:0) I let the parent participate in caregiving activities such as changing the diapers or feeding (or holding the gavage tube).

(0:1) I helped care for my baby by changing his/her diaper, or feeding (holding the feeding tube).

Statements 3:3

(3:0) I talked to the parent about the infant as soon as he/she entered the unit (patient care area).

(0:3) The nurse talked to me about my baby as soon as I came into the nursery.

Statements 4:4

(4:0) I think the parent understands the infant's condition.

(0:4) I understand how sick my baby is.

Statements 5:5

(5:0) I did things I could have allowed the mother to do.

(0:5) I think the nurse does things for the baby I could help do.

Statements 7:7

(7:0) I feel like I helped this parent feel more secure in this situation.

(0:7) I feel better after talking with the nurse.

Statements 8:8

(8:0) I feel like the nursery is my territory.

(0:8) I feel like I am intruding when I go into the nursery.

Statements 11:9

(11:0) I think this infant is going to survive.

(0:9) I think my baby is going to live.

Analysis of Statement 1:1

There were two nurse-parent responses which showed paired agreement with the statement. Two nurse-parent responses indicated paired disagreement with the statement. The consistency response for this statement was 40 percent of the nurse-parent paired group. The paired percent of agreement for this statement was 30 percent.

Analysis of Statement 3:3

There were nine nurse-parent responses which showed agreement with the statement. There were no nurse-parent responses to indicate paired disagreement with the statement. The consistency response for this statement was 90 percent of the nurse-parent paired group. The paired percent of agreement for this statement was 90 percent.

Analysis of Statement 4:4

There were seven nurse-parent responses which showed agreement with the statement. There were no nurse-parent responses to indicate paired disagreement with the statement. The consistency response for this statement was

70 percent of the nurse-parent paired group. The paired percent of agreement for this statement was 50 percent.

Analysis of Statement 5:5

There were four nurse-parent responses which showed agreement with the statement. One nurse-parent response indicated paired disagreement with the statement. The consistency response for this statement was 50 percent of the nurse-parent paired group. The paired percent of agreement for this statement was 50 percent.

Analysis of Statement 7:7

There were nine nurse-parent responses which showed agreement with the statement. There were no nurse-parent responses to indicate paired disagreement with the statement. The consistency response for this statement was 90 percent of the nurse-parent paired groups. The paired percent of agreement for this statement was 50 percent.

Analysis of Statement 8:8

There were five nurse-parent responses which showed agreement with the statement. There were no nurse-parent responses to indicate paired disagreement with the statement. The consistency response for this statement was 50 percent of the nurse-parent paired group. The paired percent of agreement for this statement was 20 percent.

Analysis of Statement 11:9

There were eight nurse-parent responses which showed agreement with the statement. One nurse-parent response indicated paired disagreement with the statement. The consistency response for this statement was 90 percent of the nurse-parent paired group. The paired percent of agreement for this statement was 40 percent.

Summary

Table 5 is a summary presentation of paired data as it related to the consistency of nurse-parent responses to their perceptions of interactions. Data obtained were used to rank those statements which exhibited the highest degree of inconsistency of response between each nurse/ parent pair. Table 6 presents the statements ranked from the highest degree of inconsistency to lowest degree of inconsistency.

Analysis revealed that three statements (1:0), (5:5), and (8:8) were ranked the most inconsistent. Inconsistent responses were those responses where the nurse and parent perceptions were incongruent. Statement (1:) and 5:5) were concerned with caregiving activities.

TABLE 5

SUMMARY: CONSISTENCY OF NURSE-PARENT RESPONSE TO PERCEPTIONS OF INTERACTIONS

	Measures of Agreement (Grouped Data) (Paired Data) Between Nurse/Parent Pair								
	Pair I			Pair II			Pair III		
Statement	Agree/ Agree	Disagree/ Disagree	Total (AA+DD)=CR	Consistent Response CR=(A/A+D/D)	Inconsistent Response IR=(D-CR)	Total Response = (CR+IR)	Agreement A+(P-N)= ±1 or 0	Disagreement D=[10-(X±1)]	Total = A+D
1:1 I let the parent participate in caregiving activities such as changing the diapers or feeding (or holding the gavage tube). I helped care for my baby by changing his/her diaper, or feeding (holding the feeding tube).	2 (20%)	2 (20%)	4 (40%)	4 (40%)	6 (60%)	10 (100%)	3 (30%)	7 (70%)	10 (100%)
3:3 I talked to the parent about the infant as soon as he/she entered the unit (patient care area). The nurse talked to me about my baby as soon as I came into the nursery.	9 (90%)	0 (0%)	9 (90%)	9 (90%)	1 (10%)	10 (100%)	9 (90%)	1 (10%)	10 (100%)
4:4 I think the parent understands the infant's condition. I understand how sick my baby is.	7 (70%)	0 (0%)	7 (70%)	7 (70%)	3 (30%)	10 (100%)	5 (50%)	5 (50%)	10 (100%)

TABLE 5--Continued

Statement	Measures of Agreement (Grouped Data) (Paired Data) Between Nurse/Parent Pair								
	Pair I			Pair II			Pair III		
	Agree/ Agree	Disagree/ Disagree	Total (AA+DD)=CR	Consistent Response CR=(A/A+D/D)	Inconsistent Response IR=(D-CR)	Total Response = (CR+IR)	Agreement A+(P-N)= ±1 or 0	Disagreement D=[10x(X±1)]	Total = A+D
5:5 I did things I could have allowed the mother to do. I think the nurse does things for the baby I could help do.	4 (40%)	1 (10%)	5 (50%)	5 (50%)	5 (50%)	10 (100%)	5 (50%)	5 (50%)	10 (100%)
7:7 I feel like I helped this parent feel more secure in this situation. I feel better after talking with the nurse.	9 (90%)	0 (0%)	9 (90%)	9 (90%)	1 (10%)	10 (100%)	5 (50%)	5 (50%)	10 (100%)
8:8 I feel like the nursery is my territory. I feel like I am intruding when I go into the nursery.	5 (50%)	0 (0%)	5 (50%)	5 (50%)	5 (50%)	10 (100%)	2 (20%)	8 (80%)	10 (100%)
11:9 I think this infant is going to survive. I think my baby is going to live.	8 (80%)	1 (10%)	9 (90%)	9 (90%)	1 (10%)	10 (100%)	4 (40%)	6 (60%)	10 (100%)

N = 10

Statement (5:5) demonstrated responses high in inconsistency between nurse and parent pairs over the perception of the NICU as a nursing territory. Parents (90 percent) as a group stated they did not feel like they were intruding when they entered the nursery. Nurses felt the nursery was their territory.

TABLE 6

RANKING OF INCONSISTENT NURSE-PARENT RESPONSES

Statements	Inconsistent Responses Number	 Percent
1:1	6	60
5:5	5	50
8:8	5	50
4:4	3	30
3:3	1	10
7:7	1	10
11:9	1	10

The McNemar test, which looks specifically at the significance of the inconsistent responses, was applied to the seven paired nurse-parent responses to perceptions of the interaction. Statements 4:4 had a borderline statistical significance at the $p < 0.10$ level. This finding indicated a strong tendency for the inconsistency between the nurse and parent to occur with the parent (i.e., the parent agreed but the nurse did not agree).

A comparative analysis of observed behaviors and perceptions of the interaction by the nurse and parent is presented following presentation of data from the Nurse-Parent/Infant Interaction form. The data from this observation tool answers the question "Is their perception accurate?" on the part of the nurse and parent.

Analysis of Nurse-Parent Interactions

Data for this analysis were obtained from responses observed and recorded by the observer (investigator) on the Nurse-Parent/Infant Interaction Data Collection Form (appendix N). Seven areas of information were recorded--record of activity level in NICU, coding and length of interaction in minutes, greeting, termination, caregiving activities which could be altered for the parent, activities occurring during the interaction, and activities which interrupt the interaction. Interactions between the nurse and parent/infant dyad were observed and recorded for a period of not exceeding twenty minutes plus the termination of the interaction. Individual responses of the nurses and parents are found in appendix S.

Record of NICU Activity Level During Interaction

Table 7 presents the activity level in the NICU. The number recorded by the observer reflects the maximum number of people in the patient care area during the interaction. Frequently there was movement in and out of the NICU. Staff members included physicians, respiratory therapists, research personnel, and lab technicians. Visitors were defined as individuals not working with patients in this unit (families of infants, hospital visitors on business).

TABLE 7

MAXIMUM ACTIVITY LEVELS DURING NURSE-PARENT/ INFANT INTERACTION

People in NICU	Number of People	Mean	Range
Infants	55	5.5	3 - 7
Nurses	31	3.1	1 - 7
Staff	15	1.5	1 - 5
Visitors	2	0.2	0 - 2
Total	103	10.3	5 - 21

N = 10

Coding and Length of Interactions

Table 8 presents the shift during which nurse-parent interactions were observed. Nurse-parent/infant interactions were observed a total of 259 minutes. The interactions ranged from 10 minutes to 45 minutes; the mean nurse-parent/infant interaction time was 25.9 minutes.

TABLE 8

RELATIONSHIP OF NURSING SHIFT AND NURSE-PARENT/ INFANT INTERACTIONS

Shift	Number	Percent
7 a.m. - 3 p.m.	4	40
3 p.m. - 11 p.m.	6	60
Total	10	100

N = 10

Greetings in Interactions

Table 9 indicates the manner nurses and parents came together for interaction in the NICU. The nurse generally initiated (70 percent) the interaction verbally (90 percent). On two occasions the acknowledgement of the parent's entry into the NICU by the nurse was delayed (ten second and nine minutes). A simultaneous response with the verbal mutual acknowledgement of the parent's

TABLE 9

GREETINGS: NURSE-PARENT/INFANT INTERACTIONS

Interactant	Acknowledged Entrance				Initiated Interaction		Approached	
	Verbal		Nonverbal					
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Nurse	9	90	0	0	9	90	1	10
Parent	0	0	0	0	0	0	8	80
Nurse/parent	1	10	0	0	1	10	1	10
Total	10	100	0	0	10	100	10	100

entry into the NICU occurred once. During the delayed acknowledgements the nurse initiated the interaction. No nonverbal acknowledgements of entry into the patient care area occurred. The nurse approached the parent at the beginning of one interaction. One greeting was begun with the simultaneous approach of the nurse and parent. Eighty percent of the parents walked into the NICU and directly to their infant's bedside without being approached physically by a nurse.

These data support the literature that intruders into another area are timid. Parents, while required to approach the unit to visit their infants, showed tremendous reluctance to acknowledge their presence and to initiate the interaction with the nurse.

Termination of Interactions

Table 10 presents the methods used to terminate social interactions between nurse and parent/infant dyads. Parents remained in the unit and terminated the interaction in 70 percent of the visits. Physicians were responsible for terminating the nurse-parent/infant on two occasions. One physician interruption was to talk with the parent. The second physician initiated termination for neonatal rounds on the infant. A nurse initiated termination of one interaction by asking the parent to leave while an x-ray was made. The parents did not return into the NICU after leaving.

TABLE 10

TERMINATION: NURSE-PARENT/INFANT INTERACTIONS

Interactant	Initiates Termination		Response by Parent Leaving NICU			
			Verbal		Nonverbal	
	Number	Percent	Number	Percent	Number	Percent
Nurse	1	10	7	70	1	10
Parent	7	70	-	--	-	--
Nurse/parent	0	0	-	--	-	--
Other	2	20	0	0	2	20
Total	10	100	7	70	3	30

N = 10

Caregiving Activities Which Could Be Altered for Parents

Seven caregiving functions were identified as being capable of being performed by the parent. Initially, most of the activities would require an explanation for procedure and purpose. The idea of gradually relinquishing caregiving activities to the parent implies that over time the parent would have learned how to or feel free to perform the activities spontaneously with or without the close supervision of the nurse. Table 11 presents data about caregiving activities in which the parent could participate while in the NICU. Applicable events were those activities which were relevant for each infant (i.e., not all infants were under phototherapy, some infants had on urine bags for accurate intake and output records). Three areas of parental caregiving were identified to be possible for all infants. The areas were bathing, removing the baby from the bed (holding), and obtaining articles for care. In the institution where the data were obtained, the nurses frequently provided mothers with the opportunity to hold their infant, including those infants on ventilatory support. The occurrence of applicable events pertained to the number and percentage of interactions in which an applicable event or activity occurred.

Turning off the bilirubin lights and removal of the protective eye patches were the caregiving activities with the highest occurrence (80 percent). The nurse removed the patches and turned out the bilirubin lights for each occurrence. During one interaction, the eye pads were replaced and the lights turned on before the end of the interaction. Holding the site of a needle puncture was the one activity not applicable to all interactions. Five applicable caregiving activities events remain.

Table 11 shows evidence that the only additional applicable caregiving activity that could be altered for the parent which occurred (10 percent) involved a nurse obtaining a wash cloth with which the parent wiped her infant.

TABLE 11

CAREGIVING ACTIVITIES: ALTERATIONS FOR PARENT DURING INTERACTION

Caregiving Activities	Applicable Events		Occurrence of Applicable Events		Non-occurrence of Applicable Events	
	Number	Percent	Number	Percent	Number	Percent
Phototherapy	5	50	4	80	1	20
Diaper change	5	50	0	0	5	100
Feeding/ hold tube	2	20	0	0	2	100
Remove from bed	10	100	0	0	10	100
Bathe/wash	10	100	1	10	10	100
Hold stick	0	0	0	0	0	0
Obtain article	10	100	0	0	10	100

N = 10

Activities Occurring During the Interaction

Table 12 presents a summary of the activities occurring during the interactions between nurses and

TABLE 12

FREQUENCY OF ACTIVITIES OCCURRING DURING NURSE-PARENT/INFANT INTERACTION

Activity	Nurse		Parent		Nurse		Parent	
	Number	Percent	Number	Percent	Mean	Range	Mean	Range
Touches infant	31	17	101	57	3.1	1-6	10.1	1-20
Closest to infant	34	29	124	70	3.4	1-10	12.4	6-20
Speaks to infant	1	1	22	12	.1	0-1	2.2	1-12
Holds infant	1	1	21	12	.1	0-1	2.1	1-12
Looks at other infant	0	0	3	2	0.0	0	0.3	0-3
Correct for looking at other infant	0	0	0	0	0.0	0	0.0	0
Nurse present	91	51	--	--	9.0	2-16	--	--
Speaking	61	67	44	48	6.1	1-14	2.5	1-12
Initiates questions	26	29	13	14	1.3	0-5	1.3	0-5
Answers questions	17	19	20	22	1.7	0.5	1.0	0-5
Silence	--	--	--	--	--	--	--	--
Touches other	1	1	1	1	0.1	0-1	0.1	0-1
Positions								
•▬[a]	2	2	0	0	0.2		0	
•⊔[b]	11	12	74	42	1.1		7.4	
⊔̣[c]	11	12	0	0	1.1		0	
⊔•[d]	25	27	0	0	2.5		0	
÷[e]	37	41	79	44	3.7		7.9	
Gaze								
Nurse								
Baby	20	11	106	60	2.0		10.6	
Baby/parent	26	15	0	0	2.6		0	
Parent	19	11	0	0	1.9		0	
Around	6	4	0	0	0.6		0	
Other	14	8	0	0	1.4		0	
Other/parent	2	1	0	0	0.2		0	
Parent/around	1	0.6	0	0	0.1		0	
Parent								
Baby/other	2	1	2	1	0.2		0.2	
Baby/nurse	0	0	21	12	0		2.1	
Nurse	0	0	8	4	0		0.8	
Around	0	0	9	5	0		0.9	
Other	0	0	3	2	0		0.3	
Baby/around	3	2	27	15	0.3		2.7	
Around/nurse	0	0	1	0.6	0		0.1	
Other/nurse	0	0	1	0.6	0		0.1	
Stance								
(↑) Standing	87	96	85	48	8.7		8.5	
(ɥ) Sitting	3	3	93	52	0.3		9.3	
(S) Squatting	1	1	0	0	0.1		0	

[a] Located at end of Isolette.
[b] Located on right side of radiant heat warmer.
[c] Located on foot of radiant heat warmer.
[d] Located on left side of radiant heat warmer.
[e] Located on front of Isolette.
N_p = 178"
N_n = 91"

parents. (Individual responses are given in appendix S.) The nurses were present at the bedside for 91 minutes (51 percent) out of the recorded observation time of 178 minutes. References in the literature have used 9, 15, and 25 percent of occupation of an area indicating territorial claim. The nurse's percentages for the activities were based upon her presence of ninety-one minutes. Activities eight through ten for the parents were computed using the ninety-one minutes' presence of the nurse. The remainder of parent measurements were made using the 178 minutes of the parents' total recorded interaction time. The nurse was closest to the infant 29 percent of the time; while the parent was closest to the infant during 70 percent of the interaction. Twelve percent of the interaction time was spent talking to the infant. This compares to 90 percent of the parents who responded with agreement that they touched and talked to their infants on the Parent Interaction Form. Ninety percent of the nurses agreed they encouraged the parent to touch and talk to their infant. One instance of a nurse speaking to the infant was recorded. Analysis of data revealed that nurses perceived they encouraged the parent to touch and talk with the infant; however, this was more expressive as opposed to active role model behavior.

Twelve percent of the interaction time was spent by parents holding the infant. No infants on the ventilator were observed being held by the parent either out of the bed or in the confines of the bed.

Two percent of the observed interactions were spent with parents looking at other infants in the NICU. The nurses were recorded speaking 67 percent of the time while the parent(s) was present. Parents spoke 48 percent of the time during the nurse's presence. Silence was considered mutually exclusive to speaking and was deleted during the recording of observations. There was one instance where a nurse touched a parent and one instance where a parent touched a nurse. This agrees with data on the FIRO-B scales where nurses scored low on affection and inclusion behaviors.

Activity eleven was a breakdown of where the parent and nurse looked and stood in relation to the infants during the interaction. Sixty percent of the parent observation time was spent looking at the infant. Nurses spent 11 percent of their time looking at the infant. Nurses spent the highest number of observed times looking at the infant and parent.

The most frequent position for the parent was at the side of the radiant heat warmer (42 percent) or directly in front of an isoleete (44 percent). Nurses frequently stood on the opposite side of the radiant heat warmer (27 percent), or in front of the isolette (41 percent).

During the observed interactions nurses stood 96 percent of the time. Parents stood during 48 percent of the interaction. Fifty-two percent of the parents sat during the observed time.

Activities Which Interrupt Interactions

Eleven activities that could interrupt the interaction between the nurse-parent/infant dyad were identified. Table 13 presents data depicting the number of interruptions for each interaction andthe most frequent interruptions to the interaction.

The most frequent interruptions were other conversations (60 percent). In the column marked "other" (70 percent) the following activities were included: changing the IV, speaking with other people at the bedside and speaking or not speaking to interacting mother, taking vital signs, taking the infant's picture. One nurse-parent/infant interaction did not have any activities which interrupted the visit. The range of activities which interrupted each interaction was 0 to 3. The mean number of interrupting activities for each interaction was 2.1.

TABLE 13

ACTIVITIES WHICH INTERRUPTED NURSE-PARENT/INFANT INTERACTION

Activity	Frequency of Occurrence	
	Number	Percent
X-ray	1	10
LP/Blood culture	0	0
Routine stick	1	10
Arterial stick	1	10
Doctor rounds	3	30
Sudden demise	2	20
Suctioning	0	0
Re(start) IV	0	0
Intubation	0	0
Other conversation	6	60
Other	7	70

N = 10

General Information: Experience with Infant of Parent/infant Dyad

Table 14 presents general information obtained from the nurses of the nurse-parent/infant pair about their experience with the infant. Forty percent of the nurses had previously taken care of the infant in the observed interaction. Three of the nurses (30 percent) had previously cared for the infants from one to three times; one nurse (10 percent) had taken care of the infant four to six days. The range of the infants' ages was one to twenty-two days. Eighty percent of the infants were either on ventilatory support or receiving oxygen. Specific nurse responses are shown in appendix S.

TABLE 14

GENERAL INFORMATION: NURSE'S EXPERIENCE WITH INFANT OF PARENT/INFANT DYAD

Information	Yes		No	
	Number	Percent	Number	Percent
Previous care	4	40	6	60
Ventilator/O_2	8	80	2	20
Phototherapy	5	50	5	50
Feeding time	2	20	8	80

N = 10

Analysis of Nurses' Response to the FIRO-B Scales

Nurses' scores from the FIRO-B (Fundamental Interpersonal Relations Orientation-Behavior) score which measures a person's characteristic behavior toward other people are presented in appendix T. The scale assesses the interpersonal need to establish and maintain a satisfactory relationship with people in regard to control, inclusion, and affection. High scores were defined as scores greater than one standard deviation above the mean behavior; low scores were defined as scores less than one standard deviation below the mean. Names and symbols for the FIRO-B scales are found in appendix U.

Data from table 15 provide the basis for the following interpretation of mean scores for inclusion, control, and affection.

Expressed inclusion--30 percent of the nurse sample scored high in expressed inclusion. This is in contrast to 80 percent of the nurses who agreed they let other nurses help them take care of the infant readily. Data from observations showed an inconsistency in this response. There was a nine-minute delay and a two-minute delay prior to the greeting when the nurses were either out of the patient care area or busy within the NICU. It was not determined if the particular nurses involved were the 20 percent of the population who scored low on expressed inclusion behavior.

Inclusion--20 percent of the sample scored high and 20 percent of the sample scored low on wanted inclusion behavior.

Control--three (30 percent) of ten nurses scored high on expressed control behavior. This indicated they tried to exert control and influence over things; however, 80 percent of the sample of nurses scored low on wanted control. They neither tried to exert control or influence over things, but they did not want others to control and influence them. This response appears to have inconsistent and possible passive elements.

Affection--the nurses' scores on expressed and wanted affection behavior were less than 35 percent.

TABLE 15

INDIVIDUAL MEANS WITHIN NEED AREAS

	Means: Inclusion Control and Affection					
	High		Medium		Low	
Behavior	Number	Percent	Number	Percent	Number	Percent
Expressed inclusion (e^I)	3	30	5	50	2	20
Wanted inclusion (w^I)	2	20	6	60	2	20
Expressed control (e^C)	3	30	2	20	5	50
Wanted control (w^C)	0	0	2	20	8	80
Expressed affection (e^A)	3	30	5	50	2	20
Wanted affection (w^A)	0	0	9	90	1	10

Table 16 presents individual and total sums within the need areas of inclusion, control, and affection. Interpretations of the summary scores are as follows:

Σ^I--three nurses (30 percent) indicated a desire for contact with people regardless of who initiates the contact. Ten percent of the nurses indicated a preference for aloneness.

Σ^C--there were not any nurses whose score indicated a desire for high structure, a preference for giving and taking orders. Eighty percent of the nurses indicated a laissez-faire attitude with respect to authority, neither wanting to give or receive orders.

Σ^A--three nurses (30 percent) indicated a desire for a great deal of exchange of affection and warmth. Ten percent of the nurses indicated a desire for more personal distance, more impersonal, and business-like relationships.

Σ--three nurses (30 percent) indicated a desire preference for a great deal of interaction with people in all areas. Forty percent of the nurses indicated a desire to have relatively little contact with people and a desire to be more alone and uninvolved.

Table 17 presents individual and total differences within the need areas inclusion, control, and affection. Interpretation of the summary scores are as follows:

TABLE 16

INDIVIDUAL AND TOTAL SUMS (Σ) WITHIN NEED AREAS

Behavior	Means: Inclusion Control and Affection					
	High		Medium		Low	
	Number	Percent	Number	Percent	Number	Percent
Sums (Σ) of inclusion (Σ^I)	3	30	6	60	1	10
Sums (Σ) of control (Σ^C)	0	0	2	20	8	80
Sums (Σ) of affection (Σ^A)	3	30	6	60	1	10
Total: Σ	3	30	3	30	4	40

d^I--there were not any nurses whose score indicated a preference for initiating inclusion behavior rather than for receiving. This score would have indicated a desire to invite more than to be invited. Ten percent of the nurses' scores indicated they would rather be the guest than the host. This score does not address the amount of contact desired.

d^C--three nurses' (30 percent) scores indicated a preference to give orders rather than to take orders. There were not any nurses whose score indicated a preference for following orders as opposed to giving them.

d--One nurse's (10 percent) score indicated a strong preference for taking the initiative in any relating need regardless of the area of the relationship. Ten percent of the nurses' scores indicated a strong preference for waiting for other people to take the initiative toward her; whether it be contact, control, or affection.

TABLE 17

INDIVIDUAL AND TOTAL DIFFERENCES (d) WITHIN NEED AREAS

Behaviors	Means: Inclusion Control and Affection					
	High		Medium		Low	
	Number	Percent	Number	Percent	Number	Percent
Difference inclusion (d^I)	0	0	9	90	1	10
Difference control (d^C)	3	30	7	70	0	00
Difference affection (d^A)	2	20	8	80	0	0
Total	1	10	8	80	1	10

Schutz (1967) found that nurses scored very high in the affection area and usually low overall scores (Σ) within the other interpersonal areas. In this investigation, the nurses scored low only in the area of control. They did not score high in the affection area. Schutz (1967) concluded that being the recipients of interaction rather than the initiators was related to traditional sex roles. Nurses in this sample, like Schutz' (1967) sample of Radcliffe freshmen and nurses, had the higher preference for receiving (low d) (Schutz 1967).

Analysis of Study Hypotheses

Two hypotheses were developed to examine the phenomena of territorial behavior in nurses working in a neonatal intensive care unit and the effect on social interaction. The sample consisted of ten nurse-parent/infant pairs. Data used to accept or reject the hypotheses were obtained from a combination of the FIRO-B scales, self-report questionnaires, and a direct interaction observation tool. The hypotheses are presented and analyzed separately.

Hypothesis 1

There is no relationship between territorial behaviors of nurses in the neonatal intensive care unit and the control of social interaction.

Freuqency data from the nurse-parent/infant data collection showed the nursery to be a nursing territory (nurse present > 25 percent of interaction). The nurse initiated the greeting or acknowledgement that an interaction was beginning in 90 percent of the visits by the parent. During one interaction, the absence of an assigned nurse resulted in a delay of nine minutes before any nursing or house staff addressed the parent. Nurses did not alter caregiving activities for the parent with the exception of removing phototherapy and eye patches from the infant's eyes during the interaction (<10 percent occurrence for five applicable activities). Parents generally stood by the infant's bed with minimal talking to the infant. Ten percent of the sample held their infant for 12 percent of the interaction time. Therefore, based upon observed recorded data, the null hypothesis was rejected. The alternate hypothesis was accepted: there is a relationship between territorial behaviors of nurses in the neonatal intensive care unit and the control of social interaction.

Hypothesis 2

There is no difference between intentions (emotional expressions) and actual observed behavior of nurses in the neonatal intensive care unit.

Data from the FIRO-B scale, the Nurse Interaction Form, and Nurse-Parent/Infant Interaction Data Collection Form, provided rationale for rejecting the null hypothesis.

Three areas of comparison were identified as (1) initiation of the interaction, (2) caregiving activities which could be altered for the parent, and (3) activities occurring during interactions.

Initiation of the interaction--90 percent of the nurses observed verbally initiated the interaction with the parent. Data from the Nurse Interaction Form demonstrated agreement with the observed behavior when 90 percent of the nurse sample expressed interaction. Summary scores from the FIRO-B scale for inclusion, control, and affection did not support a high preference for a great deal of interaction by the sample of nurses. The scores were evenly distributed for the group. There was no support in the form of high d^I or d^A scores which indicates a preference for initiating inclusion behavior or for initiating affection over receiving such behavior. A lack of high d scores by the nurses provide further support for rejecting the second hypothesis. A high score would have indicated a strong preference for waiting for other people to take the initiative. There are indications that a discrepancy existed between the FIRO-B scale and observed behavior, but not between perceptions of the nurses in the interaction and observed behaviors. Perhaps the FIRO-B scale was more highly related to out-of-awareness actions than observed actions.

Caregiving activities which could be altered for parents

Seven caregiving activities which could be altered for parents during the interaction were identified. Observed behavior revealed the phototherapy was the only significantly altered (80 percent of the time) caregiving activity. There was a difference between the observed behavior of nurses and the expressed behavior from the nurse's perception of the interaction. Nurses indicated 50 percent agreement with the statement (1) that they let the parent participate in caregiving activities. However, nurses did agree (70 percent) with the statement (5) "I did things I could have allowed the parent to do." The FIRO-B scales resulted in middle scores for inclusion. It was not the purpose of this investigation to identify the existence of territorial behaviors, rather, that they affect social interaction between nurses and parent/infant dyads. The lack of altered caregiving activities and the high agreement (70 percent) of nurses that did things the mother could have been allowed to do provides support of emotional expressions and observed caregiving activities during the interaction. Sixty percent of the nurse sample agreed with statement 8, the nursery was their territory. When considered against FIRO-B scores, there is support of a discrepancy between expressed territorial behaviors and observed nurse behaviors. FIRO-B scores of the nurses for inclusion and affection fell primarily in the medium range. Nurses scored low in expressed control (50 percent) and wanted control (80 percent). Low scores for control paired with discrepant observed and expressed behavior (perceptions of interaction) again possibly indicate a relationship of awareness behaviors. Observed support for use of the environment and a territorial phenomena were found in the continued presence of the nurse during the interaction.

Activities during interaction

Seven observed activities occurred during the interaction which could be compared with emotional expressions of the nurse. The behaviors included touch, speech, presence, and gaze. Ninety percent of the nurses agreed they encouraged the parent to touch and talk with their infant. Nurses spent 67 percent of the time they were present during the interaction speaking with the parent. Seventeen percent of the nurses' interaction time was spent touching the infant. One percent of the nurses' interaction time was spent speaking to the infant. One percent of the nurses' interaction time was used to hold the infant. Data are not available on the verbal nature of the nurse-parent interaction, but there could be a relationship to actual behavior and verbal behavior.

Activities taking up greater amounts of interaction time were also performed by the parent (touching, speaking to the nurse, gazing). This could be indicative of subtle forms of control or influence by nurses in the NICU. Is the passiveness of the parent to initiate activities a component of the territorial phenomena or more culturally based? Possibly the behavior could be explained in terms of previous experience in this setting. Nurses' FIRO-B scores for inclusion and affection do not show congruence with their perception (statement 2) of the interaction. Nurses' low control scores may indicate the nurses did not encourage the parent to engage in the activities during the interaction as demonstrated by responses on the Nurse Interaction Form. There appears to be support for a difference between emotional expressions of the nurses and observed behavior when examined with the parents' response.

The presentation of these findings provides adequate support for the rejection of hypothesis two. The alternate hypothesis would, therefore, be accepted. There is a difference between intentions (emotional expressions) and actual observed behavior of nurses in the neonatal intensive care unit.

Summary

Chapter IV presented and discussed the analysis of data collected from the nurse-parent/infant pairs involved in interaction in a NICU. Data were collected using self-report questionnaires used to determine the nurses' and parents' perception of the interaction, FIRO-B scale, and an observational tool.

Perceptions of the nurses and parents were analyzed using descriptive statistics. The consistency of responses were determined by using a cross-tabulation graph. The significance of inconsistent responses were analyzed using the McNemar test. The FIRO-B scores were used to determine nurses' expressed and wanted behavior in the area of inclusion, control, and affection. This was compared with a group of norms determined on another nursing group.

Frequency and means were determined and tabled from the Nurse-Parent/Infant Interaction Data Collection Form. Portions of data from the nurses' perception, FIRO-B scale, and nurse-parent/infant observation tool were analyzed and compared to determine if the null hypotheses of this study should be accepted or rejected. Both were rejected.

The following purposes of this hypotheses-testing field study were fulfilled through collection and analyses of data.

1. To develop a set of tools for measuring territorial behaviors in neonatal intensive care units

2. To determine if relationships exist between behavior of nurses and the personality characteristic of control of nurses in the environment of a neonatal intensive care unit

Analyses of data suggested a negative relationship between control as determined on the FIRO-B scale and the observed behavior of nurses. Nurses scored low in expressed and wanted control; however, they clearly exhibited territory behaviors. The discrepancy between expressed behavior and observed behaviors may well be the result of an out-of-awareness phenomena presented in the review of the literature.

3. To determine if perceptual differences exist between nurses and parents participating in the social interaction

Data indicated significant perceptual differences on three of seven statements cross-tabulated from the nurse and parent interaction forms.

Summary, conclusions, implications, and recommendations were formulated in view of the presentation and analyses of data in chapter IV. Chapter V is the presentation of this information.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

A hypothesis-testing field study was conducted for the purposes of

1. Developing a set of tools for measuring territorial behaviors in nurses in neonatal intensive care units

2. Determining if relationships exist between behaviors and the personality characteristics of control or nurses in the environment of a neonatal intensive care unit

3. Determining if perceptual differences exist between nurses and parents participating in a social interaction

Fulfillment of the purposes of the study culminated in the collection and analysis of data. Analysis of the data indicated support for the rejection of the following hypotheses:

1. There is no relationship between territorial behaviors of nurses in the neonatal intensive care units and the control of social interaction

2. There is no difference between intentions (emotional expression) and observed behavior of nurses in the neonatal intensive care unit

This investigation was conducted in the neonatal intensive care unit of a large non-profit health care institution located in a metropolitan area of over one million persons. Subjects for this study were selected by a non-probability method of sampling. The sample was composed of ten nurses and ten parent/infant dyads. The nurse sample consisted of all graduate nurses who were working in the NICU. The parent/infant dyad sample was composed of mothers not visiting their infant for the first time and infants who had been in the NICU a minimum of eight hours. Data were collected using a combination of the FIRO-B scales, self-report questionnaires, and a direct interaction observation tool.

The FIRO-B scales by Schutz (1967) assessed the nurses' interpersonal need to establish and maintain a satisfactory relationship in respect to control, inclusion, and affection. Scores obtained were used to assess perceptual interpretations, emotional intentions, and observed behavior between nurse-parent/infant pairs.

Self-report questionnaires (Nurse Interaction Form and Parent Interaction Form) were completed by the nurse and parent to determine how each person perceived the instruction. A Nurse-Parent/Infant Interaction Data Collection tool was used by the investigator to record observed behaviors during the interaction. Data were tabulated and compared for consistency of response between the nurses and parents, alterations and occurrence of caregiving activities, and analysis of the perceptions of the nurses and parents during their interaction.

Conclusions

On the basis of the data obtained from the investigation, the following conclusions are warranted.

1. Perceptual differences about the interaction existed between nurses and parents participating in social interaction in the neonatal intensive care unit

2. Nurses perceived the NICU as their territory, and their observed behavior appeared to support this finding

3. Parents assumed passive roles when involved in social interaction within the NICU

4. There was a relationship between territorial behaviors of the nurse in the NICU and the control of social interaction

5. Caregiving activities were not altered to allow parent participation during the social interaction

6. Inconsistent responses between the nurse and parent, as measured by the McNemar test, were not statistically significant

Implications

This investigation was concerned with the relationship between territorial nurse-parent/infant behaviors and the effects on social interaction in a NICU. The following implications were identified in the areas of nursing care, psychosocial development of the parent-infant dyad, and the environments.

1. Facilitation of the maternal-infant relationship through communication, clarification of roles, expectations, and needs should be included by nurses in the nursing care of infants and parents in the NICU

2. The application of knowledge to nursing practice in the area of attachment and bonding has been overshadowed by medical and technical management

3. It is imperative to acquire and disseminate knowledge about interacting environmental forces and their effects on the behavior in the NICU to nurses

4. Territorial behaviors in the NICU may interfere with social interaction between parents and their infants and the development of maternal-infant attachment

5. Awareness of expressed and observed behaviors operating in the NICU may help to further define the situation and affect the use of positive caregiving activities for the parent

Recommendations

The following recommendations are suggested as a result of this investigation.

1. Further refinement and reliability testing of the nurse-parent/infant interaction form and the nurse and parent interaction form

2. Statistical analyses involving correlation of specific responses to individual nurse-parent/infant pairs, demographic data, and observed behaviors

3. Replication of the study utilizing a larger sample

4. Statistical comparison of data using tools and scales having comparable measurement scores

5. Reduction of the scope of the investigation by further limiting the study

6. Conduct a study to examine social and psychological treatment of newborns by nurses in NICU

7. Study the feasibility of nursing assessment, nursing diagnosis, and development evaluation of teaching plans for caregiving activities for parents and infants in the NICU

APPENDIX A

TEXAS WOMAN'S UNIVERSITY

Human Research Committee

Name of Investigator: Linda R. Parker Center: Dallas

Address: 1422 Moran Drive Date: June 5, 1978

Dallas, Texas 75218

Dear Ms. Parker:

Your study entitled Territorial Behaviors in Nurses Working in Neonatal Intensive Care Units and the Effect on Social Interaction has been reviewed by a committee of the Human Research Review Committee and it appears to meet our requirements in regard to protection of the individual's rights.

Please be reminded that both the University and the Department of Health, Education and Welfare regulations require that written consents must be obtained from all human subjects in your studies. These forms must be kept on file by you.

Furthermore, should your project change, another review by the Committee is required, according to DHEW regulations.

Sincerely,

Geraldine M. Goosen

Chairman, Human Research
Review Committee
at Dallas.

APPENDIX B

THE UNIVERSITY OF TEXAS
HEALTH SCIENCE CENTER AT DALLAS

DEPARTMENT OF PHARMACOLOGY

SOUTHWESTERN MEDICAL SCHOOL
GRADUATE SCHOOL OF BIOMEDICAL SCIENCES
SCHOOL OF ALLIED HEALTH SCIENCES

June 12, 1978

Linda R. Parker
Department of Nursing

Dear Ms. Parker:

The Human Research Review Committee has approved your request for a study entitled "territorial Behaviors in Nurses Working in Neonatal Intensive Care Units and the Effect on Social Interaction." The Committee asks that you make a few changes in your consent form:

1. Although your consent form mentioned that the patient may withdraw from the study it must also contain the statement giving the patient the right not to participate at all without jeopardizing any further medical care. This medical/legal requirement is for your protection, the protection of the institution, and the protection of rights of the research subject.

2. Please assure the privacy of those involved in this study.

The Committee asked me to remind you that both the University and the Department of Health, Education and Welfare regulations require that written consents must be obtained from all human subjects in your studies. Informed consent can only be obtained by the principal investigator or co-investigators listed in your protocal. These consent forms must be kept on file for a period of three years past completion or discontinuation of the study and will no doubt be subject to inspection in the future.

HEW regulations require you to submit annual and terminal progress reports to our Human Research Review Committee and to receive at least annual approval of your activity by this Committee. You are also required to report to this committee any death or serious reactions resulting from your study. Failure to submit the above reports may result in severe sanctions being placed on the Health Science Center.

5323 HARRY HINES BLVD. DALLAS, TEXAS 75235 (214) 688-2266
TEX-AN 833-2266

Furthermore, we have been directed to review any change in your research activity. In other words, should your project change, another review by the Committee is required.

You are reminded that all grant applications and any solicitation of funds must be processed through the office of Grants Management and Development. Funds received as a result of an application having been submitted directly to a granting agency by a faculty member will not be accepted by the institution.

Sincerely,

Andrés Goth, M.D.
Chairman
Human Research Review Committee

kj

APPROVAL PAGE
OFFICE OF GRANTS MANAGEMENT

Required on all applications, contract proposals, requests for support of sponsored activities, and on protocols submitted to the Human Research Review Committee.

1. Activity Title *Territorial Behaviors In Nurses Working in Neonatal Intensive Care Unit and the Effect on Social Interaction*
2. Date *June 8, 1978* 3. Supporting Agency *Texas Woman's University*
4. Activity Director *Linda R Parker* Telephone ______
5. School *TWU- College of Nursing* Department *College of Nursing*

6. Does this activity require or involve the following? (Answer all)

		No	Yes
a.	Additional space, not presently available in the department, alterations and/or renovations (if "YES", underline appropriately)?	✓	
b.	Subcontracting or direction outside UTHSCD?	✓	
c.	Faculty salary? — If "YES", underline one: new positions or support of current positions.	✓	
d.	Generation of potential direct monetary profit to the institution?	✓	
e.	Restrictions on publication of results?	✓	
f.	Activities which involve the community and "social action"?	✓	
g.	Use of radioactive materials or exposure of personnel and/or subjects to radioactivity of any kind including x-rays? If "YES", notify the Radiation Safety Officer, ext. 2250.	✓	
h.	Use of biohazardous materials, i.e., chemical carinogens or mutagens, oncogenic viruses, potentially pathogenic viruses, bacteria, or other microorganisms, etc.? If "YES" notify Biohazards Safety Officer, 2250.	✓	
i.	Use of new drugs (FDA-IND)? — If "YES", underline appropriately: Phase I Phase II Phase III Phase IV	✓	
j.	Additional bioinformation resources?	✓	
k.	Use of experimental animals? — If "YES", attach completed OGM Form 6.	✓	
l.	Use of personnel or material resources of another institution? If "YES", describe on separate sheet and attach hereto.	✓	
7.	Does this activity involve the use of humans as subjects?		✓

If response is "YES", indicate appropriate action:

_✓_ This activity has not been previously approved for use of human subjects. Completed OGM Form #2 is appended for initial review.

____ This activity was approved for use of human subjects on ______. Completed OGM Form #3 is appended for continuing review.

Linda R Parker
ACTIVITY DIRECTOR

Tommie L. Wallace
DEPARTMENT CHAIRMAN

Nature of activity:

______ This activity conforms to the Regents' Rules and Regulations and the Chancellor's memorandum dated September 15, 1971.

______ This activity does not conform to the Regents' Rules and Regulations. A waiver is requested for reasons stated on attached sheet.

APPROVED: ______ ______
OFFICE OF GRANTS MANAGEMENT PRESIDENT OR DEAN

The University of Texas Health Science Center at Dallas
OGM Form #1 (Revised January, 1976)

INITIAL REVIEW OF THE USE OF HUMAN SUBJECTS

STATEMENT BY PRINCIPAL INVESTIGATOR OR ACTIVITY DIRECTOR

The University of Texas Health Science Center at Dallas Policy on Protection of Human Subjects requires that all activities involving human subjects, irrespective of source of funds, but directed by or involving faculty, other employees and students of UTHSCD, must have prior approval of the Human Research Review Committee.

---

1. Activity Title Territorial Behaviors in Nurses Working in Neonatal Intensive Care Unit and the Effect on Social Interaction
2. Activity Director Linda R. Parker
3. School Texas Woman's University Department College of Nursing
4. Source of Funds Private 5. Telephone ________
6. Location of Activity Neonatal ICU 7. Date Submitted June 8, 1978

---

8. Append **one** copy of a research protocol, grant application, or other scientific document detailing this activity. You should include 12 copies of a brief summary of the approach and objectives of this scientific project which is specific in how the project relates to the use of human subjects.

9. The UTHSC policy on Projection of Human Subjects states:

   "An individual is considered to be "at risk" if he may be exposed to the possibility of harm -- physical, psychological, sociological, or other -- as a consequence of any activity which goes beyond the application of these established and accepted methods necessary to meet his needs (i.e. standard and recognized procedures that have diagnostic, therapeutic, or prognostic value). The determination of when an individual is at risk is a matter of the application of common sense and sound professional judgment to the circumstances of the activity in question."

   a. Are the human subjects in this activity "at risk"? [✓ YES] ____NO
   (Such risks may vary from minor to major depending on the research activity involved.)

   b. If the subject is "at risk", describe how you will obtain informed consent. Attach a statement in layman's language which the subject will be asked to read or which will be read to him and which will be attached to OGM Form #4. The latter form should be completed for each subject and maintained in your files.

   c. Is this activity limited to the use of organs, tissues, body fluids, and other materials obtained by physicians other than the investigator in the course of the routine performance of diagnosis and treatment? ____YES [✓ NO]

   d. Will the investigator be directly involved in the performance of such routine diagnostic or treatment procedures? ____YES [✓ NO]

   e. Identify all procedures to be used which go beyond the application of standard and recognized diagnostic, or therapeutic procedures, or have prognostic value. For each such procedure identified, describe the potential risks or discomfort to the human subject and indicate the safeguards you will employ. (Use additional page if necessary.)

10. To weigh the direct or potential benefit of this activity against the inherent risk to the individual, the institutional committee requires brief and concise answers to the following questions:

a. What specific information will this activity provide, and what is the significance of that information? See purposes on attached page. The potential implications of the study will be to enhance understanding and facilitate relationships between the nurse and family in the environment in which they function.

b. Could this information be obtained from animals or other laboratory models?
___YES _✓_NO Explain.

c. Are there alternative ways to acquire this information in human subjects that may avoid the risks identified in question 9.e? ___YES _✓_NO If "YES", please explain why the alternatives are not being used.

d. Does this activity involve any of the following?

	YES	NO
Normal subjects	✓	✓
Inmates of penal institutions		✓
Inmates of mental institutions		✓
Minor children	✓	
Aged		✓
Emotionally disturbed or others incapable of informed consent		✓

Are these subjects being offered any incentives for their participation? If "YES", please describe that incentive. ___YES _✓_NO

e. Does this activity involve the use of radioactive isotopes in vivo? If "YES", attach completed RSF-01 (Radioisotope Form) to be obtained from the Office of Radiation Safety or Grants Management. ___YES _✓_NO

f. Indicate what, if any, health benefits may accrue to each of the following:
The human subject involved –
None known

Individuals who are not subjects but who may have similar problems –
None known

Signature: Linda R Parker
Principal Investigator or Activity Director

Signature: Tommie L. Wallace
Department Chairman

APPENDIX C

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE PARKLAND MEMORIAL HOSPITAL

GRANTS TO LINDA R. PARKER

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

Territorial Behaviors in Nurses Working in Neonatal Intensive Care Units and the Effect on Social Interaction.

The conditions mutually agreed upon are as follows:

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

Date 6/5/78

Tommie L Wallace
Signature of Faculty Advisor

Linda R Parker
Signature of student

4/4/78
Signature of Agency Personnel

*Fill out and sign three copies to be distributed as follows: Original - Student; first copy - agency; second copy - TWU University.

APPENDIX D

THE UNIVERSITY OF TEXAS
HEALTH SCIENCE CENTER AT DALLAS
Southwestern Medical School

DEPARTMENT OF PEDIATRICS

5323 HARRY HINES BOULEVARD
DALLAS, TEXAS 75235
TELEPHONE (214) 688-3111

July 17, 1978

Linda R. Parker, R.N., B.S.N.
1422 Moran Drive
Dallas, Texas 75218

Dear Ms. Parker:

I have reviewed your Masters' Degree proposal on "Territorial Behaviors in Nurses Working in Neonatal Intensive Care Units and the Effect on Social Interaction". As Dr. Tyson noted, the problem addressed is of great interest to those of us involved with the care of the sick neonate, and should provide information relative to the stresses that nurses undergo and how they react to them. I believe that the problem you are concerned with is well addressed, but you should be made aware that there are factors which you will not be able to control, some of which you have alluded to. For instance, will you observe more than the day shift in order to evaluate the problem under discussion? It is quite evident that attitudes and levels of anxieties are probably quite different during each shift, especially in view of the fact that the level of activity within the Neonatal Intensive Care Unit decreases somewhat. It is also true that there is less teaching during this time, thus the nursing staff working permanently on the evening and night shifts may be different in their ability to cope than those during the day shift. In view of this particular problem, I would suggest, as Dr. Tyson did, that you consider increasing your sample size so that you might actually be able to look specifically at at least two of the three nursing shifts. I would also agree with his suggestion that sub-groups may be important variables, and thus evaluating certain particular groups of infants may make the study somewhat more easy to carry out. In fact, I would suggest a doubling of the size of your study.

As I mentioned before, I think that your study could be an exciting one and should provide interesting information with respect to nursing care, particularly their response to the patient and parent. If I can be of any further help, please do not hesitate in contacting me.

Sincerely yours,

Charles R. Rosenfeld, MD

Charles R. Rosenfeld, M.D.
Associate Professor of Pediatrics
and Obstetrics and Gynecology

Medical Director of Nurseries
Parkland Memorial Hospital

CRR:rt

THE UNIVERSITY OF TEXAS
HEALTH SCIENCE CENTER AT DALLAS
Southwestern Medical School

DEPARTMENT OF PEDIATRICS

5323 HARRY HINES BOULEVARD
DALLAS, TEXAS 75235
TELEPHONE (214) 688-3111

June 28th, 1978

Linda R. Parker, R.N., B.S.N.
1422 Moran Drive
Dallas, Texas 75218

Dear Linda:

I have scanned your Masters' degree proposal, "Territorial Behaviors in Nurses Working in Neonatal Intensive Care Units and the Effect on Social Interaction". The area which you address is a very interesting and important area which has received very little attention. Factors which affect the interaction between nurses, physicians and parents undoubtedly have a major effect on the quality of care given the infants. I applaud your efforts for trying to gather information about these issues.

My major reservation about the design of the study is that I believe what you define as territorial behaviors will be affected by a very large number of variables other than those recorded as Nurse Demographic Data and Infant Demographic Data - For example, the number of seriously ill babies in the Unit, the number of nurses working in the Unit, the total number of previous visits to the Unit, the quality of her previous interaction with the nurse with whom she's observed, her understanding of her infant's condition and her expectations for the infant's outcome. Each of these variables can have a major effect upon what you observe. As you are well aware, your presence as an observer in the Unit may also have a major effect. So that you may get information which is more easily interpreted, it may be possible and desirable to minimize this variability by restricting your observations to sub-groups of infants (e.g. ventilator-treated infants weighing more than 1000 grams for whom survival is expected) and mothers (e.g. women who received pre-natal care observed on their first visit when the nurse-patient interaction is most extensive). Even so the sample size which you have selected may be too small, and I think the selection of your sample size is an important concern in the design of this project.

Linda R. Parker, R.N., B.S.N.

page 2

Before attempting to start this project, I think that you should discuss its' feasibility with Nancy Hendricks who is our Patient Care Coordinator for the 7th floor nurseries. I have passed on the copy of your proposal to Dr. Rosenfeld, and I'm sure that you can pick it up from our office within a short period of time.

Please let me know if I can be of any help.

Sincerely,

Jon

Jon E. Tyson, M.D.
Assistant Professor of Pediatrics
and Obstetrics and Gynecology

mg

THE UNIVERSITY OF TEXAS
HEALTH SCIENCE CENTER AT DALLAS
Southwestern Medical School

DEPARTMENT OF PEDIATRICS

5323 HARRY HINES BOULEVARD
DALLAS, TEXAS 75235
TELEPHONE (214) 688-3111

July 18, 1978

MEMORANDUM

To: Nancy Henley, R.N.
Nursing Administration
Parkland Memorial Hospital

From: Charles R. Rosenfeld, M.D.
Medical Director of Nurseries
Parkland Memorial Hospital

Subject: Masters' Thesis and Research - Linda R. Parker, R.N.

I have reviewed with Dr. Tyson the proposed study entitled "Territorial behaviors in nurses working in Neonatal Intensive Care Units and the effect on social interaction" submitted by Linda R. Parker, R.N., graduate student at Texas Women's University, Dallas, Texas. Dr. Tyson and I concur that the study can be carried out in our Neonatal Intensive Care Unit. We have made recommendations to Ms. Parker with respect to her study, and have suggested that she give a copy of the study to Ms. Hendricks, our Nursing Coordinator for that unit, and that she discuss it with her prior to the onset of the study.

If there are any foreseeable problems, please contact me.

CRR:rt

cc: Linda R. Parker, R.N.
Jon E. Tyson, M.D.

APPENDIX E

NURSE INFORMATION FORM

To: NICU Nurses

FROM: Linda Parker, R.N.
TWU Graduate Student

SUBJECT: Consent to act as a subject for research and investigation

To fulfill a research requirement for a Master of Science degree in Nursing, I am trying to determine if nurses working in a NICU influence interactions between infants and their parents through verbal and non-verbal modalities. Information from this study will be used to explore means to improve communication between parents and nursing staff and also to help facilitate relationships between high-risk infants and their families.

I would appreciate your assistance in this study. You will be asked to:

1. Allow the investigator to observe interactions between consenting nurse-parent/infant pairs

2. Complete a demographic data form about the length of employment in your present unit, years of nursing experience, education, sex, race, and age

3. Complete a standardized scale whose primary purposes are to measure and predict how an individual acts in interpersonal sitautions

4. Complete a short Infant Demographic Data Form following each nurse-parent/infant interaction observed

5. Complete a brief section on the Infant Demographic Data Form regarding the nurse's perception of each interaction in which she is involved

The nurses and infant/parents will be numerically coded. Neither your identity nor that of the infant/parent will be revealed in the study. Results of the data will be made available if you provide me with a stamped, self-addressed envelope. I will be glad to answer any additional questions you may have about the study.

If you agree to participate in this research, please read and sign the attached consent form. You may withdraw from the study at any time if you so desire.

Thank you for your cooperation and time.

Linda Parker

APPENDIX F

NURSE CONSENT FORM

Consent to Act as a Subject for Research and Investigation:

I have received an oral and written description of this study, including a fair explanation of the procedures and their purpose, any associated discomforts or risks, and a description of the possible benefits. An offer has been made to me to answer all questions about the study. I understand that my name will not be used in any release of the data and that I am free to withdraw at any time.

Signature Date

Witness Date

Certification by Person Explaining the Study:

This is to certify that I have fully informed and explained to the above named person a description of the listed elements of informed consent.

Signature Date

Position

Witness Date

APPENDIX G

NURSE DEMOGRAPHIC DATA FORM

Age______ Sex______

Employment: Check appropriate space

GN_____ LVN/LPN_____ RN_____ Unlicensed staff___

Marital Status: Single__ Separated__ Divorced__ Married__

Education: Check appropriate space for nursing program completed.

_____LVN/LPN School

_____Diploma

_____Masters

_____Associate Degree

_____Baccalaureate

_____Other (specify type and length of study)

Experience: Please write answer in space provided.

__________Number of years practicing nursing

__________Length of time working in any Neonatal ICU

__________Length of time working in PMH's Neonatal ICU (round to the nearest half of year)

__________Position held in the Unit (Head Nurse, Assistant Head Nurse, Charge Nurse, Staff Nurse)

Ethnic Background: Which of the following best describes your ethnic background?

_____Black

_____American Indian

_____European American

_____Oriental American

_____Latin American

_____Other (specify)

Religious Affiliation: How would you describe your religious affiliation?

_____Fundamentalist

_____Morman

_____Greek Orthodox

_____Lutheran

_____Jewish

_____Congregationalist

_____Christian Scientist

_____Other

_____Pentecostal

_____Baptist

_____Roman Catholic

_____Methodist

_____Presbyterian

_____Episcopalian

_____None

APPENDIX H

FIRO-B SCALES

(1977 Edition by Will Schutz, Ph.D.)

Directions: This questionnaire explores the typical ways you interact with people. There are no right or wrong answers.

Sometimes people are tempted to answer questions like these in terms of what they think a person should do. This is not what is wanted here. We would like to know how you actually behave.

Some items may seem similar to others. However, each item is different, so please answer each one without regard to the others. There is no time limit, but do not debate long over any item.

For each statement below, decide which of the following answers best applies to you. Place the number of the answer in the box at the left of the statement. Please be as honest as you can.

1. never	2. rarely	3. occasionally
4. sometimes	5. often	6. usually

_____ 1. I try to be with people.

_____ 2. I let other people decide what to do.

_____ 3. I join social groups.

_____ 4. I try to have close relationships with people.

_____ 5. I tend to join social organizations when I have an opportunity.

_____ 6. I let other people strongly influence my actions.

_____ 7. I try to be included in informal social activities.

_____ 8. I try to have close, personal relationships with people.

_____ 9. I try to include other people in my plans.

1. never 2. rarely 3. occasionally
4. sometimes 5. often 6. usually

____ 10. I let other people control my actions.

____ 11. I try to have people around me.

____ 12. I try to get close and personal with people.

____ 13. When people are doing things together, I tend to join them.

____ 14. I am easily led by people.

____ 15. I try to avoid being alone.

____ 16. I try to participate in group activities.

For each of the next group of statements, choose one of the following answers:

1. nobody 2. one or two people 3. a few people
4. some people 5. many people 6. most people

____ 17. I try to be friendly to people.

____ 18. I let other people decide what to do.

____ 19. My personal relations with people are cool and distant.

____ 20. I let other people take charge of things.

____ 21. I try to have close relationships with people.

____ 22. I let other people strongly influence my actions.

____ 23. I try to get close and personal with people.

____ 24. I let other people control my actions.

____ 25. I act cool and distant with people.

1. nobody 2. one or two people 3. a few people
4. some people 5. many people 6. most people

_____ 26. I am easily led by people.

_____ 27. I try to have close, personal relationships with people.

_____ 28. I like people to invite me to things.

_____ 29. I like people to act close and personal with me.

_____ 30. I try to influence strongly other people's actions.

_____ 31. I like people to invite me to join in their activities.

_____ 32. I like people to act close toward me.

_____ 33. I try to take charge of things when I am with people.

_____ 34. I like people to include me in their activities.

_____ 35. I like people to act cool and distant toward me.

_____ 36. I try to have other people do things the way I want them done.

_____ 37. I like people to ask me to participate in their discussions.

_____ 38. I like people to act friendly toward me.

_____ 39. I like people to invite me to participate in their activities.

_____ 40. I like people to act distant toward me.

For each of the next group of statements, choose one of the following answers:

1. never 2. rarely 3. occasionally
4. sometimes 5. often 6. usually

_____ 41. I try to be the dominant person when I am with people.

_____ 42. I like people to invite me to things.

_____ 43. I like people to act close toward me.

_____ 44. I try to have other people do things I want done.

_____ 45. I like people to invite me to join their activities.

_____ 46. I like people to act cool and distant toward me.

_____ 47. I try to influence strongly other people's actions.

_____ 48. I like people to include me in their activities.

_____ 49. I like people to act close and personal with me.

_____ 50. I try to take charge of things when I'm with people.

_____ 51. I like people to invite me to participate in their activities.

_____ 52. I like people to act distant toward me.

_____ 53. I try to have other people do things the way I want them done.

_____ 54. I take charge of things when I'm with people.

APPENDIX I

CONSENT FOR AN INFANT AND PARENT TO ACT AS A SUBJECT FOR RESEARCH AND INVESTIGATION

I have been informed by Linda Parker, R.N., of her study about observing how nurses and infants and parents communicate with each other by watching activities when parents visit their children. I give Linda Parker permission to:

1. Observe activities in the neonatal intensive care unit between myself and nurses during my/our infant's hospitalization

2. To obtain information from my/our infant's chart about his/her condition

3. Agree to complete an information form about myself and how I feel after seeing the baby in the intensive care unit

4. I know I can withdraw from the study at any time

5. I understand that the possible risks of this study include the improper release of information and that the care of my child will not be effected in any way.

Parent	Date	Relationship
Parent	Date	Relationship

Witness	Date

Information from the research will be made availwble upon request following completion of the study.

APPENDIX J

PARENT DEMOGRAPHIC DATA FORM

OBS # ____________________ # (X) ____________________

Code # ____________________ Date ____________________

Relat ____________________

Please fill in the blanks with the information requested.

Marital status: Single__ Separated__ Divorced__

Married__

1. How many times have you/your wife been pregnant? _____
2. How many live babies have you/your wife had? __________
3. Please write in the blank the last grade or year of school you finished. ____________
4. Will you be the primary person taking care of the baby when he/she goes home? Yes_____ No_____
5. If the answer to the above question is "no," please write the relationship of the person who will take care of the baby for you in the blank. ______________
6. I usually visit my baby (check appropriate response)

   _____Several times a day
   _____Two or three times a week
   _____Once a week
   _____Once a day
   _____Four or six times a week
   _____Other (specify)

7. Which of the following best describes your ethnic background?

   _____ Black
   _____American Indian
   _____European American
   _____Oriental American
   _____Latin American
   _____Other (specify)

8. How would you describe your religious affiliation?

_____Fundamentalist
_____Morman
_____Greek Orthodox
_____Lutheran
_____Jewish
_____Congregationalist
_____Christian Scientist
_____Other

_____Pentecostal
_____Baptist
_____Roman Catholic
_____Methodist
_____Presbyterian
_____Episcopalian
_____None

9. How many years of formal education have you completed?
____

10. What is the highest educational degree that you have obtained?_______________

11. (If applicable) Can you give the exact title of the job you had before you stopped working because of your pregnancy?____________________

12. (If applicable) Does your spouse work?
Yes_____ No_____

13. (If applicable) Can you give the exact title of his/her job?_________________________

APPENDIX K

INFANT DEMOGRAPHIC DATA FORM

OBS #____________________ # (X) __________________________

Code #___________________ (N) Code #_____________________

Date_____________________

Please fill in the blanks with the information requested.

Infant's name____

Gestational age (weeks)______________________________________

Birth weight (grams)____

Date of birth____

Age (in days) when admitted to NICU__________________________

Number of days in NICU_______________________________________

Major complications (describe briefly)________________________

____

____

____

____

____

____

APPENDIX L

NURSE INTERACTION FORM

Code #________________ Date____________________________

To be answered by nurse involved in an interaction.

Directions: For each statement below, decide which of the following answers best applies to you following this interaction. Place the number of the answer in the space to the left of the statement. Please be as honest as you can.

(6) Agree very strongly (5) Agree strongly (4) Agree
(3) Disagree (2) Disagree strongly
(1) Disagree very strongly

____ 1. I let the parent participate in caregiving activities such as changing the diapers, or feeding (or holding the gavage tube).

____ 2. I encouraged the parent to touch and talk with their infant.

____ 3. I talked to the parent about the infant as soon as he/she entered the Unit (patient care area).

____ 4. I think the parent understands the infant's condition.

____ 5. I did things I could have allowed the mother to do.

____ 6. I let other nurses help me take care of this infant readily.

____ 7. I feel like I helped this parent feel more secure in this situation.

____ 8. I feel like the nursery is my territory.

____ 9. I am strongly attached to this infant.

____ 10. I feel my clinical load for today is heavy.

____ 11. I think this infant is going to survive.

General Information:

1. Have you taken care of this infant before today?

   Yes_____ No_____

2. If yes to question (1), mark approximately how many days (eight-hour shifts) you have cared for this infant.

   1-3_____ 4-6_____ 7-9_____ 10-12_____

   13-15_____ 16-18_____ 19-21_____

   more than 21 days_____

3. Is this infant on a ventilator or under O_2?

   Yes_____ No_____

4. Is this infant under phototherapy?

   Yes_____ No_____

5. Was it feeding time for this infant during the interaction?

   Yes_____ No_____

APPENDIX M

PARENT INTERACTION FORM

For each statement below, decide which of the following answers best applies to you. Place the number of the answer in the box at the left of the statement. Please be as honest as you can.

(6) Agree very strongly (5) Agree strongly
(4) Agree (3) Disagree (6) Disagree strongly
(1) Disagree very strongly

_____ 1. I helped care for my baby by changing his/her diaper, or feeding (holding the feeding tube).

_____ 2. I touched and talked to my baby when I visited him/her.

_____ 3. The nurse talked to me about my baby as soon as I came into the nursery.

_____ 4. I understand how sick my baby is.

_____ 5. I think the nurse does things for the baby I could help do.

_____ 6. I am frightened by the baby.

_____ 7. I feel better after talking with the nurse.

_____ 8. I feel like I am intruding when I go into the nursery.

_____ 9. I think my baby is going to live.

APPENDIX N

EXPLANATION OF NURSE-PARENT/INFANT INTERACTION FORM

The Nurse-Parent/Infant Interaction Data Collection Form is an ordering of five categories of activities which occur or could occur in the process of an interaction between the nurse and the parent/infant dyad in the NICU. Within each category are specific activities or situations to be marked if they are appropriate to that interaction and whether the nurse or parent is the active individual. Interaction data were recorded the first twenty second of each one-minute period by the investigator.

The first column following the list of activities is headed by a (✓) check. This column is to be marked if during the particular interaction the activity or situation is applicable. This column will be marked once. Columns headed "N" and "P" refer to the nurse or parent, respectively, and will be marked every twenty seconds by the investigator. The activity or situation must exist at the timed interval set. The "Fx" column is a tally column for use during statistical analysis.

A. Activity level in NICU

1. Number of infants--the total number of infants in the patient care area receiving care.
2. Number of nurses--the maximum number of nurses providing care during the observed interaction.
3. Number of staff--the maximum number of medical and other supportive staff members present in the NICU's patient care area.
4. Number of visitors--the maximum number of parents or individuals not directly responsible for providing care in the NICU.
5. Number of people--the maximum number of people and infants in the NICU's patient care area.

B. Entries

1. Time began--the time of day/evening the interaction began is recorded in this space. The time began is when the parent enters the door of the patient care area. If the parent has been met by the nurse in the nursing station area, time began will be recorded when the parent enters the patient care area. If the observer is unable to determine who initiated the interaction, the interaction will not be included in the study.

2. Time ended--the time recorded when the parent leaves the patient care area or a verbal exchange or gesture accompanies a parent's exist from the unit.

3. Total time--the difference in minutes between time began and time ended. This number reflects the length of the entire interaction between the nurse and parent/infant dyad. This number does not reflect the recorded time in each interaction.

4. OBS #--(observation number) the total number of the interaction observations. For investigator's use.

5. Code #--
    a. (N)--the assigned number for the identity of the nurse involved in the interaction
    b. (P)--the assigned number for the identify of the parent of the parent/infant dyad
    c. (I)--the assigned number for the identify of the infant of the parent/infant dyad

6. Date--the date the observation of the nurse parent/infant interaction was completed.

C. Greeting

1. Acknowledges entrance--
    a. Verbal--any form of speech or sound which is directed toward one member of the nurse-parent/infant pair by the other member for the purpose of making one's presence known.

   b. Non-verbal--any gesture, movement, or sign utilized to communicate an acknowledgement of another individual's presence (i.e., head nod, raised hand, eye contact).

2. Initiated by--the person who first acknowledges or begins the interaction process.

3. Approaches--physically moves to gain proximity to the other in the nurse-parent/infant interaction.

D. Termination--the closing of conversation which ends the visit to the infant.

   1. Initiated by--the individual who begins the termination of the interaction.

   2. Asked to leave--nurse requests the parent to leave and explanation marked under category E.

   3. Leaves
      a. Verbal--parent communicates with speech he/she is leaving.
      b. Non-verbal--any gesture, sign of closure or parent leaves unit without any verbal or non-verbal communication with the nurse.

E. Caregiving activities which could be altered for the parent.

   1. Phototherapy--the persence of bilirubin reduction light on the infant. This assumes the presence of eye pads for protection to the structures of the eye. This is to be scored according to who removes the eye pads and turns the lights off during the visit.

   2. Diaper changes--the removal and replacement of diapers, padding, or bedding directly underneath the infant.

   3. Holding feeding tube; possible feeding--identification of a feeding period using periodic oral gastric or nasogastric, or bottlefeeding methods. This is to be scored according to who performs the activity or if an explanation is provided to the mother about how the infant is feeding.

4. Removing infant from Isolette or Ohio--the removal and replacement of an infant into and out of Isolettes, Ohios, or open cribs. Infants on oxygen, ventilators, centreal arterial or venous lines are not excluded. Infants on phototherapy, monitors, or peripheral intravenous fluids are to be included in this category.

5. Bath--wash face, bottom, arms--any form of cleansing, wiping or application of oil or lotion to the skin of the infant. Particularly involves following a stool, void, feeding, or procedure.

6. Hold site of stick (arterial, venous, IM, or IV)--compression of any injection site or site from which blood has been withdrawn.

7. Obtaining articles which are accessible to parent (diaper, cottonballs, blankets)--the utilization of parents in providing some items located within reach for basic caregiving needs.

F. Activities during interaction

1. Touches infant--any skin-to-skin contact between parent and infant or nurse and infant. This does not include activities or required procedures by the nurse.

2. Closest to infant--the individual whose proximity to the infant is closest.

3. Speaks to infant--talks to infant.

4. Holds infant--holding infant partially raised or completely raised from bed.

5. Looks at other infants--parent walks to see other infants in the NICU or sits/stands close to own infant but watches other infants.

6. Corrects for observing other infants--nurse brings parent's attention to parent's own infant. Reprimands or otherwise states parent is to visit his/her infant only.

7. Nurse present--nurse standing at bedside with parent.

8. Speaking--initiates question/statement; answers question/statement.

9. Silence--both nurse and parent present, but neither speaking.

10. Touches other--any deliberate contact--skin-to-skin or skin-to-clothing between the nurse and parent.

11. Position--
    a. Gaze--direction in which parent is looking in relation to infant.
    b. Stance--sitting, standing by infant's bed.

G. Activities which may interrupt interaction

1. X-ray.

2. L-P/Blood Culture.

3. Routine lab stick.

4. Arterial stick.

5. Physician's rounds.

6. Sudden demise.

7. Suctioning.

8. Re)starting IV.

9. Intubation.

10. Other conversation.

11. Other (specify).

NURSE--PARENT/INFANT INTERACTION DATA COLLECTION FORM

A. 1. Number of infants____________
2. Number of nurses____________
3. Number of staff____________
4. Number of visitors____________
5. Number of people____________

B. 1. Time began:____________
2. Time ended:____________
3. Total time:____________
4. OBS #____________
5. Code #____________
a. (N)____________
b. (P)____________
c. (I)____________
6. Date____________

Categories	✓	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		FX	
		N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P		
C. GREETING (Time:)																																	
1. Acknowledges entrance Verbal																																	
Nonverbal																																	
2. Initiated by																																	
3. Approaches																																	
D. TERMINATION (Time:)																																	
1. Initiated by																																	
2. Asked to leave																																	
3. Leaves																																	
a. Verbal																																	
b. Nonverbal																																	
E. CAREGIVING ACTIVITIES WHICH COULD BE ALTERED FOR PARENT																																	
1. Phototherapy																																	
2. Diaper changes																																	
3. Holding feeding tube Possible feeding																																	
4. Removing infant from Isolette or warmer																																	
5. Bath--wash face,bottom,arms																																	
6. Hold site of stick (arterial, IM or IV)																																	
7. Obtaining articles which are accessible to parent (diaper cotton balls, blanket)																																	

		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15			
Categories	√	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	EX	
F. ACTIVITIES DURING INTERACTION																																	
1. Touches infant																																	
2. Closest to infant																																	
3. Speaks to infant																																	
4. Holds infant																																	
5. Looks at other infants																																	
6. Corrects for observing other infants																																	
7. Nurse present																																	
8. Speaking																																	
a. Initiates question																																	
b. Answers question																																	
9. Silence																																	
10. Touches other																																	
11. Position																																	
a. Gaze																																	
b. Stance																																	
G. ACTIVITIES WHICH INTERRUPT INTERACTION																																	
1. X-ray																																	
2. L-P/Bl culture																																	
3. Routine Lab/Stick																																	
4. Arterial stick																																	
5. Physicians' rounds																																	
6. Sudden demise																																	
7. Suctioning																																	
8. (Re) starting IV																																	
9. Intubation																																	
10. Other conversation																																	
11. Other																																	

APPENDIX O

COMMITTEE OF EXPERTS' CREDENTIALS

1. R.N.

   Charge Nurse, NICU
   4 years experience in NICU

2. M.D.

   Chief of Staff of Pediatrics, Newborn and Intensive Care Nurseries
   Board certified Neonatalogist

3. M.D.

   Assistant Director of Pediatrics, Newborn and Intensive Care Nurseries
   Board certified Neonatologist

4. Ph.D.

   Professor of Social Psychology and Psychology
   BA - 1967 Indiana University
   MA - 1968 Indiana University
   Ph.D. - 1973 University of Wisconsin

APPENDIX P

TABLE 18

SUMMARY OF NURSE DEMOGRAPHIC DATA

Demographic Data	Nurse										Number	Percent	Mean (Years)	Range
	1	2	3	4	5	6	7	8	9	10				
Age (Years)													27	21 - 38 years
21 - 25	x	x				x	x	x	x		6	60		
26 - 30				x							1	10		
31 - 35			x		x						2	20		
36 - 40										x	1	10		
Sex														
Male											0	0		
Female	x	x	x	x	x	x	x	x	x	x	10	100		
Education														
LVN/LPN										x	1	10		
Diploma			x	x	x						3	30		
Associate degree											0	0		
Baccalaureate degree	x	x				x	x	x	x		6	60		
Master's degree											0	0		
Religious affiliation														
Baptist								x			1	10		
Church of Christ											0	0		
Methodist		x	x			x					3	30		
Presbyterian									x		1	10		
Roman Catholic											0	0		
Pentecostal										x	1	10		
Hindu					x						1	10		
None	x			x							2	20		
Not marked							x				1	10		
Marital status														
Single		x				x	x		x		4	40		
Separated											0	0		
Divorced	x			x							2	20		
Married			x		x			x		x	4	40		
Experience														
Number years in nursing													4.5	3 months-13 years
<1 year					x		x	x	x		4	40		
1 - 4		x									1	10		
5 - 8	x										1	10		
9 - 12			x	x							2	20		
13 - 16						x					1	10		
Number years in NICU													2.7	2 months-9 years
<1 year		x				x	x	x	x		5	50		
1 - 2	x										1	10		
3 - 4			x		x						2	20		
5 - 6										x	1	10		
7 - 8											0	0		
9 - 10				x							1	10		
Number years in Parkland Memorial Hospital NICU													2	2 months-5 years
<1 year						x	x	x	x		4	40		
1 - 2	x	x									2	20		
3 - 4			x	x	x						3	30		
5 - 6										x	1	10		
7 - 8											0	0		
9 - 10											0	0		
Position														
AHN											0	0		
Charge		x									1	10		
Staff	x		x	x	x	x	x	x	x	x	9	90		

TABLE 19

YEARS OF NURSING EXPERIENCE

Years in Nursing	Number	Percent
< 1	4	40
1 - 4	1	10
5 - 8	1	10
9 - 12	2	20
13 - 16	1	10
Unknown	1	10
Total	10	100

N = 10
Mean (Years) = 4.5
Range (Years) = .25-13

TABLE 20

YEARS OF NEONATAL INTENSIVE CARE EXPERIENCE

Years Experience	Number	Percent
NICU (All Agencies)		
< 1	5	50
1 - 2	1	10
3 - 4	2	20
5 - 6	1	10
7 - 8	0	0
9 - 10	1	10
Total	10	100
Mean (Years) = 2.7 Range (Years) = .17-9		
Parkland Memorial Hospital NICU		
< 1	4	40
1 - 2	2	20
3 - 4	3	30
5 - 6	1	10
7 - 8	0	0
9 - 10	0	0
Total	10	100
Mean (Years) = 2 Range (Years) = .17-5		

N = 10

TABLE 21

JOB POSITION IN NEONATAL INTENSIVE CARE UNIT

Job Title	Number	Percent
Assistant head nurse	0	0
Charge	1	10
Staff	9	90
Total	10	100

N = 10

TABLE 22

EDUCATIONAL BACKGROUND OF NURSES

Type of Program	Number	Percent
LVN	1	10
Diploma	3	30
Associate degree	0	0
Baccalaureate degree	6	60
Master's degree	0	0
Total	10	100

N = 10

TABLE 23

AGE DISTRIBUTION OF NURSE SAMPLE

Age in Years	Number	Percent
21 - 25	6	60
26 - 30	1	10
31 - 35	2	20
36 - 40	1	10
Total	10	100

N = 10
Mean (Years) = 27
Range (Years) = 21-38

TABLE 24

ETHNIC BACKGROUND OF NURSE SAMPLE

Race	Number	Percent
Black	0	0
Indian	2	20
Latin-American	0	0
White	8	80
Total	10	100

N = 10

TABLE 25

RELIGIOUS AFFILIATION OF NURSE SAMPLE

Religion	Number	Percent
Mormon	0	0
Baptist	1	10
Church of Christ	0	0
Methodist	3	30
Presbyterian	1	10
Roman Catholic	0	0
Pentacostal	1	10
Hindu	1	10
None	2	20
Unknown	1	10
Total	10	100

N = 10

TABLE 26

MARTIAL STATUS OF NURSE SAMPLE

Status	Number	Percent
Single	4	40
Separated	0	0
Divorced	2	20
Married	4	40
Total	10	100

N = 10

APPENDIX Q

TABLE 27

SUMMARY OF PARENT DEMOGRAPHIC DATA

Demographic Data	Parent										Number	Percent	Mean (Years)	Range
	1	2	3	4	5	6	7	8	9	10				
Age (years)													20.0	14 - 29 years
11 - 15		x							x		2	29		
16 - 20				x		x	x			x	4	40		
21 - 25			x		x			x			3	30		
26 - 30	x										1	10		
Education (years)													10.4	7 - 15 years
7 - 8								x		x	2	20		
9 - 10		x							x		2	20		
10 - 12	x				x	x	x				4	40		
13 - 14											0	0		
15 - 16			x								1	10		
Unknown				x							1	10		
High school	x		x		x		x				4	40		
General education						x					1	10		
College											0	0		
None		x		x				x	x	x	5	50		
Job before pregnancy														
Mother (see [a] for occupation)														
Spouse work														
Not applicable	x	x		x		x	x		x	x	7	70		
Yes			x		x			x			3	30		
No											0	0		
Title (see [b] for title)														
Ethnic background														
Black	x	x	x	x	x	x			x		7	70		
Indian											0	0		
Latin American											0	0		
White							x	x		x	3	30		
Religious affiliation														
Mormon								x			1	10		
Baptist		x	x	x		x	x		x		6	60		
Church of Christ											0	0		
Methodist	x										1	10		
Presbyterian											0	0		
Roman Catholic											0	0		
Pentecostal					x						1	10		
Hindu											0	0		
None											0	0		
Other										x	1	10		

TABLE 27--Continued

Demographic Data	Parent 1	2	3	4	5	6	7	8	9	10	Number	Percent	Mean (Years)	Range
Marital status														
Single		x		x		x	x		x	x	6	60		
Separated	x										1	10		
Divorced											0	0		
Married			x		x			x			3	30		
Number of pregnancies														
1		x	x				x			x	4	40		
2				x					x		2	20		
3					x	x		x			3	30		
4	x										1	10		
Number of live births														
1		x	x				x		x	x	5	50		
2				x		x					2	20		
3	x				x			x			3	30		
4											0	0		
Primary caregiver														
Yes	x	x	x	x	x	x	x	x	x	x	10	100		
No											0	0		
Visits/week														
Several/day		x	x	x	x			x			5	50		
2-3/week	x					x			x		3	30		
1/week											0	0		
4-6/week											0	0		
1/day							x			x	2	20		
Other											0	0		

[a] Occupations for mother: (1) none, (2) high school student, (3) EKG technician student, (4) employee for fast-food chain, (5) none, (6) dietary aide, (7) optical company customer service, (8) none, (9) high school student, (10) concession stand.

[b] Job title for spouse: (3) security guard student, (5) warehouse work, (8) truck driver.

TABLE 28

AGE DISTRIBUTION OF PARENT SAMPLE

Age (Years)	Number	Percent
11 - 15	2	20
16 - 20	4	40
21 - 25	3	30
26 - 30	1	10
Total	10	100

N=10
Mean (Years) = 20
Range (Years) = 14-29

TABLE 29

EDUCATIONAL LEVELS OF PARENT SAMPLE

Number of Years Formal Education	Number	Percent
7 - 8	2	20
9 - 10	2	20
11 - 12	4	40
13 - 14	0	0
15 - 16	1	10
Unknown	1	10
Total	10	100

N = 10
Mean (Years) = 10.4
Range (Years) = 7-15

TABLE 30

HIGHEST EDUCATIONAL DEGREE OBTAINED BY PARENT SAMPLE

Degree Obtained	Number	Percent
High School	4	40
Government Equivalence Degree	1	10
College*	0	0
None	5	50
Total	10	100

N = 10
*One parent is a junior in an upper division college.

TABLE 31

EMPLOYMENT PRIOR TO PREGNANCY

	Number	Percent
Mother		
Employed*	7	70
Unemployed	3	30
Total	10	100
Father/husband		
Employed	3	30
Unemployed	0	0
Not Applicable	7	70
Total	10	100

N = 10

*Two parents included who were full-time students. See Appendix for further information.

TABLE 32

ETHNIC BACKGROUND OF PARENT SAMPLE

Race	Number	Percent
Black	7	70
Indian	0	0
Latin-American	0	0
White	3	30
Total	10	100

N = 10

TABLE 33

RELIGIOUS AFFILIATION OF PARENT SAMPLE

Religion	Number	Percent
Mormon	1	10
Baptist	6	60
Church of Christ	0	0
Methodist	1	10
Presbyterian	0	0
Roman Catholic	0	0
Pentecostal	1	10
Hindu	0	0
None	0	0
Unknown	0	0
Other	1	10
Total	10	100

N = 10

TABLE 34

MARITAL STATUS OF PARENT SAMPLE

Marital Status	Number	Percent
Single	6	60
Separated	1	10
Divorced	0	0
Married	3	30
Total	10	100

N = 10

TABLE 35

GRAVIDITY OF PARENT SAMPLE

Number of Pregnancies	Number	Percent
1	4	40
2	2	20
3	3	30
4	1	10
Total	10	100

N = 10
Mean = 2.1
Range = 1-4

TABLE 36

PARITY OF PARENT SAMPLE

Number of Live Births	Number	Percent
1	5	50
2	2	20
3	3	30
4	0	0
Total	10	100

N = 10
Mean = 1.6
Range = 1-3

TABLE 37

PRIMARY CAREGIVER OF PARENT SAMPLE

Parent Primary Caregiver	Number	Percent
Yes	10	100
No	0	0
Total	10	100

N = 10

TABLE 38

ESTIMATED VISITS PER WEEK BY PARENT SAMPLE

Number of Visits	Number	Percent
Several/day	5	50
1/day	2	20
4-6/week	0	0
2-3/week	3	30
1/week	0	0
Total	10	100

N = 10

APPENDIX R

TABLE 39

SUMMARY OF INFANT DEMOGRAPHIC DATA

Demographic Data	Infant										Number	Percent	Mean	Range
	1	2	3	4	5	6	7	8	9	10				
Gestational age (weeks)													32	26-28 to 42-43
26 - 28	x									x	2	20		
29 - 30			x			x		x			3	30		
31 - 32		x							x		2	20		
33 - 34				x							1	10		
35 - 36							x				1	10		
37 - 38											0	0		
39 - 40											0	0		
41 - 42											0	0		
43 - 44					x						1	10		
Size for age														
Preterm SBA			x	x		x	x				4	40		
PAGA	x	x						x	x	x	5	50		
PLGA											0	0		
TSGA											0	0		
TAGA											0	0		
TLGA											0	0		
PTSGA											0	0		
PTAGA					x						1	10		
PTLGA											0	0		
Birth weight (grams)														
500-749			x								1	10		
750-999	x					x					2	20		
1000-1249				x				x		x	3	30		
1250-1499		x							x		2	20		
1500-1749											0	0		
1750-1999							x				1	10		
2000-2249											0	0		
2250-2499											0	0		
2500-2749											0	0		
2750-2999											0	0		
3000-3249					x						1	10		
3250-3499											0	0		
Age (in days) when admitted to NICU	----All Newborn----										10	100		4 hours-birth
Number days in NICU when observed													6.3 days	1 - 22 days
1				x				x			2	20		
2					x		x			x	3	30		
3									x		1	10		
4											0	0		
5			x								1	10		
6 - 10	x										1	10		
11 - 15											0	0		
16 - 20		x									1	10		
21 - 25						x					1	10		

TABLE 40

GESTATIONAL AGE OF THE INFANT SAMPLE

Gestational Age (Weeks)	Number	Percent
26 - 28	2	20
29 - 30	3	30
31 - 32	2	20
33 - 34	1	10
35 - 36	1	10
37 - 38	0	0
39 - 40	0	0
41 - 42	0	0
43 - 44	1	10
Total	10	100

N = 10
Mean (Weeks) = 32
Range (Weeks = 26-43

TABLE 41

SIZE FOR AGE OF INFANT SAMPLE

Size*	Number	Percent
PSGA	4	40
PAGA	5	50
PLGA	0	0
TSGA	0	0
TAGA	0	0
PTSGA	0	0
PTAGA	1	10
PTLGA	0	0
Total	10	100

N = 10

*Lubchenco (1976) classification of newborns by birth weight and gestational age.

TABLE 42

BIRTH WEIGHT OF INFANT SAMPLE

Weight (Grams)	Number	Percent
500 - 749	1	10
750 - 999	2	20
1000 - 1249	3	30
1250 - 1499	2	20
1500 - 1749	0	0
1750 - 1999	1	10
2000 - 2249	0	0
2250 - 2499	0	0
2500 - 2749	0	0
2750 - 2999	0	0
3000 - 3249	1	10
3250 - 3499	0	0
Total	10	100

N = 10
Mean (Grams) = 1344
Range (Grams) = 650-3085

TABLE 43

CHRONOLOGICAL AGE OF INFANT SAMPLE AT TIME OF INTERACTION OBSERVATION

Age (Days)	Number	Percent
1	2	20
2	3	30
3	1	10
4	0	0
5	1	10
6 - 10	1	10
11 - 15	0	0
16 - 20	1	10
21 - 25	1	10
Total	10	100

N = 10
Mean (Days) = 6.3
Range (Days) = 1-22

APPENDIX S

TABLE 44

INDIVIDUAL RESULTS OF NURSE-PARENT/INFANT INTERACTION TOOL

Categories	Nurse/Parent Dyad																				Number		Percent		Mean	Range
	1		2		3		4		5		6		7		8		9		10							
	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent		
Number of infants	7		4		3		7		6		7		4		7		3		7		55				5.5	3-7
Number of nurses	4		1		1		3		4		7		2		4		1		4		31				3.1	1-7
Number of staff	1		0		1		0		0		5		3		3		1		1		15				1.5	1-5
Number of visitors	0		0		0		0		0		2		0		0		0		0		2				0.2	0-2
Number of people	12		5		5		10		10		21		9		14		5		12		103				10.3	5-21
Shift #1									x		x		x				x				4		40			
#2	x		x		x		x								x				x		6		60			
Total time	19		45		20		22		14		30		55		16		28		10		259				25.9	10-45
Greeting																										
Acknowledge entrance																										
Verbal[a]	x		x		x		x		x		x		x	x	x		x		x		9		90			
Nonverbal																										
Initiated by[b]	x		x		x		x		x		x		x	x	x		x		x		9		90			
Approaches[c]		x		x		x	x	x		x		x		x		x		x	x		1	8	10	80		
Termination																										
Initiated by[d]	x					x		x		x		x		x		x		x		x	1	7	10	70		
Asked to leave		x		x																x		3		30		
Leaves																										
Verbal[e]						x				x		x		x		x		x						60		
Nonverbal																				x		1		10		
Caregiving activities which could be altered for parent[fg]																										
Phototherapy	NA		NA		NA		x		NA		NA		x		✓		x		x							
Diaper change	x		NA		x		NA		x		x		NA		NA		x		NA							
Holding feeding tube Possible feeding	x		NA		NA		NA		NA		NA		NA		NA		x		NA							
Removing infant from Isolette or warmer	x		x		x		x		x		x		x		x		x		x							
Bath--wash face, bottom, arms	x		x		x		x		x		x		✓		x		x		x							
Hold site of stick (arterial,IM or IV)	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA							
Obtaining articles which are accessible to parent (diaper, cotton balls, blanket)	x		x		x		x		x		x		x		x		x		x							

TABLE 44--Continued

	Nurse/Parent Dyad																				Number		Percent		Mean	Range
	1		2		3		4		5		6		7		8		9		10							
	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent		
Activities which interrupt interaction[h]	19		20		20		20		14		20		20		15		20		10							
Touches infant	3	3	1	14	2	20	2	11	6	3	1	20	6	16	2	5	5	1	3	8						
Closest to infant[i]	2	0	0	17	0	18	3	16	6	6	0	20	9	8	3	11	10	6	1	6						
Speaks to infant	0	0	0	0	1	12	0	0	0	3	0	1	0	3	0	0	0	0	0	3						
Holds infant	0	0	0	0	0	9	0	0	1	0	0	0	0	12	0	0	0	0	0	0						
Looks at other infants	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0						
Corrects for observing other infants	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Nurse present	4		5		8		9		12		2		12		11		14		7							
Speaking	1	1	5	0	3	2	8	5	5	6	2	2	11	12	7	3	14	10	5	3						
Initiated question	1	0	0	0	1	1	5	0	2	5	1	1	5	2	1	0	4	3	1	1						
Answers question	0	1	0	0	1	1	2	5	5	2	1	1	2	5	2	1	3	3	1	1						
Silence																										
Touches other	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0						
Position																										
·___[j]					2																					
·⊔[k]	3	18						20		14		20			1	1	7	1								
⊔[l]	1	1													10	14		9								
⊔·[m]							12		11		2															
—·—[n]			5	20	6	20							12	19			14	20								
Gaze																										
Nurse																										
Baby	1	15	2	11	1	16	2	8	5	11		11	1	7	4	14	1	4	3	9						
Baby/parent	1		3		2		2		1				9		5		3									
Parent	1				3		3		3		2		2		2		3									
Around	1				2		1		2																	
Other							3						2				5		4							
Other/parent																	2									
Parent/around																	1									
Parent																										
Baby/other				1		1												2								
Baby/nurse				2		1		4		1				10		1		2								
Nurse						1		2		2				2						1						
Around		2		1								3		1				2								
Other		2																1								
Baby/around				5		1		6				6	1				2	9								
Around/nurse																		1								
Other/nurse																		1								
Stance																										
(↑) Standing	4	0	5	2	8	0	11	20	12	9	2	20	12	8	11	15	19	1	7	10						
(ᒧ) Sitting	0	19	0	18	0	20	0		0	5	0	0	3	12	0	0	0	19	0	0						
(S) Squatting													1													

TABLE 44 --Continued

Category	Nurse/Parent Dyad																								Mean	Range
	1		2		3		4		5		6		7		8		9		10		Number		Percent			
	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent	Nurse	Parent		
Activities which interrupt interaction																										
X-ray	x																				1		10			
LP/Blood culture																					0		0			
Routine lab/stick													x								1		10			
Arterial stick															x						1		10			
Physicians' rounds			x								x						x				3		30			
Sudden demise			x																x		2		20			
Suctioning																					0		0			
(Re)starting IV																					0		0			
Intubation																					0		0			
Other conversation	x				x						x		x		x		x				6		60			
Other	x				x		xx								x		x		x		7		70			
#/Interaction	3		2		2		2		0		2		2		3		3		2						2.1	0-3
General information																										
Previous care																										
Yes	x				x						x								x		4		40			
No			x				x		x				x		x		x				6		60			
If yes, shifts																										
1-3					x						x								x		3		30			
4-6	x																									
Ventilator/O_2																										
Yes	x		x				x		x		x				x		x		x		8		80			
No					x								x								2		20			
Phototherapy																										
Yes							x						x		x		x		x		5		50			
No	x		x		x				x		x										5		50			
Feeding time																										
Yes	x																x				2		20			
No			x		x		x		x		x		x		x				x		8		80			

[a] 2 delayed, 1 simultaneous.

[b] 1 simultaneous approach.

[c] 1 mutual approach.

[d] 2 physicians initiated.

[e] 3 asked to leave

[f] Detailed information given in table 11.

[g] √ = activity occured; x = not occurred, but could have.

[h] Detailed information given in table 13.

[i] In addition, 20 cases were equidistant

[j] Located at end of Isolette.

[k] Located on right side of radiant heat warmer.

[l] Located at foot of radiant heat warmer.

[m] Located on left side of radiant heat warmer.

[n] Located in front of Isolette.

APPENDIX T

TABLE 45

FIRO-B SCORES FOR NURSES

Scale	1	2	3	4	5	6	7	8	9	10
Mean										
e^I	5	1	5	7	8	8	6	3	8	7
w^I	6	7	1	5	8	9	7	0	7	6
e^C	0	0	0	5	6	2	1	0	2	5
w^C	3	2	1	5	3	1	2	3	5	0
e^A	0	3	3	1	8	7	6	3	9	3
w^A	4	6	5	1	7	8	6	5	8	8
Sums (Σ) Within Need Areas (e+w) and Overall										
Σ^I	11	8	6	12	16	17	13	3	15	13
Σ^C	3	2	1	2	9	3	3	3	7	5
Σ^A	4	9	8	10	15	15	12	8	17	11
Σ	18	19	15	24	40	35	28	14	39	29
Differences (d) Within Need Areas (e-w) and Overall										
d^I	-1	-6	4	2	0	-1	-1	3	1	1
d^C	-3	-2	-1	0	3	1	-1	-3	-3	5
d^A	-4	-3	-2	0	1	-1	0	-2	1	-5
d	-8	-11	-1	2	4	-1	-2	-2	-1	1

APPENDIX U

TABLE 46

NAMES AND SYMBOLS FOR FIRO-B SCALES

	Expressed Behavior	Wanted Behavior
Inclusion	e^I I make efforts to include other people in my activities and to get them to include me in theirs. I try to belong, to join social groups, to be with people as much as possible.	w^I I want other people to include me in their activities and to invite me to belong even if I do not make an effort to be included.
Control	e^C I try to exert control and influence over things. I take charge of things and tell other people what to do.	w^C I want others to control and influence me. I want other people to tell me what to do.
Affection	e^A I make efforts to become close to people. I express friendly and affectionate feelings and try to be personal and intimate.	w^A I want others to express friendly and affectionate feelings toward me and to try to become close to me.

Taken from: W. Schutz. 1967. The FIRO-B Scales Manual. Palo Alto: Consulting Psychologist Press, Inc., p. 5.

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