VOCAL AND BODILY COMMUNICATION BY WOMEN IN LABOR

by

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TABLE OF CONTENTS

TABLE OF CONTENTS--Continued

TABLE OF CONTENTS--Continued

LIST OF FIGURES

Figure Page

Figure Page

Figure Page

LIST OF TABLES

ABSTRACT

This exploratory study was designed to determine the observable behaviors of women in Stage I labor as segments of communication and their occurrence by phase. Ten normal healthy women, expecting vaginal delivery, were observed. Data was recorded for 3,868 behaviors and subsequently coded into six discrete communication categories which arose from the data themselves.

The resulting catalog of labor behaviors observable in normal circumstances is presented by communication category and phases of Stage I from most frequently to least frequently observed.

CHAPTER 1

BACKGROUND OF THE STUDY

Introduction

As any nurse who has ever observed a woman in labor can tell you, the woman's behavior pattern is altered as childbirth nears. It has generally been observed that a woman increasingly moves and manipulates her body as labor progresses (e.g., turns from side to side, flexes and extends legs, arches the back, or rubs face and forehead). At the same time, the frequency of her verbalization either escalates intensely or drops off to a complete silence. To the professional, these behavioral changes are so expected in labor and are so commonly accepted as rough guideposts to the woman's progress that experienced midwives are frequently heard to say of their client, without benefit of vaginal examination and on the basis of observation alone, "She looks like she's about ready." Clearly, a woman's behaviors communicate something to the labor and delivery professional.

Ethnologist Edward Sapir, in the last century, said that "gestures are in secret code that is written nowhere, known by none, and understood by all (Birdwhistell, 1970, p. 182)." This well sums up the present situation

regarding women's observed behaviors and their clinical applicability to the nursing process: their occurrence is commonly utilized for assessment purposes, but insufficiently defined in the literature. That the professional is often aware of and able to recognize certain behaviors of clients typical of a certain phase of labor is not the issue. Rather, the lack of documentation prevents the use of observed behaviors in theory and practice for determining safe and acceptable parameters of labor behaviors for the improvement of care.

In watching countless labors, I have had the opportunity to observe the behaviors of women with wide variations in sociocultural factors (e.g., socioeconomic class, ethnicity, different degrees of preparation) choosing very different labor managements (from Twilight Sleep to completely unmedicated). The casual observer may interpret behavior that is seen to be insignificant or simply "how women act in labor." But over a period of time, the experienced clinician can observe a slender thread of similarity in verbal and nonverbal behaviors in the majority of women throughout their labor, almost as if choreographed. So much so, in fact, that where the pattern is absent or exaggerated, the labor and delivery nurse suspects complications instinctively.

Since a scientific base is needed for nursing practice, my interest grew in determining if the behaviors

one could expect to observe during the process of labor in women could be codified and made explicit as communication. What do women say as they labor? Do they really verbalize less as labor progresses? To whom are words addressed and regarding what, and do these change in frequency from phase to phase?

It is not only words, but the unique use of the body during labor that is the continuing source of questions. Do women really increase the use of their bodies as labor progresses? Are there certain body movements more prevalent in one phase of labor than in others? Might a certain motion appear in only one phase and in none other? Are these behaviors generalizable to all women? If so, one could hypothesize that a pattern of defined behavior might eventually be identified when, if observed in the individual woman, would indicate to her caregivers that the childbearing experience was on course for a satisfying outcome. On the other hand, the absence or exaggeration of these behaviors in a certain phase would alert the nurse that reassessment and intervention were indicated immediately to prevent a negative outcome, either physiologically or psychologically. It seemed that the goal of improved care would make the describing and classifying of women's behavior a worthwhile endeavor.

Because all behavior in the presence of others is defined as communication, I began thinking more and more in

terms of classifying the behavior by communication categories of vocal and bodily rather than by categories of behavior of verbal and nonverbal. This was a turning point in my approach to the research. Obviously, the women's statements constituted communication. However, accepting bodily laboring behavior as communication introduced new questions and the exciting possibility that women may be using their "body language" to continue to communicate with the outside world when labor has become too exhausting for verbalizing needs. This long-noted inability to verbalize as labor progresses has been assumed to occur automatically at a certain point of each woman's labor, and the phenomenon has been referred to in such ways as "withdrawing," "a drawing into the self," or "narcissism" (Standley and Nicholson, 1980), and means that as labor progresses toward childbirth, it becomes increasingly more difficult to communicate with the woman.

Based on observation of women in labor, Deutsche (1945, p. 228) stated that "the increased internal stimuli in labor so reduces the woman's capacity for receiving external impressions, that the woman's communication is reduced solely to matters directly connected with the birth process." How unlike the adaptable human organism to cut itself off from the world during so critical a time to the species for survival and where vulnerability is so great!

I began to wonder if the body assumes the full responsibility for sending and receiving messages via behaviors after the power to verbalize is reduced or fails. It seems reasonable that although many bodily behaviors observed may be physiological responses to factors such as fatigue and discomfort, other bodily behaviors could have potentially interpretive value as messages of the woman's needs.

Intuitively aware of this silent and "secret code," perceptive caregivers seem to know or "get a feeling" when the client has encountered trouble with labor, but has not verbalized distress. It well may be that the laboring woman does indeed continue to send her messages through bodily channels of communication. All that remains for the communication to be effective is for someone to receive it and understand its significance. The first step toward this goal and the subject of this study is to determine what kinds of behaviors actually occur in Stage I labor.

Significance of the Problem

Determining the observable behaviors of women during labor is the foundation to understanding how women are sending their messages of need. More accurate receiving of messages by caregivers can result in laboring women's needs being more effectively met.

The labor and delivery nurse, with the knowledge that laboring women communicate needs through their

behaviors, both vocally and bodily, to caregivers: (1) can observe and recognize a change in behavior which communicates the woman is experiencing a critical time, and (2) can intervene and meet the need appropriately because of improved assessment at the turning point. The woman's response is a restoration of coping, resulting in a reported positive childbearing experience by the woman.

Therefore, it is necessary to observe laboring women and to describe their behaviors. This knowledge can serve as a foundation for assessing and meeting women's needs during a vulnerable period when usual methods of self-expression are functioning inadequately or ineffectually because of the impact of labor.

Statement of the Problem

This study was to determine the observable behaviors of women in Stage I labor as segments of communication and their occurrence, assuming that behaviors are vehicles of communication.

Purpose of the Study

The purpose of this exploratory study was to observe laboring women and to describe their vocal and bodily behaviors according to phases of labor, and then to classify these behaviors by categories. (No attempt was made to interpret the meaning of behaviors.)

Questions raised for consideration in this study were:

1. Within the environment, with whom or what, and about what do laboring women communicate, either through vocalization or bodily behavior?
2. Are there phases of Stage I labor wherein women are more vocal?
3. Are there phases of Stage I labor wherein women use more bodily communication?
4. Are there similar communications by all laboring women which can then be categorized by phases of Stage I labor?
5. Are certain categories of communication more prevalent in different phases of Stage I labor, either vocal or bodily?

Definition of Terms

1. Communication: the sharing of information through the use of signals or messages in the form of ideas or feelings (Murray and Zentner, 1975, p. 45).
   a. Segment: a separate piece of the communication complex (Webster's, 1979).
   b. Cue: a signal, as a word, phrase, or action, which serves a purpose (Webster's, 1979).

c. Vocal: communication channel involving transmission of human voice in language or paralanguage.

d. Bodily: "body language"--communicating without vocalization, using body areas (Argyle, 1975).

2. Behavior: all the activity of a human being that is capable of being observed by another person (Kyes, 1974).

3. Labor: the physiological process by which the fetus is expelled from the uterus (Taber, 1973).

a. Stage I: period from onset of regular contractions of the uterus until the cervix is fully dilated.

(1) Phase 1 ("Latent"): from the onset of labor progressing to 3 centimeters cervical dilation.

(2) Phase 2 ("Active"): from 3 centimeters cervical dilation progressing to 8 centimeters dilation.

(3) Phase 3 ("Transition"): from 8 centimeters dilation progressing to 10 centimeters or "complete" dilation, and the beginning of Stage II.

b. Stage II: period of complete dilation of the cervix through the birth of the fetus.

c. Stage III: period from the birth of the fetus through expulsion of the placenta and membranes.

4. Environment: the conditions and influences affecting the life and development of an organism, internal and/or external (Murray and Zentner, 1975, p. 149).

5. Stimulus: any agent or factor able to influence living protoplasm directly, as one capable of causing muscular contraction or secretion in a gland, or of initiating an impulse in a nerve; a change of environment of sufficient intensity to evoke a response in an organism (Thomas, 1973).

   a. External: arising or acting from the outside, as hospital sounds, sights, or odors, presence of doctor and nurse, etc.

   b. Internal: present or arising from within the organism, as contractions, anxiety, or pain.

Conceptual Orientation

The concepts which were considered to have bearing on behavior in labor as communication included the effects of internal and external environmental stimuli, coping with labor, need gratification, and communication behavior.

Effects of Internal and External Environmental Stimuli

Childbirth is comprised of varied psychosocial, cultural, and physiological events and is not simply a situation of the single stimulus of pain (Standley and Nicholson, 1980). These ongoing internal and external changes have a potential of evoking a response in the organism (Thomas, 1973), causing an impact on how the woman communicates during labor and her coping abilities.

Coping With Labor

Coping ability in labor is reflected by the woman's behaviors (Clark and Affonso, 1979, p. 368), the extremes of which may even result in the interference with or facilitation of the labor itself. There can never be a single "correct" style of coping with labor, as each woman's individual life style and expectations are key variables in determining what will be most adaptive behaviorally for her (Colman and Colman, 1978).

Need Gratification

In considering the importance of meeting women's needs in labor, Maslow (1968), in his theory of a hierarchy of basic needs, believes that need gratification results in internal states of pleasure and joy which are derived from fulfillment and the inner satisfaction of goal attainment (Clark and Affonso, 1979, p. 58). Fulfillment brings to

the individual the feelings that she can cope with the environment, of competency, and of capability of handling situations as they arise (Zborowski, 1969). When needs are not gratified, humans tend to feel lonely, friendless, rejected, fearful, anxious, or depressed (Fuerst and Wolff, 1974, p. 102).

Communication Behavior

The word communication comes from the Latin verb communicare, "to make common, share, participate, or impart." Communication establishes a sense of commonness with another and permits the sharing of information, signals, or messages in the form of ideas and feelings (Murray and Zentner, 1975, p. 45). All behavior in the presence of others is communication, and all communication affects behavior.

Psychological equilibrium requires that the individual have adequate means for communication with others and for self-expression (Nordmark and Rohweder, 1975, p. 352). Communication takes place between individuals in a variety of ways. In order to be used effectively, symbolic or nonverbal communication must be mutually understood. Many factors influence how the message is sent and whether, how, and by whom it will be received (e.g., the needs and condition of both the sender and the receiver emotionally, physically, and intellectually, the occasion

or setting, and the sender's knowledge about the relationship with the receiver). The receiver, in turn, perceives, interprets, and responds to the message. If the message sent does not result in a response or feedback from the receiver, there has been no communication (Murray and Zentner, 1975).

Research on communication in animals has found that animals use signals similar to those used by humans (facial expressions, posture, varied tones of voice, directions of gaze, and changes in bodily coloring), thus providing important evidence about the evolutionary origins of nonverbal/bodily communication (Birdwhistell, 1979). Communication is used to sustain family relationships, to express emotional states, to send information about the self, and to send information about the outside world (Argyle, 1975).

Humans cannot totally conceal emotion and, therefore, emotions that are denied expression in one channel find another outlet (Mehrabian, 1972). Communication occurs simultaneously on different levels of consciousness, ranging from full awareness to out of awareness (Hall, 1966, p. 4). This explains why, if vocal expression (negative or positive) is discouraged, it is conveyed less deliberately through bodily behaviors. Through "body language," the moving or positioning of the body or some portion of it, a person is able to convey what he either cannot or

will not verbalize (Murray and Zentner, 1975). Bodily communication is often the reliable index of the real meaning of what is being communicated, regardless of what is spoken, because people are generally unable to exert as much conscious control over bodily communication as they are over their words (Birdwhistell, 1970). A manuscript of a conversation is a very poor substitute and description of what really happened, and those who view interaction as merely an exchange of the words fail to appreciate what interaction really is (Soucie, 1979, p. 209).

In this study, these concepts were considered to contribute to the ways in which women communicate in labor.

Communication Classifications for the Study

The following classifications of communication for use in observing, recording, ex post facto coding, and data analysis were selected through trial observation of women in labor and a literature search of communication theory (Figure 1).

1. Vocal: the channel of communication involving human voice transmission (Danziger, 1976, p. 57).
    a. Language: a verbalized message; message-sending through actual use of words.
    b. Paralanguage: human voice transmission without the use of words or speech.

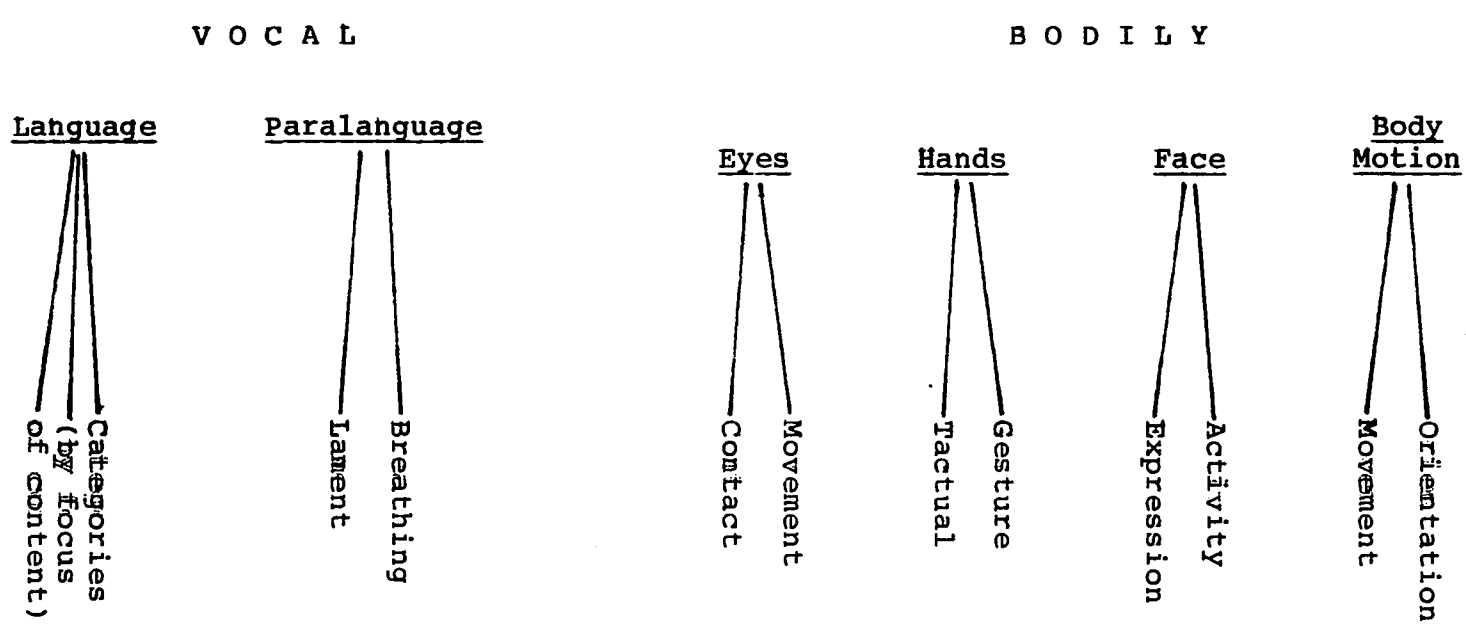

Figure 1. Communication classifications to be used for coding of observed behaviors by women in Stage I labor

(1) Lament: vocal sounds, cries, screams, moans, grunts, sniffling, wails, etc.

(2) Breathing: drawing in of air and the expelling from lungs actively and with a distinct pattern of depth, speed, rhythm, with mouth open/closed.

2. Bodily (Argyle, 1975): the channel of communication involving the moving or positioning of the body or some portion of it to convey message.

a. Eyes: eye behavior consisting of either movement of eyes or eye contact.

(1) Contact: eyes purposefully directed at a person or object--a maintained eye gaze.

(2) Movement: shift of eye musculature or position--an expression (e.g., lid flutters, winks, tears).

b. Hands: hand behavior consisting of either tactual or gesture.

(1) Tactual: application of the hand/hands directly to a person, object, or self (passively or actively).

(2) Gesture: hand behavior with expressive significance (e.g., waves goodbye, a raised fist).

c. Face: facial behavior consisting of either expression or activity.

(1) Expression: Tension of musculature.

(2) Activity: useful, purposeful movement

d. Body Motion: body behavior consisting of either movement or orientation.

(1) Movement: rearrangement of body parts.

(2) Orientation: general, overall position in relationship to others.

Limitations

Limitations in this study are as follows:

1. This study is limited to the communication of English-speaking American women.
2. The sample was not homogeneous because of its size and the variety of ethnicity of the subjects.

Assumptions

The following assumptions were made by the investigator:

1. Behavior in labor is an attempt to communicate.
2. The subjects communicate needs both vocally and/or bodily.
3. The physiological mechanisms of the subjects' labors are similar, since they were all healthy and delivering normally without complications.

4. The observer's constant attendance in the labor room did not affect communication
5. Parity does not affect communication in labor.

Summary

In this chapter, it has been shown that women's behaviors in labor are observable and provide information for assessment of needs by the labor and delivery nurse. Women's labor behavior is affected by environmental stimuli, coping mechanisms, communication patterns, and gratification of needs.

CHAPTER 2

REVIEW OF LITERATURE

This review of literature includes: (1) the effects of environmental stimuli on laboring behavior, (2) studies of laboring behaviors, (3) communication theory, (4) the significance of specific body areas as channels of communication, and (5) the methodology of grounded theory.

The Effects of Environmental Stimuli on Laboring Behavior

The organic site of behavior is the brain (Reinecke, 1980, p. 8). The central nervous system receives stimulation from sensory organs (the eyes, ears, nose, and skin) and provides the organism with information about the external environment, which consists of the place, people, and objects within it. At the same time, stimuli from within the organism, such as pain and anxiety, also feed messages into the central nervous system. On the basis of all this information received, the central nervous system sends messages to the muscles to contract and behavior is the result (Tinbergen, 1965).

The onset of labor in the human female results in messages to the central nervous system that new internal

stimuli are present (e.g., contractions, discomfort). Following soon after, changes in the external stimuli from the environment also occur as the laborer goes to the hospital, is received by doctors and nurses, and is put to bed in a labor room which is unknown to the woman. All this information input from the internal and external environments affect how the woman behaves from moment to moment and must be constantly reevaluated by the brain throughout the dynamic process of labor. These simultaneous adjustments occur within the woman and are an adaptive mechanism referred to as coping (Clark and Affonso, 1979, p. 368) when the woman's demonstrated behaviors facilitate the movement into the next phase of labor. Where there is prolonged or severe stimulation from the environment, the mechanisms for adapting may prove to be unequal to the task (Tinbergen, 1965), resulting in a change in behaviors (maladaptive) and leading to physical and psychological fatigue and interference with the labor itself (Clark and Affonso, 1979, p. 368).

Studies of Laboring Behavior

Women in labor and the application of the term "difficulty in labor" were the subject of an early study of women's behavior (Werts, Gariner, Mitchell, Thompson, and Oliver, 1965) which attempted to correlate clinically observable complaints by women and use of the term

"difficulty" in reference to the subjective labor experience of the women. Werts et al.'s categories chosen to evaluate degree of difficulty in labor included "severity of moaning," "follows instructions," "begs for medication," and "writhes about," require an interpretation by the observer for assignment to a category.

Wiedenbach (1958) arranged psychosocial events typical of Stages I, II, and III labor into phases. Wiedenbach matched physiological characteristics usually present in each phase: (1) to feelings the woman might be having (e.g., "a sense of anticipation," "a growing seriousness," or "eager to be put to sleep,") and (2) to questions the woman might ask and activities she might try to perform (e.g., "try pelvic rocking if back aches," "relax as much as possible," or "have pressure applied to small of back if aches"). Presented in outline form, this information is a pioneer teaching guide, intended for nurses in their support of mothers in labor. How feelings were assigned in this research was not shown, however.

Affonso (Clark and Affonso, 1979, p. 369) has outlined behaviors of women by phases of Stages I and II from the perspective that observed behaviors reflect the woman's degree of coping and are therefore classified as either adequate or less desirable behaviors. These coping behaviors are described and interpreted as to significance

for the labor and laborer and are addressed to the attending nurse for better recognition or assessment of the woman's coping level. Directions are included for nursing interventions according to phase of labor and observed behavior.

From another viewpoint, an American Journal of Nursing programmed instruction on pain in general (1966) presents the notion that observed behaviors are biological reactions to the pain stimulus alone (e.g., "cries for help") (Clark and Affonso, 1979, p. 447).

Richardson's (1979) research divided the behavior of laboring women into four categories (Figure 2): visual, verbal, postural, and tactual. All observed behaviors were interpreted and classified as communicating either a desire for approach or desire for avoidance by the laboring woman for others in the environment. Richardson states that inner tension of pain within an organ "asks for contact" either with the hand or with the external world. This need for comfort and help from another person for the relief of pain would, in that case, lead to approach behavior. On the other hand, chronic and unrelieved pain (interpreted by the laborer as rejection), Richardson reasoned, leads to avoidance behavior and the effort by the woman to limit social contact and unnecessary sources of external stimuli. The investigator found that as labor progressed ("as pain

intensified"), there were dramatic changes in types of behavior. The women increasingly sought contacts with others through verbal and tactual approach behavior (e.g., calling out or grasping). Throughout the three phases of labor in Stage I, verbal and tactual approach behaviors occurred three times more often than avoidance behaviors. Contact, visual, and postural approach behaviors decreased as labor progressed. There was no explanation for the rationale behind the selection of categories and the instrument for observing and recording was not available.

Standley and Nicholson (1980) presented an instrument for the recording of behavioral observations of women in labor. Categories included: contractions, breathing, tension, vocalization, movement, position, and such optional data as event (e.g., "exam"), proximity (e.g., "near"), and conversation content (e.g., "baby") could be included in additional columns. An example of the range from which the observer was to select the behavior observed under the column breathing was: "regular, deep, shallow, pant, push, irregular." The observer could also rate her (the oberver's) perception of the effectiveness of nursing or medical care, and the ability and attempts of the client to cope with labor. This same observation tool was originally presented (Anderson and Standley, 1977) with videotape, to be used as a guide to systematic data observation during active labor.

Richardson	Standley	Angelini	Gustafson
Verbal	Vocal (content)	Verbal	Vocal
Approach			Language
Avoidance	Position	Nonverbal	Paralanguage
		Touch	
Tactual	Movement	Body movement	Bodily
Approach		Facial expression	Eyes
Avoidance	Breathing	Visual	Hands
		"Taking in"	Face
Postural	Event	"Shutting out"	Body motion
Approach	Touch	"Giving out"	
Avoidance	Exam		
	Equipment		
Visual	Etc.		
Approach			
Avoidance	Proximity		

Figure 2. A comparison of research categories for describing behaviors in labor

How to interpret various behaviors when observing women in labor was discussed by Angelini (1978), according to categories of verbal and nonverbal communication. Angelini perceived that the reactions and responses by women could be interpreted as vehicles for message-sending and message-receiving by the laboring woman. For example, with the eyes, a woman can "shut out" stimuli for better control of the situation, "take in" information and activity around her (as in watching the nurse's face when fetal heart tones are auscultated), and "give out" information that a contraction is already starting and for attendants to be ready to help. Other categories included touch, withdrawal, body movement, and vocal quality.

Communication Theory

All behavior in the presence of others is communication, and all communication affects behavior (Murray and Zentner, 1975, p. 47) (Figure 3). How one gestures, postures, dresses, moves, speaks, or even fails to carry out certain behaviors will provide an understandable signal for someone. The very attempt to suppress communication is in itself communication. Any behavior that is observable can serve as an outlet for feeling and is, thus, communicative (Murray and Zentner, 1975). A cue or signal is an element of behavior of an organism, sent to and received by a second organism whose behavior is affected.

Bodily signals have little or no meaning in themselves, but do acquire meaning in particular contexts. It is very difficult to decide whether a particular signal is intended to communicate or not (Argyle, 1975, p. 5).

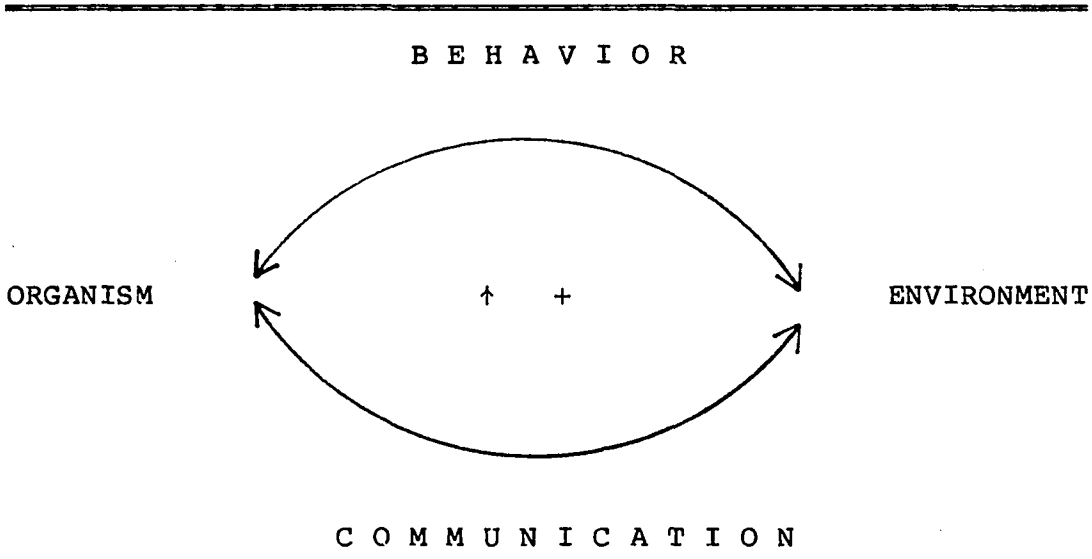

Figure 3. Model for communication patterns

Communication patterns, like other behaviors, are the outcome of a series of transactions between the organism and the environment (Fuller, 1976).

Birdwhistell (1970) has said, "Man is a multisensorial being. Occasionally, he verbalizes." Two-thirds of messages in human interaction are sent through the nonverbal or bodily channel. Even in interactions that involve words, a large proportion of messages are nonverbal. Nonverbal/bodily behavior can repeat, contradict, substitute for, complement, accent, or regulate verbal or

vocal behavior (Veinga, 1978, p. 35). These bodily behaviors provide a massive system of cues as to what the words mean to the person speaking them and are the key to interpreting a message (Brown and Keller, 1973, p. 57). If the nonverbal/bodily message is compatible with what has been said, the message is accepted as an honest one. If the nonverbal/bodily cues conflict with what the words have said, people do not know what to believe about the message because the motives of the other person are not trusted, and the sender lacks credibility.

Communication is used to establish and sustain relationships (e.g., find mates, rear children, defend selves), to express emotional states, and to transmit information about the self and about the outside world (Argyle, 1975, p. 364).

The Significance of Specific Body Areas as Channels of Communication

Language consists of vocalized words: tools or symbols used to express ideas and feelings, or to indicate objects. Words are not the same as the experience but do help shape the experience, communicate facts, convey interpretations, and influence relationships (Murray and Zentner, 1975, p. 50). Animals communicate with each other by means of vocalization without words. Humans vocalize similarly in paralanguage (e.g., laughing, crying, moaning). Certain aspects of vocalization have been found

to express emotions (Ekman and Friesen, 1969), such as speed, loudness, pitch, speech disturbances, and vocal quality. These aspects help humans to interpret the words spoken. Where the voice itself is soft and easy, regardless of words, the message the receiver understands is that she is liked by the speaker; similarly, a stern, harsh voice causes the receiver to feel unliked (Brown and Keller, 1973, p. 66).

The face is the most important bodily signalling area. It is highly expressive and able to send a great deal of information. Biologically, the earliest facial expressions to evolve were intention motions (e.g., showing the teeth) and attempts to see better (e.g., raising brows and opening the eyes wide). These biologically useful expressions became ritualized as social signals in the course of evolution, while the face itself evolved as a communication area (Argyle, 1975, p. 107). It is believed that facial expressions are not controlled by the autonomic system but are linked closely with language and so probably controlled by the same part of the brain which governs language. Facial expression is capable of indicating a wide variety of emotional states about which words can only give hints. They are in part dictated by muscular development, in part by the appearance of the skin, and in part by the bony structure of the skull (Ruesch, 1961). From the

beginning of recorded history, people have been guided in their judgments of others by the observation of facial expressions (Brown and Keller, 1973). A person's smile tells much about whether his or her inner state is tense, reflecting, or mechanical. On the other hand, recent research suggests the showing of teeth in a smile may indicate ingratiation (Argyle, 1975, p. 365). The face is so mobile and so responsive to our moods and perceptions that over a lifetime it forms lines, furrows, planes, and coloration that tells about the individual's stance with life. Within the face, the eyes are the most expressive and informative feature (Argyle, 1975).

People look at each other primarily to collect information rather than to send information (Argyle, 1975, p. 230). The eyes, therefore, are receptors and a means of receiving another's bodily signals. When a person looks at another person, the channel opens (in itself a signal), so that decoding can begin if desired. No feature of the face speaks, then, so much for us as the eyes, poetically known as "the windows of the soul." When middle-class Anglo-Americans are sensitive to and like the other person, they hold eye contact (Brown and Keller, 1973, p. 63). Eye contact occurs when the eyes of both interactors meet. The meaning of eye contact varies depending on the nature of the conversation, the personalities, attitudes being

expressed, the culture, and the emotional state of the two people. Women, more than men, search out the eyes of the other person as they speak and tend to talk less when they cannot see their conversant. This may mean that women more than men depend upon the response of their listener to guide their speech.

Following the face, the next most expressive body channel are the hands, with the use of gestures (Ekman and Friesen, 1969). The hand, as both a tool of learning about the outside world and as an organ of spatial sensibility, can be considered the fundamental vehicle of the structure of thought which imprints the cortex of the brain (Reusch, 1961). Biologically, the hands have evolutionary importance for grasping and manipulating objects or other animals and sending the information to the brain. Use of the hand to touch another with some part of the body or an extension of the body is an outside event that stimulates a response and constitutes communication. The message involved depends on the attitude of the people involved and the meaning of the touch, both to the person touching and the person touched. Touch may potentially convey either physical or psychological assault and the invasion of personal territory and privacy (Murray and Zentner, 1975, p. 54).

Touching seems to have a primitive significance of heightened intimacy (Argyle, 1975, p. 286), although bodily

contact in greetings, ritual, by doctors, or in crowded places is not regarded as sexual. Touching oneself is a kind of emotional equivalent of talking to oneself and may very well be an effort to communicate to self (Ekman and Friesen, 1969). Face-touching gestures may occur when a person is experiencing shame or negative attitudes toward the self. Attitudes toward others may be expressed through the hand when directed toward the bodies of others: hands across the body represent defense; reaching out movements represent moves toward intimacy; and restless movement of hands or legs represents desire for flight (Ekman and Friesen, 1969).

Bodily contact is the most primitive form of social communication and has been found in very simple organisms (Ekman and Friesen, 1969). In humans, a large area of the brain is used to receive messages occurring on the body surface (e.g., patting, slapping, punching, pinching, stroking, kissing, shaking, licking, holding, embracing, kicking, grooming, and tickling). The body as a whole communicates the general tension-relaxation dimension which indicates the strength of whatever emotion is being expressed. Body orientation refers to the angle at which one person faces another and can be considered bodily communication where it is an individual choice. Shifts of body position are used to mark the beginning, the end, and the

main phases of an encounter between two people (Argyle, 1975, p. 311), and are regarded as slower, larger extensions of gestures.

Personal space is the area immediately around the body, and when invaded by another, stress is suggested in numerous gestures (e.g., the head is turned away from the invader, the body is turned away, the body is hunched up). Connected with the concept of territoriality (establishing, invading, and defending it), the biological purpose of this kind of behavior is to control access to food, water, mates, shelter, and safety (Argyle, 1975, p. 313). Hall (1966) noted that each culture has implicit norms regarding the permissible range of proximity between people and designated this range, from the closest distance allowed to the farthest away, as four distinct zones within which people may interact with another under certain circumstances.

Grounded Theory Methodology

The lack of studies defining and cataloging laboring women's behaviors by phase of Stage I labor indicated the need for an inductive methodology. A form of field methodology, grounded theory is the process of generating theory from the data themselves and lends itself well to use in investigations of relatively unresearched areas (Stern, 1980, p. 20) or where a fresh perspective may be needed in a familiar situation.

The process begins with the open-ended collection of empirical data, using techniques of either observation, interview, or document examination. This study collected data through the technique of participant observation (Spradley, 1980, p. 58), a form of naturalistic observation from the discipline of Anthropology. As the data are collected, they are examined for the process, and thereby, a system of coding emerges. Categories are gradually developed from both the clustering of the coded data and clues from a literature search. Concurrently, with the coding and categorization, a tentative conceptual orientation is generated from the data. Grounded theory methodology differs from all other methodologies in that the literature review is used to explain the emerging theory, but the theory is not derived from it. During the next step, the process of reduction, the categories are compared for more clustering or "linkages" (Schatzman and Straus, 1973), until the number of categories are reduced to fewer general categories that are numerically handled more easily. Another literature search takes place and additional data is collected for the development of the hypotheses. These steps are recycled repeatedly during the research process until there is a final review of data for refinement of categories, properties, and hypotheses. The entire data collecting process is guided and controlled by the emerging theory from the data.

Stern (1980, p. 20) has referred to this methodology as a means of "testing the waters," and believes its use unsurpassed for studies where no theory exists and where salient variables have not been identified. Where there are existing studies in the literature, the use of grounded theory makes possible a fresh perspective on the situation, allowing the empirical data to generate the theory rather than basing the study on previous research.

The data collection technique of participant observation has the distinct advantage of providing richer and more in-depth information than would otherwise be possible and better insights into the dynamics of the social situation. There are two potential drawbacks: (1) the observer may become emotionally involved with the subject, thereby allowing bias to enter through loss of objectivity, and (2) the subject's behaviors may be altered as a result of the observer's presence, thereby reducing the validity of the data.

Summary

In this chapter, it has been shown that behavior is the result of combined physiological and psychosocial cultural factors. Studies in the literature relative to laboring behaviors, theory from the field of communication applicable to labor, and the methodology of grounded theory

CHAPTER 3

DESIGN AND METHODOLOGY OF THE STUDY

This chapter discusses design and methodology of this exploratory study and includes descriptions of the sample, the setting, methods of data collection and analysis, reliability and validity, and human subjects consideration.

Sample

The subjects chosen for the study were women admitted to the labor and delivery unit of the hospital in Stage I labor, defined as the process of dilating the cervix to ten centimeters. The head nurse of the unit assisted in the recruitment of subjects by identifying convenient times for observation and by identifying potential subjects to be observed on the basis of the criteria established to reduce uncontrollable variables.

Criteria for selection specified that the subject be normal and healthy and be expecting a normal, healthy outcome of vaginal delivery. In addition, there could be no obvious handicaps to verbal communication, and therefore only English-speaking women were considered for selection. Because awareness of labor sensations affects behavior, women receiving anesthesia in the form of spinal, epidural,

caudal, Twilight, or inhalation were not chosen for observation. However, analgesic medication, intramuscular, or intravenous was acceptable, providing consciousness was maintained. All subjects agreed to participate in the study, thereby allowing the participant-observer in the labor room throughout the subjects' labors. For the convenience sample, ten women met the set criteria.

Setting

This study was conducted in private labor rooms in two separate, urban hospitals. Hospital A was located in a southwestern community while Hospital B was located in the West. Hospital A was a religiously-affiliated institution with an estimated 125 deliveries monthly. Hospital B was a private institution with an estimated 500 deliveries monthly. Both hospitals had staffs which consisted of registered nurses and student professional nurses. Hospital B, in addition, had several medical students and one obstetrical resident. The hospitals were comparable in terms of physical surroundings, medical routines, equipment, comforts offered, socialization to the labor process and hospitalization, and external environmental stimuli (e.g., phones, paging devices, neighboring women's expressions of discomfort, visitors, monitoring equipment, etc.). The floor plan of Hospital A is shown in Figure 4 and of Hospital B in Figure 5.

In regulating visitors to the women in the labor rooms, Hospital B specifically allowed one visitor at a time, usually the father of the child, and a labor coach additionally, if the father was untrained in childbirth breathing and relaxation techniques. Hospital A did not rigidly regulate visitors, adjusting the flow according to the individual laboring woman's condition and coping abilities. There were no windows in Hospital A's labor rooms, whereas Hospital B had windows in all labor rooms, allowing clients a perception of time change. There were clocks in all rooms of both hospitals in working order.

Data Collection

The methodologies used in this study for collecting data included participant observation and chart audit. The time periods for observation of subjects were flexible and adjusted according to each individual woman's initiation and conclusion of labor. To reduce unnecessary environmental stimulation to the subjects, it was arranged with the staff that observations would take place in the evenings and on weekends when students were absent.

After the subject was identified at the hospital, information regarding the subject's general health and obstetrical history, as well as the course of the ongoing labor to that point, were obtained from the staff nurse caring for the woman and from the chart labor record to

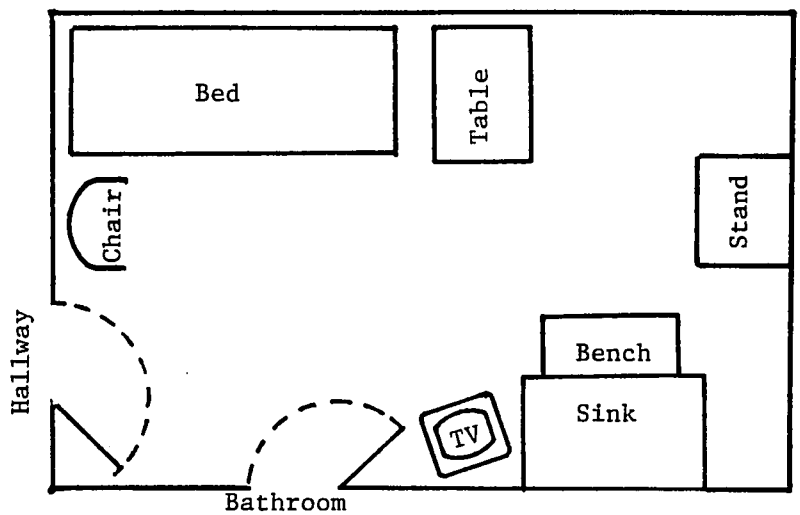

Figure 4. Hospital A floorplan

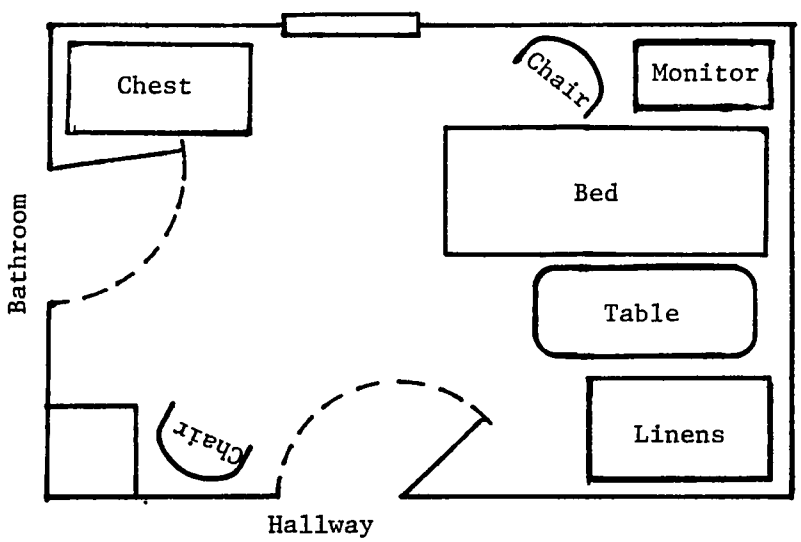

Figure 5. Hospital B floorplan

confirm that the subject met the criteria set for inclusion in the study.

The observer entered the labor room and introduced herself, explained the purpose of the study and how the woman could expect the observation for the study to affect her labor; after which the consent form was read to and signed by the subject. The observer positioned a chair to the far corner of the labor room and was seated with paper and pen. After a few labor-focused verbal exchanges with the woman (e.g., "You certainly handled that last contraction well"), the subject appeared satisfied with the nonthreatening status of the observer, accepting the observer's location and purpose, and returned to her own labor involvement. Interactions occurred periodically throughout Stage I labor, as when an emesis basin was urgently needed, but the observer was not the primary caregiver. The semi-participatory status of the observer was chosen because the giving of care prevents one from being able to observe all the behaviors of the subject. The use of videotape to record behaviors would be superior for reliability but was not available for this study. All vocalization was recorded verbatim, language as well as paralanguage, and all observed body behaviors were recorded in sequence in anecdotal note form with the time. Staff and/or supporting persons' questions or answers to the laboring woman, or

physical interactions (backrubbing, fanning, etc.) with the laboring woman were recorded to improve the reliability of the communication segments' placement into categories in the data analysis. A third group of data consisted of objective information regarding the labor process: cervical status, fetal heart range, contraction pattern, procedures and medications administered, vital signs, and flow of staff and/or support persons in and out of the labor room. These data were also collected so that the woman's communications could be more reliably classified within the context of events occurring in the environment around her.

Data collection ceased when the subject's cervix was completely dilated. Within 24 hours, the labor anecdotal notes were transcribed onto an instrument (Figure 6), totally and in sequence and included: (1) all communication segments of the laboring woman, both vocal and bodily, (2) interactions with staff and/or supporting persons, and (3) the objective and ongoing data concerning the labor process.

Analysis of Data

Following the collection of data and transcription onto the instrument of the three groups of data, the next step was an ex post facto coding of the data describing the communication segments of the laboring woman, both vocal and bodily, according to the channel of communication used

by the woman, for presentation in the behavioral frequency charts. A single occurrence of the behavior was calculated as a frequency of one.

The Verbatim Vocal Communication Frequency Chart was divided into language (spoken words) and paralanguage (vocalized nonlanguage). Behaviors coded and listed as segments of communication transmitted via the language channel were listed in categories of similarly-focused verbalizations. Behaviors coded and listed as segments of communication transmitted via the paralanguage channel were subdivided into two categories: lament (e.g., moaning, screaming) and breathing (e.g., panting, slow and deep) (Figure 7).

The unit of analysis for language and paralanguage began with an inhalation and ended with an exhalation. A moan ("Uh-uh-uh"), for example which consisted of three impulses within a single inhalation-exhalation was calculated as a frequency of one. To assure consistency of analysis, breathing categories' analysis was also calculated as one unit per inhalation-exhalation cycle (e.g., during a contraction where shallow-chest breathing was observed, each "hee" and "hoo" constituted a frequency of one). All verbatim vocal communications were listed according to the phase (latent, active, or transition) of Stage I labor in which they occurred. A single sentence

Name	Age	Date	Age of Last Child	EDC	Breast/Bottle	Classes Y/N
G	P	AB	LVG	ST	Marital: M W D SEP S	BOW: Rupt/Lkg/Intact

		Dil	Eff	St	FHT	V/S	Descr. Contr.	Meds	Support	Compl.	Segments Vocal	Segments Bodily	Onset of Contraction
STAGE	TIME		CX		FHT	V/S	1	2	3	4	V	B	——→
I.	0000	Report and assessment from chart, nurse.									Observer's assessment on entry: Environment People Emotional atmosphere Additional stimuli The subject and her labor		

Objective data regarding labor (key above)

Environmental interactions

Subject's communication behaviors:
V - vocal behavior segments
B - bodily behavior segments

Figure 6. Instrument for transcription of observed anecdotal notes

was a frequency of one ("I hurt, John"), whereas a frequency of two was counted where an exclamation preceded the sentence and according to the predetermined categories ("Oh, my God! I hurt, John").

The Bodily Communication Frequency Chart was divided into four bodily area categories selected for coding and listing of behaviors as channels of communication transmission. These bodily categories were: eyes, hands, face, and body motion. Subcategories for coding of eye behaviors were contact and movement. Subcategories for hand behaviors were tactual and gesture. Subcategories for face behaviors were expression and activity. Subcategories for body motion were movement and orientation. A single segment of bodily communication was analyzed as a frequency of one. For example, "blinks three times" was three frequencies of eyes under the subcategory of movement; a body movement such as "flexes one leg while extending the other leg" was a frequency of one under movement in the body motion category. All bodily behaviors were listed according to the phase (latent, active, or transition) of Stage I labor in which they occurred.

An initial taxonomy for categorization of vocal communication behaviors by Stage I phases was developed and presented.

Figures and tables presented data of: (1) characteristics of the laboring subjects, (2) the ranges of

	Latent	Active	Transition	Total
I. Language				
II. Paralanguage A. Lament B. Breathing				
III. Eyes A. Contact B. Movement				
IV. Hands A. Tactual B. Gesture				
V. Face A. Expression B. Activity				
VI. Body Motion A. Movement B. Orientation				
Frequency Totals: Percentage Totals:				

Figure 7. Communication behaviors in each phase of Stage I labor by frequencies

dilation observed in each subject's labor, (3) the individual women's behaviors by the six categories, (4) the collective behaviors of the sample by the six categories, (5) frequencies by the ten women in each of the six categories, and (6) frequencies and percentages of each of the six categories of behavior for the individual subject and the total sample collectively.

There was no attempt at interpretation of the observed behaviors. Causative factors in the behaviors recorded (e.g., vaginal exam, IV initiation leading to a frequency in certain behaviors, such as moaning or exclamations) could not be addressed in this study but will be analyzed in another segment of this ongoing research leading to eventual interpretation of women's behaviors in labor.

Reliability and Validity

Although the same observer-recorder-transcriber was used for the entire study, lending stability to the data collection, it is well accepted that where observation is the method for data collection, observer bias is a potential source of error. To test the reliability of the technique used, a second rater, experienced in labor and delivery observation, was trained in the principle investigator's technique of recording. A laboring subject was observed simultaneously by the two raters for a ten-minute

period, and this two-rater comparison (correlation coefficient: 1.0) was accepted as the determinant of reliability.

Vocal segments of communication were recorded verbatim, and body motion was recorded behaviorally in anecdotal note form to reduce potential errors in categorization of the communication. If a behavior occurred at the moment the observer was recording a previous behavior, the second behavior may have been missed and not recorded--a potential source of error.

No assumptions as to expected findings were made prior to the observations, thereby avoiding bias being introduced into the data. Another potential source of bias was eliminated in that no client or family acquainted with the observer could be a subject in the study.

A thorough and ongoing literature search provided linkage between empirical observations made of laboring behavior and current theories of communication. Although there are instruments for data collection through observation of the laboring woman in the literature, an interpretation of the meaning of the behaviors is required, thus introducing bias into the results.

The sample size was adequate for providing variability of behaviors for the normal laboring woman with expectation of normal outcome. There was no expectation of

generalizability to the population-at-large at this exploratory level from a convenience sample.

Rights of Human Subjects

The study was approved by the University of Arizona College of Nursing in accordance with established research criteria (see Appendix B). The Human Subjects Committee of The University of Arizona Health Sciences Center also approved this study, providing for protection of the rights and welfare of human subjects as established by the U.S. Department of Health, Education, and Welfare.

Human subjects in this study received a written and verbal explanation of the study, as well as rights and privileges as participants prior to participation via the Human Subject's Consent Form (see Appendix A).

CHAPTER 4

RESEARCH FINDINGS AND DATA ANALYSIS

In this chapter are presented descriptions of the characteristics of the sample, field problems in data collection, a discussion of the data analysis, and the data derived from the observation and recording of laboring women's behaviors. The findings address the problem of this study which was to determine the observable behaviors of women in Stage I labor as segments of communication and their occurrence (assuming that behaviors are vehicles of communication).

Characteristics of the Sample

The sample consisted of ten women who met the established criteria set for the study, admitted to the Labor and Delivery unit of two community hospitals. The ages of the women ranged from 18 to 35 years. Eight of the ten were married and two were unmarried. Six were Anglo, three were Mexican-American, and one was black. Five women and their coaches had attended a series of prepared childbirth classes of some sort; two women had attended only one class of a series; and three had no preparation or training for labor. Seven women, during the course of Stage I,

accepted medication and three refused medication. This was the first birth experience for three women and the other seven were multiparous. Six planned to breastfeed, three to bottlefeed, and the last was undecided. Spontaneous labor occurred in all but one woman, whose labor was induced. Three women, during the course of Stage I, had their labors augmented with Pitocin. All deliveries took place in hospital delivery rooms except for one "homestyle" delivery in the labor room. Four infant girls and six boys were delivered, ranging in birth weight from 6 pounds 8 ounces to 10 pounds 1 ounce. Weeks of gestation ranged from 38 to 41.5 weeks. Only one subject suffered postpartum complication (hemorrhage). Table 1 compares these characteristics.

Field Problems in Data Collection

Locating the sample proved very difficult if the set criteria were to be met. Hospital A averages four deliveries per day, substantially reducing number of available subjects, but was chosen over another hospital having 500 deliveries monthly which utilized epidural anesthesia almost exclusively. Hospital B, also delivering 500 per month, is a perinatal center, and specializing in transport of high-risk obstetrical clients from a wide area: the woman having a normal, vaginal delivery is an exception. Pitocin induction and augmentation is a widely practiced

Table 1. Characteristics of the sample

Subject	Age	Marital Status	Ethnicity	Attended Classes	Meds	Breast or Bottle	Parity P Birth
1	21	Mar.	Mex-Am.	No	Yes	Not Known	II
2	26	Mar.	Anglo	1	Yes	Breast	II
3	22	Mar.	Anglo	No	Yes	Bottle	II
4	29	Mar.	Anglo	Yes	Yes	Breast	I
5	18	Unmar.	Black	1	Yes	Bottle	I
6	25	Mar.	Anglo	Yes	Yes	Breast	I
7	20	Mar.	Mex-Am.	Yes	Yes	Breast	II
8	19	Unmar.	Mex-Am.	No	No	Bottle	II
9	34	Mar.	Anglo	Yes	No	Breast	III
10	29	Mar.	Anglo	Yes	No	Breast	II

medical intervention, and finding subjects without either, although desirable, was not feasible. The Mexican-American and Oriental populations are often seen in the two communities in which the study took place, many of whom speak only their native language. Only one subject requested the observer to leave in mid-labor, and one subject was voluntarily left during a highly stressful situation. Both these labors are nonetheless included in the study as very reflective of women's communication during Stage I labor.

Staff reception to the research was primarily interested and cooperative, but there were a few exceptions. Physicians were 100 percent in granting permission for observation.

From the time of initiation of the data collection to the end of Stage I labor, regardless of length of time, the observer remained in the room recording. The choice to be solely observer and not an active participant in giving care allowed uninterrupted note-taking and secondarily supplied an additional source of support for the client and her family. The time the subjects were observed and their individual dilation ranges during observation appear in Table 2.

The process of observing, recording in anecdotal note form, transcribing to a tool containing the entire environmental scenario, and coding of data required a minimum

Table 2. Observed dilation range of subjects of study

Subjects	CERVICAL DILATION										Time/Min. Observed
	1	2	3	4	5	6	7	8	9	10	
1	O	X	X	X	X	X	X	X	X	X	180
2	O	O	O	X	X	X	X	X	X	X	140
3	O	X	X	X	X	X	X	X	X	X	495
4	O	X	X	X	X	X	X	O	O	O	285
5	O	O	X	X	X	X	X	X	X	X	307
6	O	O	X	X	X	X	X	X	X	X	125
7	O	O	O	X	X	X	X	X	X	X	65
8	O	O	X	X	X	X	X	O	O	O	200
9	O	O	O	X	X	X	X	X	X	X	34
10	O	O	O	X	X	X	X	X	X	X	30

Key:
X - Observed
O - Not Observed

Total observation time: 1861 minutes
Average time per subject: 186.1 minutes

of 30 hours per client. A result of this study has been the creation of a tool for the ongoing observation and recording of women in labor.

Discussion of Data Analysis

The major challenge of this study lay in the transcription of observed behaviors into exclusive and objective categories which, in totality, could encompass the entire spectrum of labor behaviors without subjective interpretation.

In this exploratory study where relationships were undefined and concepts were vague, an empirical approach was necessary for defining categories of laboring communication behavior. The categories emerged from: (1) clustering of the data themselves, and (2) suggestions from communication theory literature. Although bodily categories in the literature were largely adaptable to human labor behaviors, a system of categorizing vocal behaviors was not. A major focus of this study was the development of discrete categories for language behaviors.

A few conflicts in categorization should be illustrated. The simple act of reaching out and touching a bedrailing could constitute either body motion (arm behavior) or hands (touches object). A separate subcategory of "reaches for--" became necessary, so that the described act was analyzed as one unit of reaching behavior under body

motion and one unit of object touching under hands. Paralanguage behaviors required careful parameters to determine whether a shriek (as was recorded in anecdotal notes) should be a unit of cries/wails, moans/groans/hisses, or screams/whoops/yells. Some nonbehaviors are communication: immobility during a painful contraction, refusal to turn face toward person teaching a breathing technique, no facial recognition of mother entering room, and "leaves hair across face and in eyes." Immobility is observable and the behavior was classified a frequency of body motion. However, the other examples cited required interpretation of the behavior, and so were thrown out of the data.

Presentation of Data

Communication Category Language

The categorization of speech utilized was based on the functions of communication as defined in the Review of Literature (Argyle, 1975): to transmit information about self and the outside world and to express emotion. Here then was a formula for codification of speech.

Language by women in labor was first determined as either: (1) related to labor or (2) not related to labor. Language which was not related to labor was either: (1) a transmission of information (requests or gives) or (2) diversionary. Language which was related to labor was

further subdivided into either: (1) a transmission of information (requests or gives) or (2) an expression of emotion (specific feelings or exclamations).

Language Parameters for Coding and Analysis

I. Definitions of language behaviors

A. Not related to labor:

1. Information transmission:

a. Requests information--asks a question (e.g., "Have you been a nurse here long?").

b. Gives information--states fact (e.g., "I had my appendix out in 1975.")

2. Diversionary: a distracting conversation.

a. Polite transactions--inconsequential discussion or exchanges (e.g., "I'm fine. How are you?")

b. Acknowledgements--recognition of other or a courtesy (e.g., "Oh, Lily, you came.")

c. Discusses extraneous topics--far-removed subjects are focus of content.

B. Related to labor:

1. Information transmission:

a. Requests information or expresses need for:

(1) Specific comfort (e.g., "I need a pillow.")

(2) Facts or interpretation (e.g., "How much longer?")

(3) Medication (e.g., "Can I have something more?")

(4) Other--general category for all other expressed needs (e.g., "I need John.")

b. Gives information:

(1) Facts or interpretation (e.g., "Another one is coming.")

(2) Compares to other labors--verbal discussion about contrasts with prior labor(s) (e.g., "This is not like the last one.")

(3) Gives orders, directions, a plan (e.g., "Rub down lower.")

2. Emotion:

a. Expresses feelings of:

(1) Pain or discomfort (e.g., "I hurt.")

(2) Doubt or disappointment (e.g., "I don't think I can do this.")

(3) Regret or apology (e.g., "I'm sorry.")

(4) Surprise or shock (e.g., "Not another one.")

(5) Fear or anxiety (e.g., "I'm scared.")

(6) Disapproval (e.g., "No," "Don't touch me there.")

(7) Anger or hate (e.g., "Get away from me.")

(8) Affection (e.g., "I love you.")

(9) Approval (e.g., "Yeah.")

b. Exclamations--sharp or sudden expressions with vehemence (e.g., "Oh, Lord" or "Mama.")

Explanation of Language Data Figures

The collected data are displayed in the following figures. Figure 8 shows the distribution of frequencies of language behavior by phase of labor, and Figure 9 shows this distribution by percentages of language behavior. These data are made more explicit in several figures: Figure 10 shows the content of subcategories in the latent phase; Figure 11 shows the content of subcategories in the active phase; and Figure 12 shows the content of subcategories in the transition phase.

I. Language behaviors A. Not related to labor 1. Information transmission:	Phase	Latent	Active	Trans	Totals
a. Requests		0	0	0	0
b. Gives		0	4	0	4
2. Diversionary					
a. Polite transactions		4	0	0	4
b. Acknowledgments		2	0	0	2
c. Discusses extraneous topics		4	3	0	7
Totals:		10	7	0	17
B. Related to labor					
1. Information transmission:					
a. Requests/expresses need					
(1) Comfort		8	16	11	35
(2) Facts/interpretation		6	12	11	29

Figure 8. Distribution frequencies by phase of labor

Phase	Latent	Active	Trans	Totals
(3) Medication	2	2	1	5
(4) Other	1	4	3	8
b. Gives				
(1) Facts/interpretation	9	40	16	65
(2) Compares to other labor	0	7	0	7
(3) Directs, orders, plans	6	12	11	29
Totals	32	93	53	178
2. Emotions				
a. Expresses feelings of:				
(1) Pain/discomfort	11	40	13	64
(2) Doubt/disappointment	4	8	4	16
(3) Regret	1	4	1	6

Figure 8. Distribution frequencies by phase of labor Continued

Phase	Latent	Active	Trans	Totals
(4) Surprise/shock	6	0	1	7
(5) Fear/anxiety	6	6	3	15
(6) Disapproval	1	11	3	15
(7) Anger/hate	0	9	0	9
(8) Approval	9	6	1	16
b. Exclamations	65	46	34	145
Totals:	103	130	60	293
N Total Language:	145	230	113	488

Figure 8. Distribution frequencies by phase of labor Continued

Phase	Latent	Active	Trans	Totals
I. Language behaviors				
A. Not related to labor	7	3	0	3
B. Related to labor				
1. Information transmission	22	40	47	37
2. Emotions	71	57	53	60
Totals	100	100	100	100
Phase N language behaviors / Total N language behaviors	30	23	11	100

Figure 9. Distribution percentage by phase of labor

Subcategory Frequencies of Language Behavior
(in descending order of frequency)

Latent Phase Language Behaviors	Percent of Total Latent Language
Exclamations	45
Expresses feelings of pain/discomfort	8
Expresses feelings of approval	6
Gives facts related to labor	6
Requests comfort	6
Requests facts	4
Gives directions, orders, a plan	4
Expresses feelings of surprise	4
Expresses feelings of fear	4
Engages in polite transactions	3
Discusses extraneous topics	3
Expresses feeling of doubt	3
Acknowledgments	1
Requests medication	1
Requests other needs	Less than 1
Expresses feelings of regret	Less than 1
Expresses feelings of disapproval	Less than 1
Total latent language behaviors:	145

Figure 10. Latent phase subcategory frequencies

Active Phase Language Behavior	Percent of Total Active Language
Exclamations	20
Gives facts related to labor	17
Expresses feelings of pain/discomfort	17
Requests comfort	7
Requests facts related to labor	5
Gives orders, directions, plans	5
Expresses feelings of disapproval	5
Expresses feelings of anger/hate	5
Expresses feelings of doubt/disappointment	3
Gives information comparison to other labors	3
Expresses feelings of approval	3
Expresses feelings of fear/anxiety	3
Gives information not related to labor	2
Requests other needs	2
Expresses feelings of regret	2
Discusses extraneous topics	1
Requests medication	Less than 1
Total active language behaviors:	230

Figure 11. Active phase subcategory frequencies

Transition Phase Language Behavior	Percent of Total Transition Language
Exclamations	30
Gives facts related to labor	14
Expresses feelings of pain/discomfort	12
Requests comfort	10
Requests facts/interpretation	10
Gives directions, orders, plans	10
Expresses feelings of doubt/disappointment	4
Requests other need	3
Expresses feelling of fear/anxiety	3
Expresses feeling of disapproval	3
Requests medication	Less than 1
Expresses feelings of regret	Less than 1
Expresses feeling of surprise/shock	Less than 1
Expresses feeling of approval	Less than 1
Total transition language behaviors:	113

Figure 12. Transition phase subcategory frequencies

Related to Labor	Emotions	Exclamations	
		Expressions of feelings	Approval, Disapproval, Pain, Shock, Doubt, Etc.
	Information Transmission	Requests	Comforts, Facts, Medication, Others.
		Gives	Facts, Directions, Comparison to other labors
Not Related to Labor	Diversionary	Acknowl-edgments	
		Extraneous Subjects	
	Information Transmission	Polite Transactions	
		Requests	
		Gives	

Figure 13. Taxonomy of vocal communication in labor

Language Data Highlights

Language segments constituted 13 percent (488) of total observed behaviors (3,868).

Exclamations in all three phases are the most frequently observed language behavior. Sixty percent of language behavior in all three phases is focused on emotional content. Expressions of pain/discomfort double from latent to active phase, decreasing slightly in transition. Fact-giving related to labor nearly triples in the active phase and decreases only slightly in transition. Expressions of approval decrease from a ranking in frequency of third to fourteenth in transition. Requests for comfort remains stable and increases slightly in the transition phase. Language requesting medication is 1 percent in the latent phase and less than 1 percent in both active and transition phases.

Communication Category Paralanguage

Paralanguage subcategories, lament and breathing, were derived from communication theory. Paralanguage--vocalization without words--is believed to express emotions and give interpretation to words that are spoken (Ekman and Friesen, 1969), although interpretation is not addressed here. It should be noted that various techniques of breathing during contractions in labor are observable paralanguage

behaviors by women in our culture (e.g., Lamaze techniques).

Paralanguage Parameters for Coding and Analysis

II. Definitions of paralanguage behaviors

A. Lament

1. Laughs/giggles--amusement or merriment expressed without words.
2. Cries/wails--utterance of distress with or without tears or sobbing.
3. Moans/groans/hisses--audibly prolonged sounds of complaint of feelings (grief, pain, anger, etc.)
4. Screams/whoops/yells--sharp, loud cry producing harsh high tones of intensity.
5. Sniffs/coughs--air inhaled audibly through nose or air exhaled suddenly through lungs with explosive noise.
6. Belches--expelling of gas suddenly through the mouth from the stomach.
7. Yawns--involuntary, deep intake of air through a wide-open mouth.
8. Grunts--deep, short sound reflecting contractions of abdominal/stomach muscles. A characteristic of Stage II pushing.

B. Breathing (during contractions)

1. Deep abdominal--air inhaled through nose at any speed with observable rising of abdomen and exhaled through opened mouth in a rhythmic pattern.
2. Shallow chest--rapid, light inhalation of air through the nose or mouth.
3. Pant blow--shallow, rhythmic breathing in upper bronchial tree with varying combinations of mouth formation ("he" or "hoo").
4. Holds breath--irregular breathing or refusal to breathe.
5. Gasps/gulps--catching the breath audibly or convulsively.
6. Blows--movement of air out of lungs through pursed lips with speed and/or force.
7. Pants--mouth open with air moving forcefully from lungs.
8. Out of control--irregularity of any of the above behaviors; patient huffs/puffs, either explosively or frantically.

Explanation of Paralanguage Data Figures

The collected data are displayed in the following figures. Figure 14 shows the distribution of frequencies of paralanguage behavior by phase of labor, and Figure 15

shows this distribution by percentages of paralanguage behavior. These data are made more explicit in several figures: Figure 16 shows the content of subcategories in the latent phase; Figure 17 shows the content of subcategories in the active phase; and Figure 18 shows the content of subcategories in the transition phase.

Paralanguage Data Highlights

Paralanguage segments constituted 33 percent (1,281) of total observed behaviors (3,868). This is the most frequently observed category of all six channels of communication.

Out-of-control breathing ranks first or second in all three phases of State I. Deep abdominal breathing dominates latent phase, as taught in classes, and some form of panting or blowing is utilized in the transition phase. In the active phase, there are reduced frequencies in these techniques, suggesting loss of control or coping ability. Observed behaviors increased four-fold from the latent to active phases, dropping off considerably by the transition phase.

Communication Category Eyes

Subcategories for eyes, contact and movement, were derived from the communication theory.

Phase	Latent	Active	Trans	Totals
II. Paralanguage behaviors				
A. Lament				
1. Laughs/gigles	5	2	0	7
2. Cries/wails	5	12	10	27
3. Moans/groans/hisses	5	185	10	200
4. Screams/whoops/yells	4	6	4	14
5. Sniffs/coughs	1	4	0	5
6. Belches	1	6	2	9
7. Yawns	0	0	0	0
8. Grunts	0	14	13	27
Totals:	21	229	31	289

Figure 14. Distribution frequencies by phase of labor

Phase	Latent	Active	Trans	Totals
B. Breathing				
1. Deep abdominal	42	128	0	170
2. Shallow chest	2	76	0	78
3. Pant-blow	0	88	31	119
4. Holds breath	3	3	0	6
5. Gasps/gulps	19	27	10	56
6. Blows	0	25	49	74
7. Pants	0	136	54	190
8. Out-of-control	90	153	56	299
Totals:	156	636	200	992
N total paralanguage:	177	865	239	1,281

Figure 14. Distribution frequencies by phase of labor Continued

Phase	Latent	Active	Trans	Totals
II. Paralanguage behaviors				
A. Lament	12	26	16	23
B. Breathing	88	73	84	77
Totals:	100	100	100	100
Phase N paralanguage behaviors / Total N paralanguage behaviors	14	68	19	100

Figure 15: Distribution percentages by phase of labor

Subcategory Frequencies of Paralanguage Behavior
(in descending order of frequency)

Latent Phase Paralanguage Behavior	Percent of Total Latent Paralanguage
Out-of-control breathing	51
Deep abdominal breathing	24
Gasps/gulps	11
Laughs/giggles	3
Cries/wails	3
Moans/groans/hisses	3
Screams/whoops/yells	2
Holds breath	2
Shallow chest	1
Sniffs/coughs	Less than 1
Belches	Less than 1
Total latent paralanguage behaviors:	177

Figure 16. Latent phase subcategory frequencies

Active Phase Paralanguage Behavior	Percent of Total Active Paralanguage
Moans/groans/hisses	21
Out-of-control breathing	18
Pants	16
Deep abdominal breathing	15
Pant-blow breathing	10
Shallow chest	9
Gasps/gulps	3
Blows	3
Grunts	2
Cries/wails	1
Screams/whoops/yells	Less than 1
Belches	Less than 1
Sniffs/coughs	Less than 1
Holds breath	Less than 1
Laughs/giggles	Less than 1
Total active paralanguage behaviors:	865

Figure 17. Active phase subcategory frequencies

Transition Phase Paralanguage Behavior	Percent of Total Transition Paralanguage
Out-of-control breathing	23
Pants	23
Blows	21
Pant-blow breathing	13
Grunts	5
Gasps/gulps	4
Cries/wails	4
Moans/groans/hisses	4
Screams/whoops/wails	2
Belches	Less than 1
Total transition paralanguage behaviors:	239

Figure 18. Transition phase subcategory frequencies

It should be recalled that contact is a purposeful, maintained eye gaze and not lighting of the eyes on a person or object. A subcategory of environmental search was created by the data and is an interruption by the woman in her labor to examine the room's inhabitants and then return to coping. Another unique category which emerged from the data clusters is averts/covers the eyes.

Eyes Parameters for Coding and Analysis

III. Definitions of eyes behaviors

- A. Contact: purposeful, maintained gaze.
  - 1. Environmental search--woman looks around the room at inhabitants and makes eye contact
  - 2. Persons:
    - a. Family/friend
    - b. Staff--nurse or physician
    - c. Primary support--usually male in the husband role, but may be mother or other determined by function of the person.
  - 3. Objects--bedrailing, focal points, monitor, fan, etc.
  - 4. Averts/covers eyes--intentional covering of the eyes so contact cannot be made
- B. Movement: changes of musculature around eyes
  - 1. Open:
    - a. Focused--musculature rigidly keeps eyes open over 15 seconds.

b. Bulging/widened--exaggerated opening of eyes.

2. Open and closed--eyes are opened for less than ten seconds and then closed

3. Closed:

   a. Squints--tightened musculature of eyes allows narrow vision

   b. Squeezes tight--closed, with tense musculature obvious around eye opening.

   c. Flutter/blink--involuntary, unintentional brief open-close--alone or in a series

Explanation of Eyes Data Figures

The collected data are displayed in the following figures. Figure 19 shows the distribution of frequencies of eye behavior by phase of labor, and Figure 20 shows this distribution by percentages of eye behavior. These data are made more explicit in several figures: Figure 21 shows the content of subcategories in the latent phase; Figure 22 shows the content of subcategories in the active phase; and Figure 23 shows the content of subcategories in the transition phase.

Eyes Data Highlights

Eye segments constituted 12 percent (457) of total observed behaviors (3,868).

Phase	Latent	Active	Trans	Totals
III. Eyes behaviors				
A. Contact				
1. Environmental search	4	2	5	11
2. With persons				
a. Family/friend	2	3	0	5
b. Staff	6	23	5	34
c. Primary support	9	15	4	28
3. Objects	7	10	2	19
4. Averts/covers	0	13	10	23
Totals:	28	66	26	120

Figure 19. Distribution frequencies by phase of labor

Phase	Latent	Active	Trans	Totals
B. Movement				
1. Open	2	1	2	5
a. Focused	13	22	12	47
b. Bulges/widens	3	5	0	8
2. Opens and closes	9	24	1	34
3. Closed	40	137	39	216
a. Squints	2	5	1	8
b. Squeezed tight	0	1	0	1
c. Flutters/blinks	8	6	4	18
Totals:	77	201	59	337
N total eyes:	105	267	85	457

Figure 19. Distribution frequencies by phase of labor Continued

Phase	Latent	Active	Trans	Totals
III. Eyes behaviors				
A. Contact	27	25	31	26
B. Movement	73	75	69	74
Totals:	100	100	100	100
Phase N eyes behaviors / Total N eyes behaviors	23	58	19	100

Figure 20. Distribution percentages by phase of labor

Latent Phase Eyes Behaviors	Percent of Total Latent Eyes
Closes eyes	38
Focuses eyes	12
Opens and closes eyes	9
Contact with primary support	9
Flutters/blinks eyes	8
Contact with objects	7
Contact with staff	6
Environmental search	4
Eyes bulge/widen	3
Open eyes	2
Contact with family/friend	2
Squints	2
Total latent eyes behaviors	105

Figure 21. Latent phase subcategory frequencies

Active Phase Eyes Behaviors	Percent of Total Active Eyes
Close eyes	51
Opens and closes eyes	9
Contact with staff	9
Focuses eyes	9
Contact with primary support	6
Averts/covers eyes	5
Contact with objects	4
Flutters/blinks eyes	2
Bulges/widens	2
Squints	2
Contact with family/friend	1
Environmental search	Less than 1
Squeezed tight	Less than 1
Open eyes	Less than 1
Total active eyes behaviors:	267

Figure 22. Active phase subcategory frequencies

Transition Phase Eyes Behaviors	Percent of Total Transition Eyes
Closes eyes	46
Focuses eyes	14
Averts/covers eyes	12
Environmental search	6
Contact with staff	6
Contact with primary suport	5
Flutters/blinks	5
Contact with objects	2
Opens eyes	2
Opens and closes	1
Squints	1
Total transition eyes behaviors:	85

Figure 23. Transition phase subcategory frequencies

The most frequently observed behavior using eyes is closing of the eyes, most notably in the active phase, contrary to prepared childbirth training and reinforcement teaching at bedside by the staff (50 percent of the sample completed classes).

Eye contact is most frequent with primary support persons in the latent phase, but contact with staff is greater in both the active and transition phases.

Averting or covering the eyes does not occur in latent phase in this study. It moves to the sixth most frequent behavior in the active phase and to the third most frequent in the transition phase.

Communication Category Hands

Hands subcategories, tactual and gesture, were derived from the communication theory.

Hand use is important evolutionarily, and the hands are used to gather information to send to the brain. It may be recalled from the Review of Literature that touching oneself is an emotional equivalent of talking to oneself (Ekman and Friesen, 1969), and that face-touching alledgedly occurs when one is experiencing shame or negative attitudes toward the self. Although gestures are largely culturally specific, some are universal and send clear messages to receivers.

Hands Parameters for Coding and Analysis

IV. Definitions of hands behaviors

A. Tactual: application of hand--active or passive

1. Self

a. Face--all parts (e.g., cheeks, eyes, etc.)

b. Head/hair--one or both

c. Abdomen or over fundus of uterus

d. Leg/thigh

e. Sacrum

f. Arm

g. Chest/breast

h. Perineum/anus

2. Others--primary support, staff, etc.

3. Objects--inanimate objects (bedrails, etc.)

B. Gesture: hand movement indicating sentiment, idea or attitude.

1. Open hand--fingers extended

a. Relaxed--fingers curled but palm open

b. "Stop"--rigidly-straightened fingers, palm flat, hand vertical with the ground

c. "No"--palm down, rapid horizontal movement (3-4X), hand horizontal with the ground

2. Closed hand--fingers and thumb flexed, covering palm

a. First--exaggerated flexion of thumb and fingers tightly against the palm
b. "Come"--rapid opening and closing of fingers onto palm (4-5X) with palm upward

Explanation of Hands Data Figures

The collected data are displayed in the following figures. Figure 24 shows the distribution of frequencies of hands behavior by phase of labor, and Figure 25 shows this distribution by percentages of hands behavior. These data are made more explicit in several figures: Figure 26 shows the content of subcategories in the latent phase; Figure 27 shows the content of subcategories in the active phase; and Figure 28 shows the content of subcategories in the transition phase.

Hands Data Highlights

Hands segments constituted 10 percent (402) of total behaviors observed (3,868).

The outstanding data in this category is the frequency of self-touching, which moves from third position in frequency in the latent phase and is first in frequency for both the active and transition phases. In early labor, touching others and touching objects place first and second ahead of touching self. Face touching is the primary focus of self-touching in all three phases. Hair and head touching is second most frequent.

Phase	Latent	Active	Trans	Totals
IV. Hands behaviors				
A. Tactual				
1. Self				
a. Face	4	45	29	78
b. Hair/head	2	24	9	35
c. Abdomen/fundus	2	15	6	23
d. Leg/thigh	1	19	6	26
e. Sacrum	2	5	1	8
f. Arm	2	1	1	4
g. Chest/breast	2	3	0	5
h. Perineum/anus	0	0	1	1

Figure 24. Distribution frequencies by phase of labor

Phase	Latent	Active	Trans	Totals
2. Other	23	47	24	94
3. Objects	18	61	22	101
Totals:	56	220	99	375
B. Gesture				
1. Open hand	0	1	1	2
a. Relaxed	1	4	4	9
b. "Stop"	0	0	0	0
c. "No"	0	0	0	0
2. Closed hand	0	0	0	0
a. Fist	1	7	8	16
b. "Come"	0	0	0	0
Totals:	2	12	13	27
N Total Hands:	58	232	112	402

Figure 24. Distribution frequencies by phase of labor Continued

Phase	Latent	Active	Trans	Totals
IV. Hands behaviors				
A. Tactual	97	95	88	93
B. Gesture	3	5	12	7
Totals:	100	100	100	100
Phase N hands behaviors / Total N hands behaviors	14	58	28	100

Figure 25. Distribution percentages by phase of labor

Subcategory Frequencies of Hands Behavior
(in descending order of frequency)

Latent Phase Hands Behaviors		Percent of Total Latent Hands
Touches others		40
Touches objects		31
Touches self (all body parts collectively)		26
Touches face	7	
Touches hair/head	3	
Touches abdomen/fundus of uterus	3	
Touches sacrum	3	
Touches arm	3	
Touches chest/breast	3	
Relaxed, open-hand gesture		2
Fist gesture		2
Touches leg/thigh	2	
Total latent hands behaviors:		58

Figure 26. Latent phase subcategory frequencies

Active Phase Hands Behaviors		Percent of Total Active Hands
Touches self (all body parts collectively)		48
Touches objects		26
Touches others		20
Touches face	19	
Touches hair/head	10	
Touches leg/thigh	8	
Touches abdomen/fundus of uterus	6	
Fist gesture		3
Touches sacrum	2	
Relaxed, open-hand gesture		2
Touches chest/breast	Less than 1	
Touches arm	Less than 1	
Open hand	Less than 1	
Total active hands behaviors:		232

Figure 27. Active phase subcategory frequencies

Transition Phase Hands Behaviors	Percent of Total Transition Hands
Touches self (all body parts collectively)	47
Touches face	26
Touches others	21
Touches objects	20
Touches hair/head	8
Fist gesture	7
Touches abdomen/fundus of uterus	5
Touches leg/thigh	5
Relaxed, open-hand gesture	4
Touches sacrum	Less than 1
Touches arm	Less than 1
Touches perineum/anus	Less than 1
Open hand	Less than 1
Total transition hands behaviors:	112

Figure 28. Transition phase subcategory frequencies

Communication Category Face

Face subcategories, expression and activity, were derived from communication theory. It will be recalled that the face is theoretically the most important bodily signalling area, that expressions are social signals resulting from the evolutionary process, and that the face may also be used for purposeful activities.

Face Parameters for Coding and Analysis

V. Definitions of face behaviors

A. Expression: social signs or muscular contraction without purpose; tension indicating emotion.

1. Smiles--upturning of mouth corners, with or without teeth bared.
2. Mouth open--a minimum of ten seconds.
3. Frowns/grimaces--countenance indicates displeasure, sternness, scowling.
4. Wrinkles forehead--horizontally or vertically.
5. Upper lip taut--a rigidity or elevation of lip.
6. Chin juts--projects forward.
7. Pantomime--mouthing of word message.
8. Raises brows--elevation, eyes appear to enlarge.
9. Perspiring/flushing--dampness or coloration of skin.
10. Nares flare--tension of nares' musculature.

11. Relaxed/slack--absence of tension.
12. Tongue protrudes--appearance of tongue beyond teeth, intentionally or unintentionally.

B. Activity: movement with purpose.
1. Lips--pursing, compressing, biting, licking.
2. Vomits/retches--emisis or attempting emesis.
3. Munches ice--noisy, crunching in mouth.
4. Drinks.
5. Dozes/sleeps--minimum of 15 seconds.

Explanation of Face Data Figures

The collected data are displayed in the following figures. Figure 29 shows the distribution of frequencies of face behavior by phase of labor, and Figure 30 shows this distribution by percentages of face behaviors." These data are made more explicit in several figures: Figure 31 shows the content of subcategories in the latent phase; Figure 32 shows the content of subcategories in the active phase; and Figure 33 shows the content of subcategories in the transition phase.

Face Data Highlights

Face segments constituted 5 percent (204) of total observed behaviors (3,868). This channel of communication was the least frequently observed of the six categories.

The most frequently observed facial behavior in all three phases was that of frowning or grimacing. Two

Phase	Latent	Active	Trans	Totals
V. Face behaviors				
A. Expression				
1. Smiles	6	13	1	20
2. Mouth open	8	10	4	22
3. Frowns/grimace	9	29	12	50
4. Wrinkles forehead	2	10	3	15
5. Upper lip taut	0	6	2	8
6. Chin juts	0	9	3	12
7. Pantomimes	0	0	0	0
8. Raises brows	6	9	3	18
9. Perspires/flushes	1	3	4	8
10. Nares flare	3	0	0	3

Figure 29. Distribution frequencies by phase of labor

Phase	Latent	Active	Trans	Totals
11. Relaxed/slack	0	4	0	4
12. Tongue protrudes	0	1	0	1
Totals:	35	94	32	161
B. Activity				
1. Lips (licks, bites, purses, compresses)	9	12	1	22
2. Vomits/retches	0	2	0	2
3. Munches ice	4	8	5	17
4. Drinks	0	0	0	0
5. Dozes/sleeps	1	1	0	2
Totals:	14	23	6	43
N Total Face:	49	117	38	204

Figure 29. Distribution frequencies by phase of labor Continued

Phase	Latent	Active	Trans	Totals
V. Face behaviors				
A. Expression	71	80	84	79
B. Activity	29	20	16	21
Totals:	100	100	100	100
Phase N face behaviors / Total N face behaviors	24	57	19	100

Figure 30. Distribution percentages by phase of labor

Subcategory Frequencies of Face Behavior
(in descending order of frequency)

Latent Phase Face Behaviors	Percent of Total Latent Hands
Frowns/grimaces	18
Lips (licks, bites, purses, compresses)	18
Mouth open	16
Smiles	12
Raises brows	12
Munches ice	8
Nares flare	6
Wrinkles forehead	4
Perspires/flushes	2
Dozes/sleeps	2
Total latent face behaviors:	49

Figure 31. Latent phase subcategory frequencies

Active Phase Face Behaviors	Percent of Total Active Hands
Frowns/grimaces	25
Smiles	11
Lips (licks, bites, purses, compresses)	10
Mouth open	9
Wrinkles forehead	9
Chin juts	8
Raises brow	8
Munches ice	7
Upper lip taut	5
Relaxed/slack	3
Perspires/flushes	3
Vomits/retches	2
Tongue protrudes	Less than 1
Dozes/sleeps	Less than 1
Total active face behaviors:	117

Figure 32. Active phase subcategory frequencies

Transition Phase Face Behaviors	Percent of Total Transition Face
Frowns/grimaces	32
Munches ice	13
Mouth open	11
Perspires/flushes	11
Raises brows	8
Chin juts	8
Wrinkles forehead	8
Upper lip taut	5
Lips (licks, bites, purses, compresses)	3
Smiles	3
Total transition face behaviors:	38

Figure 33. Transition phase subcategory frequencies

behaviors that increase as Stage I progresses are ice munching and perspiring/flushing (availability of ice may be a factor). Behaviors that decrease as Stage I progresses are smiling and lip activities.

To reiterate, communication literature states that the face is the most important bodily signalling area. Although quantitatively this was the least observed behavior, not only of the bodily categories but all channels in the study, its importance overall should not be overlooked.

Communication Category Body Motion

Body motion subcategories, movement and orientation, were derived from communication theory.

Argyle has stated (1975) that the angle at which one person faces the other can be considered communication when it is an individual choice (orientation), which may or may not be the case in labor. Body movement (shifts in body positioning) are considered slower, larger extensions of gestures (Argyle, 1975).

The observation of swaying, rocking, or side-to-side rhythmic motion of knees when a leg is flexed with foot flat on the bed resulted in its own subcategory in this study. Literature on autistic children refer to this behavior as stimulus-seeking.

Body Motion Parameters for Coding and Analysis

VI. Definition of body motion behaviors

A. Movement: the intentional rearrangement of body parts.
   1. Arms--flexion or extension. Includes withdrawing from touch of another.
   2. Legs/feet--flexion, extension, arc motions.
   3. Trunk/shoulders--arching of back, tension, raised shoulders with inhalation.
   4. Head--flexion, extension, side to side.
   5. Unmoving--in presence of obvious stimulus.
   6. Reaches for--arm stretching out with intent to touch or grasp with hands.
   7. Rocking--rhythmic swaying of knees in leg flexion.

B. Orientation: general, overall position or angle in relationship to others.
   1. On back--supine with head of bed inclined 30° or less.
   2. On side--weight of body resting on lateral aspect.
   3. Sitting--weight of body resting primarily on buttocks.
   4. Standing/walking--weight on feet with body upright.
   5. Prone--ventral surface of body downward, either in contact with surface below or on all fours.

Explanation of Body Motion Data Figures

The collected data are displayed in the following figures. Figure 34 shows the distribution of frequencies of body motion behavior by phase of labor, and Figure 35 shows this distribution by percentages of body motion behavior. These data are made more explicit in several figures: Figure 36 shows the content of subcategories in the latent phase; Figure 37 shows the content of subcategories in the active phase; and Figure 38 shows the content of subcategories in the transition phase.

Body Motion Data Highlights

Body motion segments constituted 27 percent (1,036) of total observed behaviors (3,868), the second most frequently observed channel of communication following paralanguage in labor for this study.

The most frequently observed body motion behavior was movement of feet or legs in all three phases of Stage I labor. Reaching behaviors constituted the second most frequently observed behavior in all three phases of Stage I. It is notable that there is a 350 percent increase in frequencies of all body motions between latent and active phases (from 172 occurrences to 600), comparable to the increase seen in the paralanguage category.

Phase	Latent	Active	Trans	Totals
VI. Body motion behaviors				
A. Movement				
1. Arms	22	101	36	159
2. Legs/feet	61	160	66	287
3. Trunk/shoulders	13	39	10	62
4. Head	18	105	47	170
5. Unmoving	17	28	12	57
6. Reaches for--	28	111	51	190
7. Rocking	1	5	5	11
Totals:	160	549	227	936

Figure 34. Distribution frequencies by phase of labor

Phase	Latent	Active	Trans	Totals
B. Orientation				
1. On back	2	16	11	29
2. On side	7	31	20	58
3. Sitting	2	2	6	10
4. Standing/walking	1	2	0	3
5. Prone	0	0	0	0
Totals:	12	51	37	100
N total body motion:	172	600	264	1,036

Figure 34. Distribution frequencies by phase of labor Continued

Phase	Latent	Active	Trans	Totals
VI. Body Motion Behaviors				
A. Movement	94	92	86	90
B. Orientation	6	8	14	10
Totals:	100	100	100	100
Phase N body motion behaviors / Total N body motion behaviors	17	58	25	100

Figure 35. Distribution percentages by phase of labor

Subcategory Frequencies of Body Motion Behavior
(in descending order of frequency)

Latent Phase Body Motion Behavior	Percent of Total Latent Body Motion
Legs/feet movement	35
Reaches for--	16
Arm movement	13
Head movement	10
Unmoving	10
Trunk/shoulder movement	8
Side orientation	4
Back orientation	1
Sitting orientation	1
Standing/walking	Less than 1
Rocking	Less than 1
Total latent body motion behaviors:	172

Figure 36. Latent phase subcategory frequencies

Active Phase Body Motion Behavior	Percent of Total Active Body Motion
Legs/feet movement	27
Reaches for--	19
Head movement	18
Arm movement	17
Trunk/shoulder movement	7
Side orientation	5
Unmoving	5
Back orientation	3
Rocking	Less than 1
Sitting orientation	Less than 1
Standing/walking orientation	Less than 1
Total active body motion behaviors:	600

Figure 37. Active phase subcategory frequencies

Transition Phase Body Motion Behaviors	Percent of Total Transition Body Motion
Legs/feet movement	25
Reaches for--	19
Head movement	18
Arm movement	14
Side orientation	8
Unmoving	5
Back orientation	4
Trunk/shoulders	4
Sitting orientation	2
Rocking	2
Total transition body motion behaviors:	264

Figure 38. Transition phase subcategory frequencies

Summary

In this chapter, characteristics of the sample and field problems encountered during the observation and recording of data were discussed. Data were presented by communication categories and phases of labor. Subcategories of behaviors observed were catalogued from most-frequently to least-frequently observed. A graphic summary of the data analysis of vocal communication is shown in Table 3, and bodily communication is shown in Table 4.

Table 3. Frequencies and percents of observed vocal communication behavior

Subj.	LANGUAGE Freq.	%	PARALANGUAGE Freq.	%	Total	Total Freq. Communication All Categories	Indiv.'s % Vocal of Total
1	30	12.0	105	42.2	135	249	54.2
2	37	9.0	78	18.9	115	412	27.9
3	48	10.8	201	45.2	249	445	56.0
4	77	17.2	206	46.1	283	447	63.3
5	155	15.5	254	25.4	409	1,000	40.9
6	48	12.8	111	29.5	159	376	42.3
7	19	13.9	41	29.9	60	137	43.8
8	25	9.9	30	11.9	55	253	21.7
9	33	12.9	122	47.7	155	256	60.5
10	16	5.5	133	45.4	149	293	50.9
	488		1,281		1,267	Total vocal communication behaviors	

Table 4. Frequencies and percents of observed bodily communication behavior

	EYES		HANDS		FACE		BODY MOTION			Total Freq.	Indiv.'s
Subj.	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Total	Communication All Categories	% Bodily of Total
1	12	4.8	37	14.9	6	2.4	59	23.7	114	249	45.8
2	66	16.0	58	14.1	31	7.5	142	34.5	297	412	72.1
3	43	9.6	15	3.4	17	3.8	121	27.2	196	445	44.0
4	50	11.2	24	5.3	15	3.4	75	16.8	164	447	36.7
5	101	10.1	145	14.5	50	5.0	295	28.5	591	1,000	59.0
6	39	10.4	40	10.6	23	6.1	115	30.6	217	376	57.7
7	18	13.1	17	12.4	13	9.5	29	21.2	77	137	56.2
8	57	22.6	36	14.2	26	10.2	79	31.2	198	253	78.2
9	45	17.6	15	5.9	15	5.9	26	10.2	101	256	39.5
10	26	8.9	15	5.1	8	2.7	95	32.4	144	293	49.1
	457		402		204		1,036		2,099	Total bodily communication behaviors	

Vocal 1,769 + Bodily 2,099 = 3,868 total observed behaviors
45.7% 54.3% = 100%

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter contains a summary, conclusions, discussion and implications for nursing, and recommendations for further study.

Summary

This research evolved through interest in observing women's laboring behaviors and represents the initial step in ongoing work toward the interpretation of laboring behaviors. The purpose of this study was to determine what the behaviors are in Stage I labor phases and with what frequencies. A major goal was to establish a system of classifying the behaviors. Based on the theory that all behavior in the presence of others is communication, categories from communication theory were adapted to the labor situation and more completely developed through use of grounded theory methodology.

Questions raised for consideration in the study were:

1. Within the environment, with whom or what, and about what do laboring women communicate, either through vocalization or bodily behavior?

2. Are there phases of Stage I labor wherein women are more vocal?
3. Are there phases of Stage I labor wherein women use more bodily communication?
4. Are there similar communications by all laboring women which can then be categorized by phases of Stage I labor?
5. Are certain categories of communication more prevalent in different phases of Stage I labor, either vocal or bodily?

Ten subjects in Stage I labor meeting the criteria set were observed in their laboring. Behaviors observed were recorded in anecdotal note form and transcribed to a tool within 24 hours, after which coding of the behaviors according to categories of communication was done. Analysis of the coded data was through frequencies of occurrence, where a single occurrence of a behavior was analyzed as a frequency of one.

The data were presented to show the frequencies with which women of the study communicate in each phase of Stage I labor via the six major categories, both collectively and individually: language, paralanguage, eyes, hands, face, and body motion.

The sample was a mix of women of varying ethnicity, parity, training, age, and marital status. A total of

3,868 units of behavior were observed and recorded for analysis.

The primary assumption was that behavior in labor is an attempt to communicate. Use of language to express needs in labor is thought to become progressively more difficult and/or ineffectual because the women's internal and external stimuli require increasingly more energy for coping efforts, leaving less available for verbalization efforts. The results were expected to show that language frequencies decreased during Stage I labor while other communication category frequencies increased, a compensatory mechanism to assure species survival during the vulnerable period of childbirth, a time when care and protection are crucial.

However, the data have shown that the frequencies of all six communication categories/channels increase during the active phase, including language, in the collective sample of this study. Figure 39 shows the data for the entire sample. Moving from the active phase to transition phase, the frequencies drop significantly in all six categories and within reasonable range of the latent phase frequencies observed.

Frequency Curves for the Individual Subjects

Since one's response to labor is the result of many factors, and since individual women can be expected to

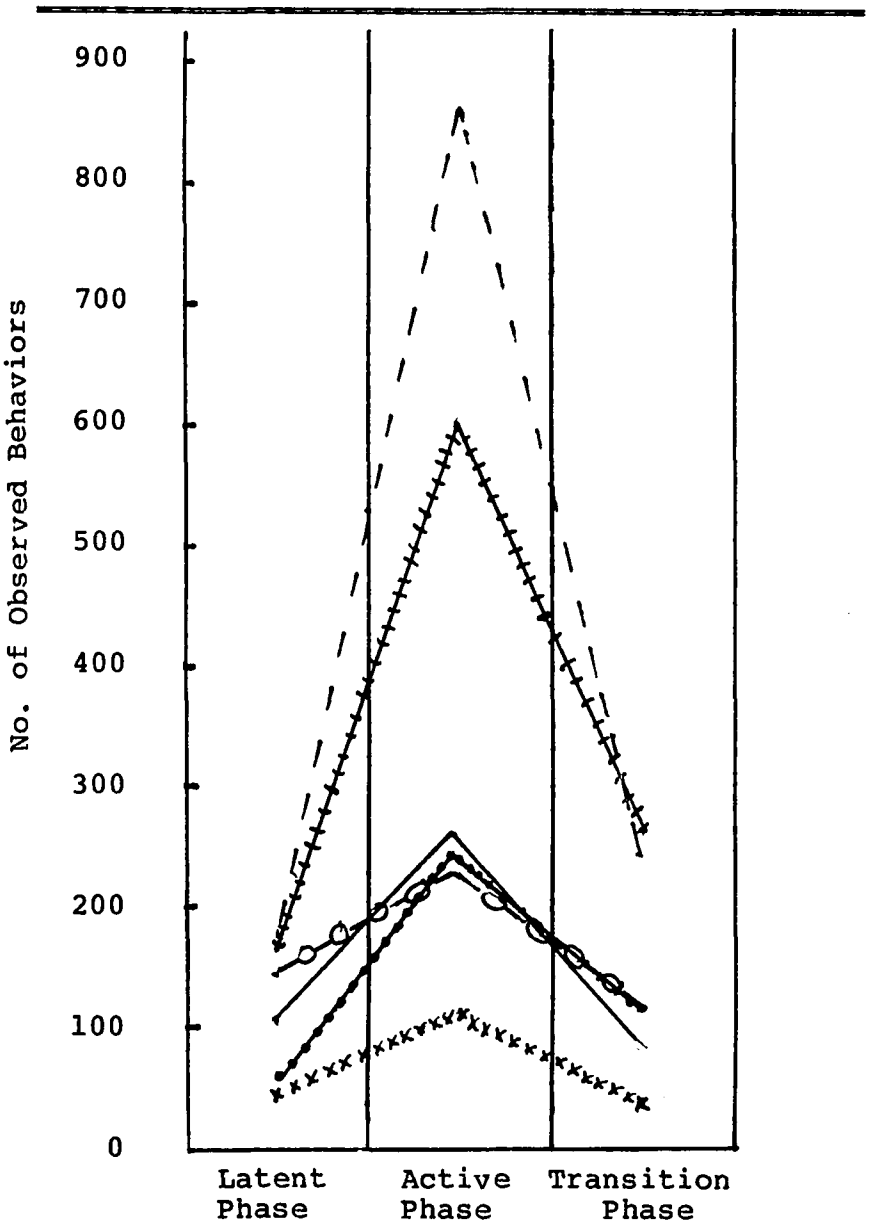

Figure 39. Six communication categories--total observed behaviors of ten women

Key:

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion +++++++

display individual variations in their communication behaviors in labor, each subject's data were plotted for purposes of comparison. Figures 40 through 49 show the data for the ten individual subjects, both by category of communication and by phase of Stage I labor. The key for the designation of communication categories is the same throughout as in Figure 39.

In contrasting the individual data, there is a tendency for the individual graphs to resemble the collective data shown in Figure 39 (e.g., Figure 45), meaning that the frequencies increased in the active phase and then decreased in the transition phase. Some subjects' graphs show a flattened curve across phases of Stage I. This means a more stable number of frequencies of observed behaviors occurred in that category as labor progressed. Some subjects' data reflect a combination of some behaviors that are stable across Stage I and some behaviors that fluctuate (e.g., Figure 49). No single factor was identifiable in the sample that accounted for frequency variations.

Individual Frequencies Within the Communication Categories

Figures 50 through 55 present the data of the individual subjects by each separate communication category: language, paralanguage, eyes, hands, face, and body motion. In contrast to the other five communication

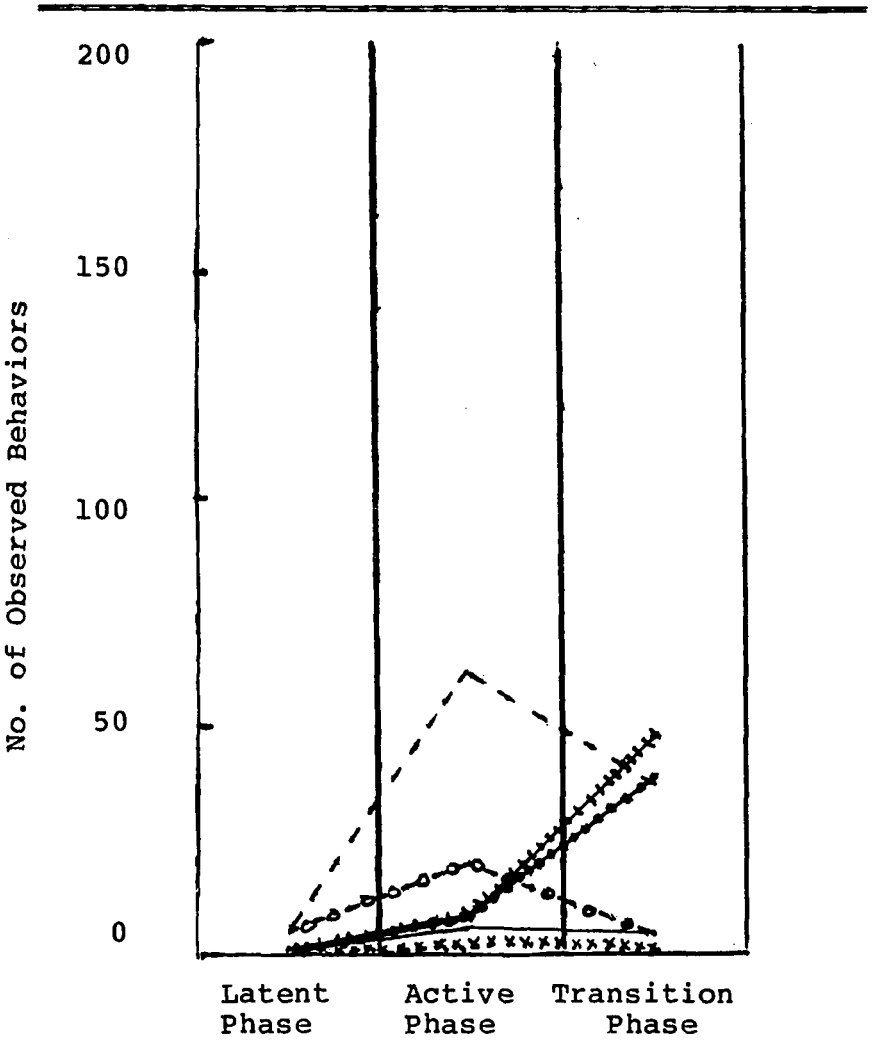

Figure 40. Subject No. 1: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion -+++++-

A 21-year-old Mexican-American G II P I, attended no prepared childbirth classes, supported by husband and mother, good outcome.

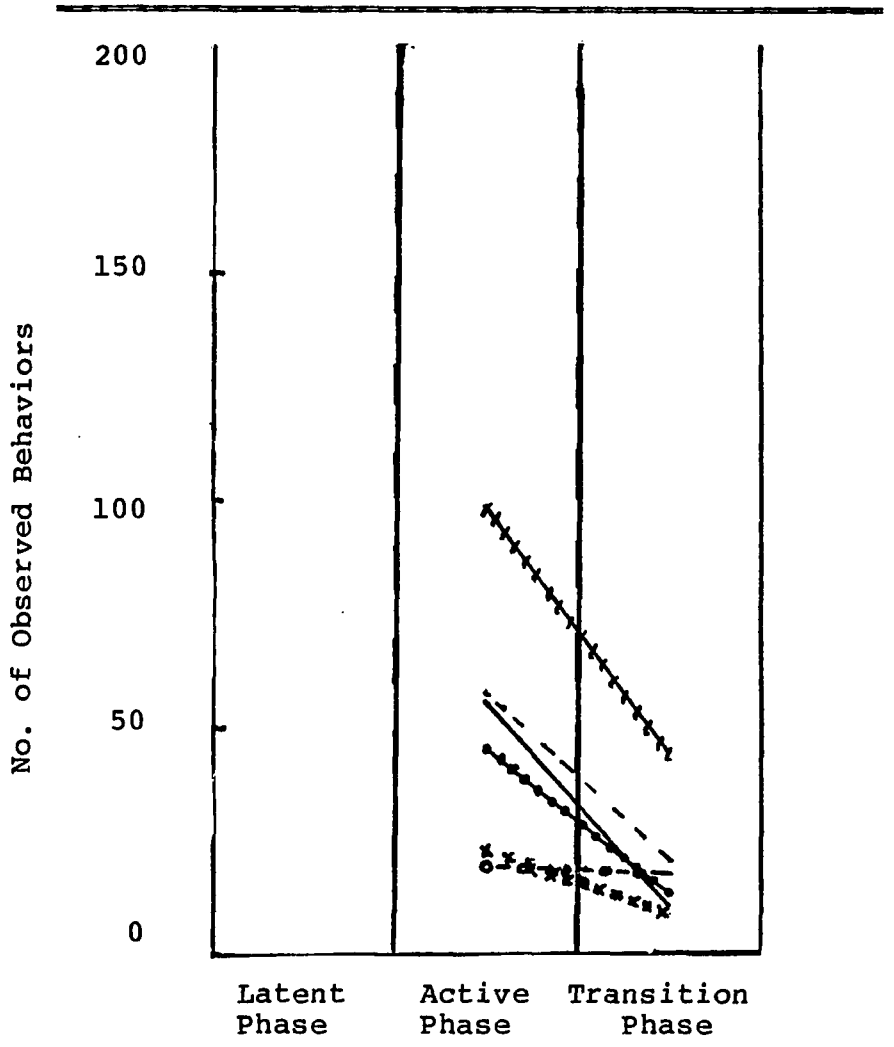

Figure 41. Subject No. 2: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion +++++

A 26-year-old Anglo-American G II P I, had prepared childbirth classes with first delivery (but dropped out early), supported by devoted husband, reported negative feelings regarding labor and delivery care postpartally, good outcome.

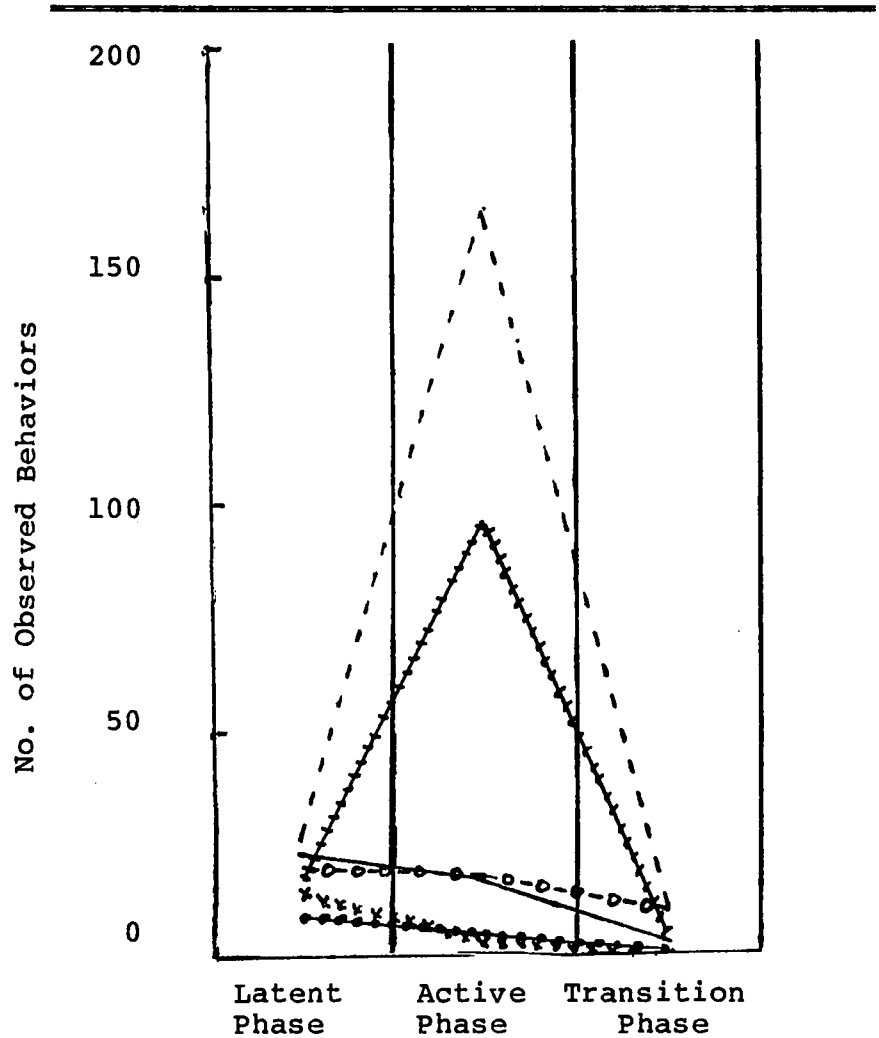

Figure 42. Subject No. 3: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion +++++

A 22-year-old Anglo-American G II P I, attended no prepared childbirth classes, supported by TV-watching husband, an induced labor, good outcome, notably strong nursing support, attention, and bedside teaching.

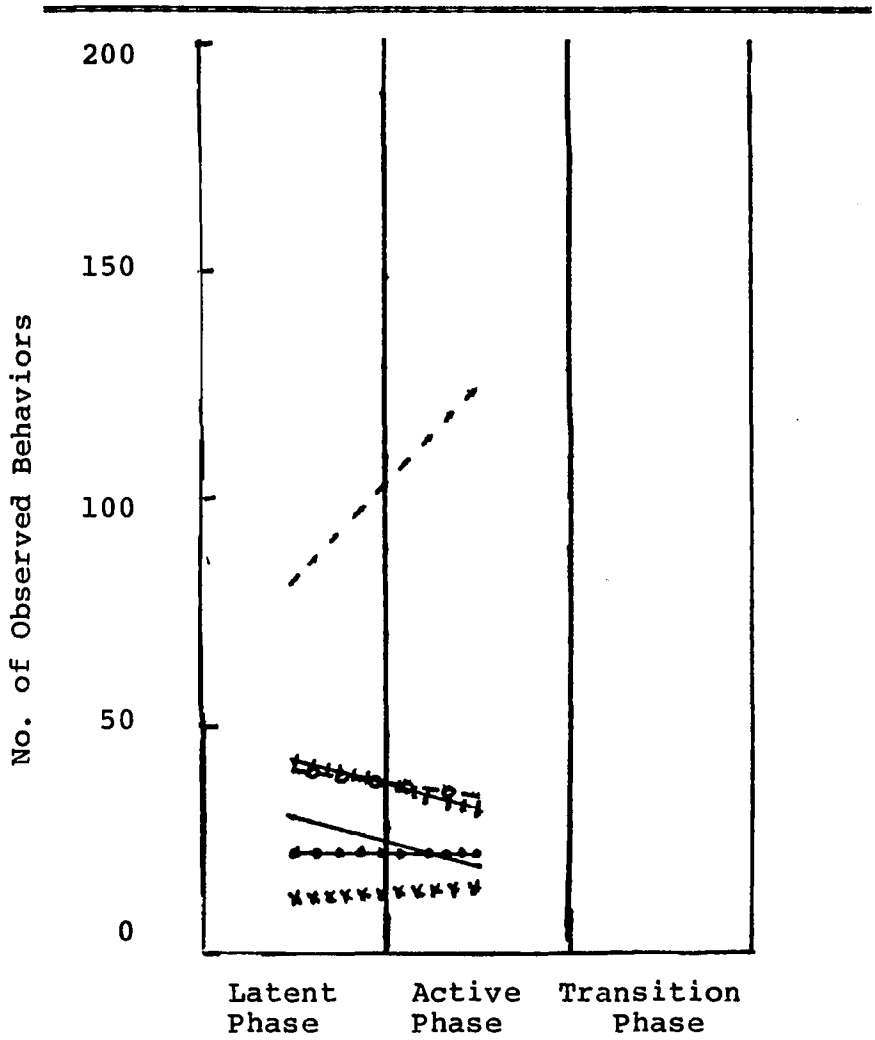

Figure 43. Subject No. 4: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion -+++++

A 29-year-old Anglo-American G I P O, PROM, had an adopted child ("infertility"), had attended classes but had no knowledge about PROM (the subject and her husband consequently believed that either the baby or mother would die during birth) medicated at 2 cms., observer withdrew from the labor room during transition because of the anxious situation, good outcome.

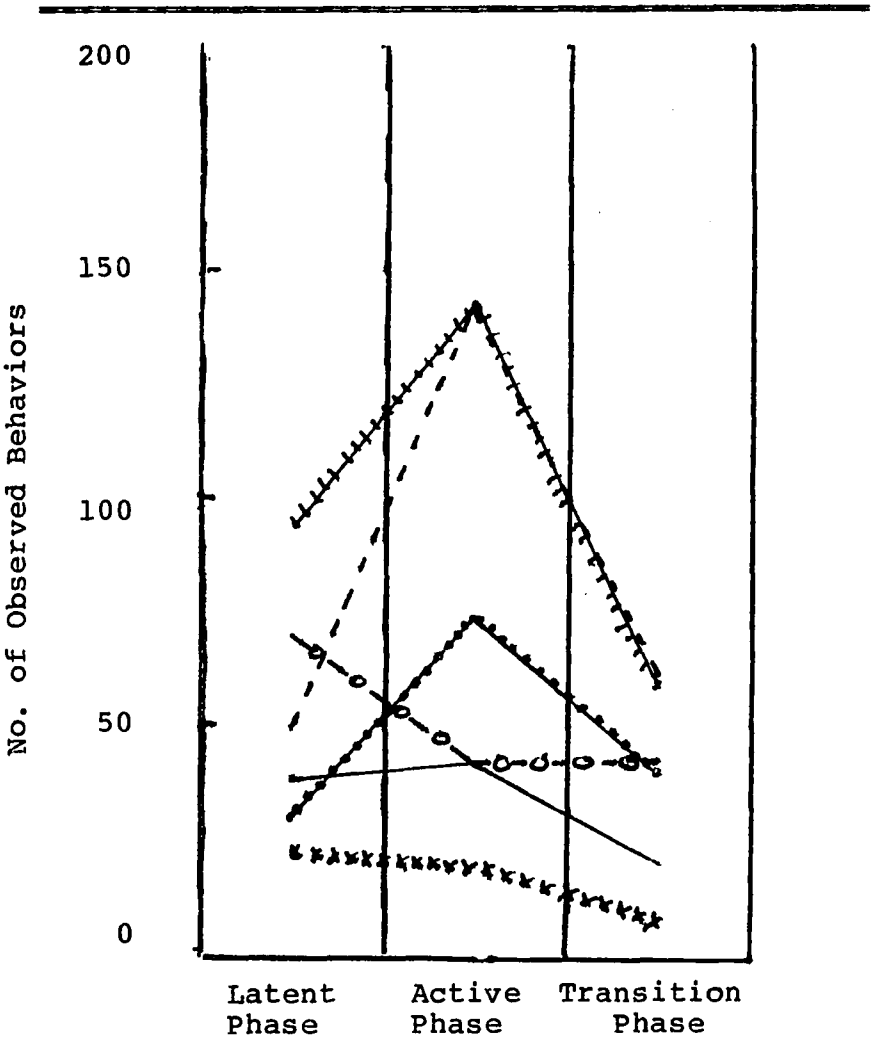

Figure 44. Subject No. 5: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion -+++++

An 18-year-old black G I P O, unmarried, had attended one prepared childbirth class, supported by mother and sisters, good outcome. This subject had the highest number of behavioral segments (1,000). The inverted language curve reflects the subject's response to family and staff disapproval of her boistrous shouts and exclamations with contractions.

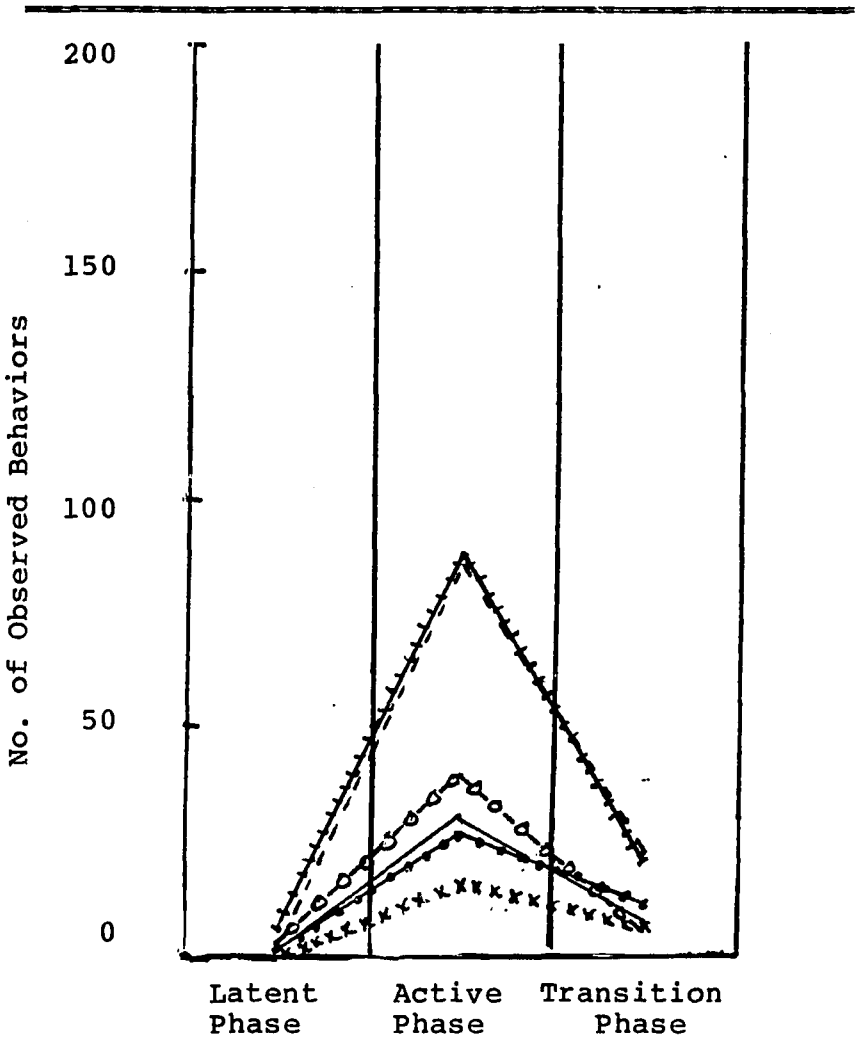

Figure 45. Subject No. 6: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion —+++++

A 25-year-old Anglo-American G I P O, had attended prepared childbirth classes, supported by an enthusiastic husband, good outcome.

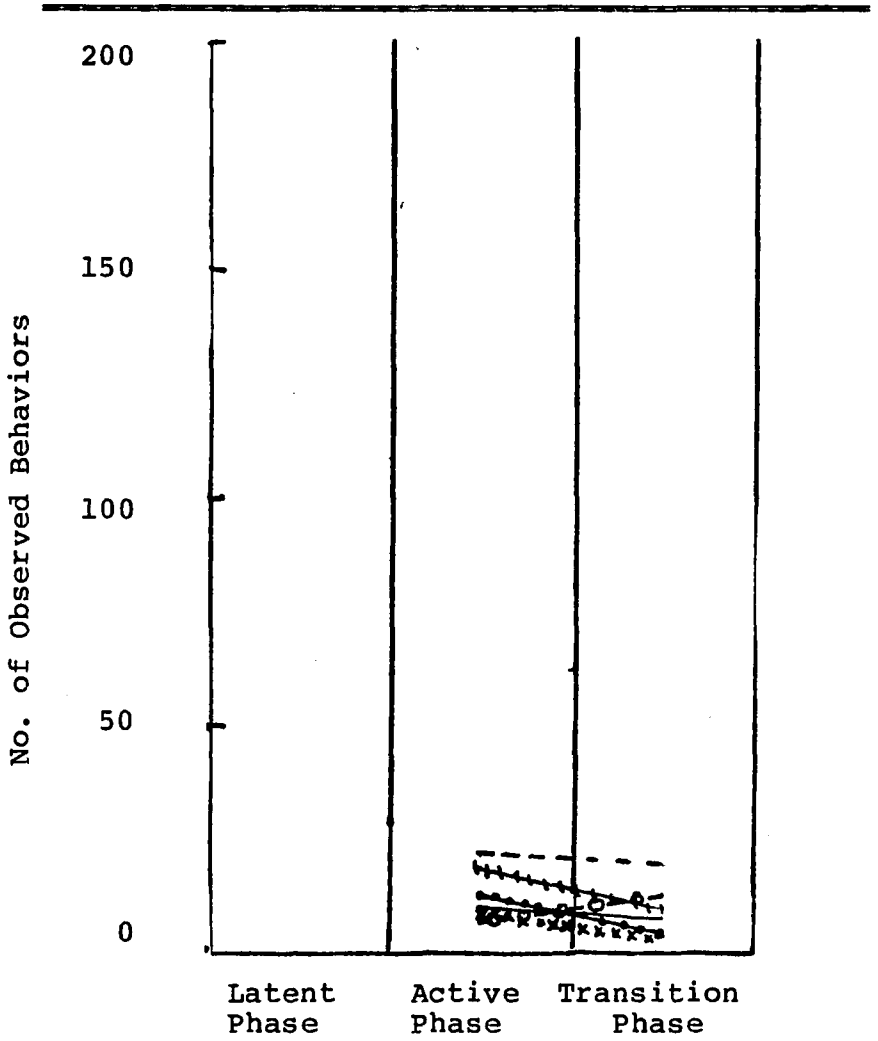

Figure 46. Subject No. 7: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion +++++

A 20-year-old Mexican-American G II P I, had attended prepared childbirth classes, supported by mother and husband, good outcome.

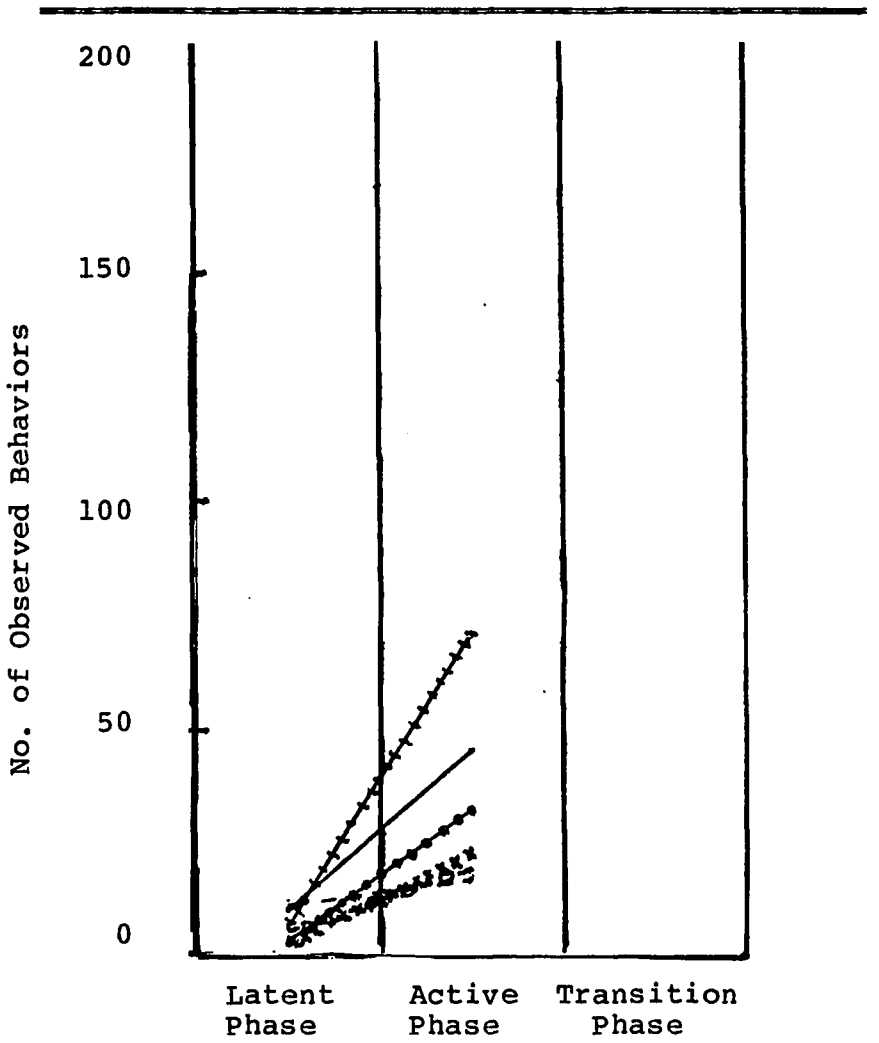

Figure 47. Subject No. 8: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion -+++++-

A 19-year-old Mexican-American, unmarried, G II P I, supported by boyfriend and brother, became increasingly irritable, requested observer to leave, and was physically and verbally abusive to staff nurse. The newborn was delivered in good condition, but the mother suffered 1500cc blood loss in delivery.

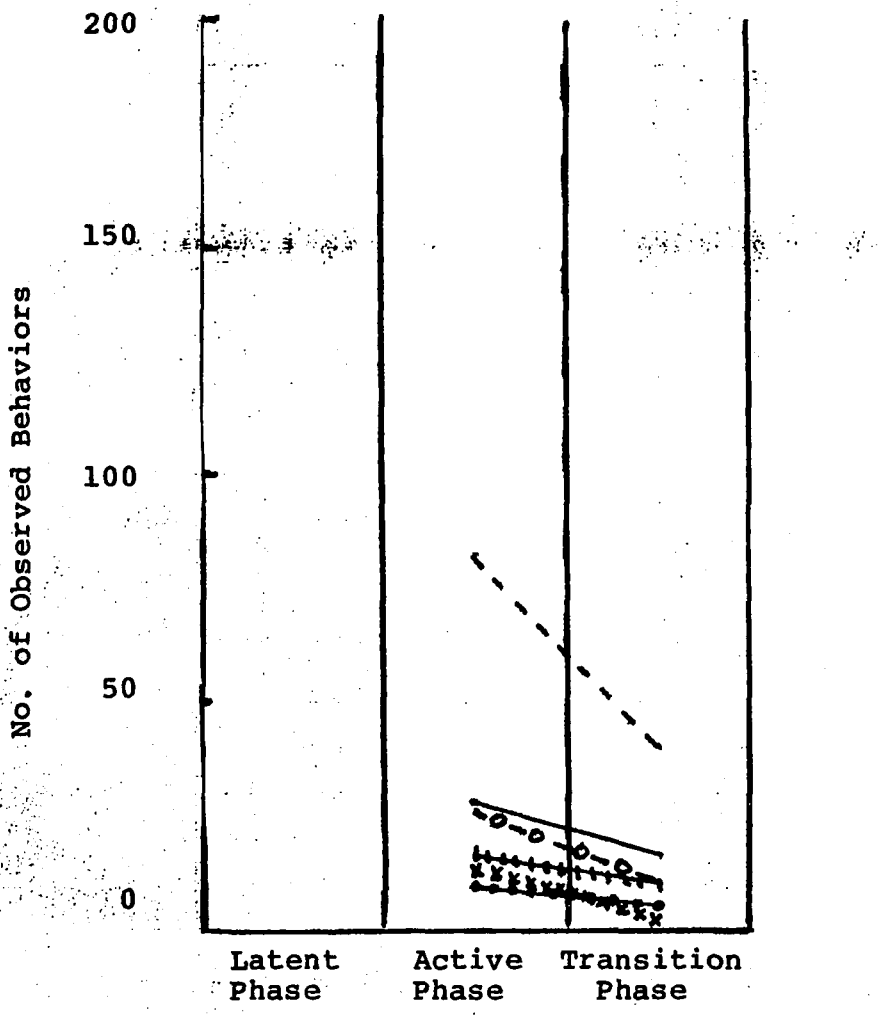

Figure 48. Subject No. 9: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion -+++++-

A 34-year-old Anglo-American G VI P II AB III, had attended prepared childbirth classes for first child, supported by husband, weighed 260 pounds, subject and husband each read books ("Congo") between contractions up to delivery. Good outcome.

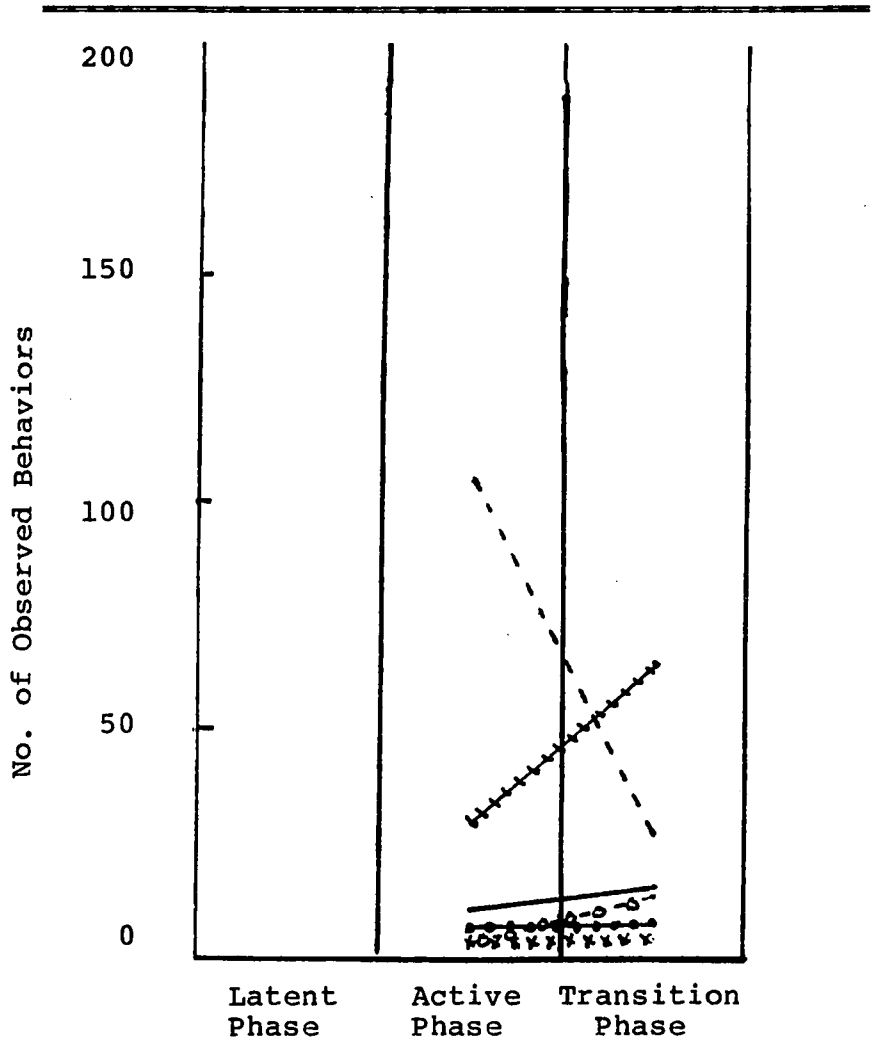

Figure 49. Subject No. 10: Communication behaviors

Language -o-o-o- Eyes ——— Face xxxxxx
Paralanguage - - - - Hands -●-●-●- Body Motion +++++

A 29-year-old Anglo-American G II P I, had attended prepared childbirth classes with first child, supported by RN sister and calm husband in an alternative birthing room setting, giving birth to a ten-pound boy in bed and with good outcome.

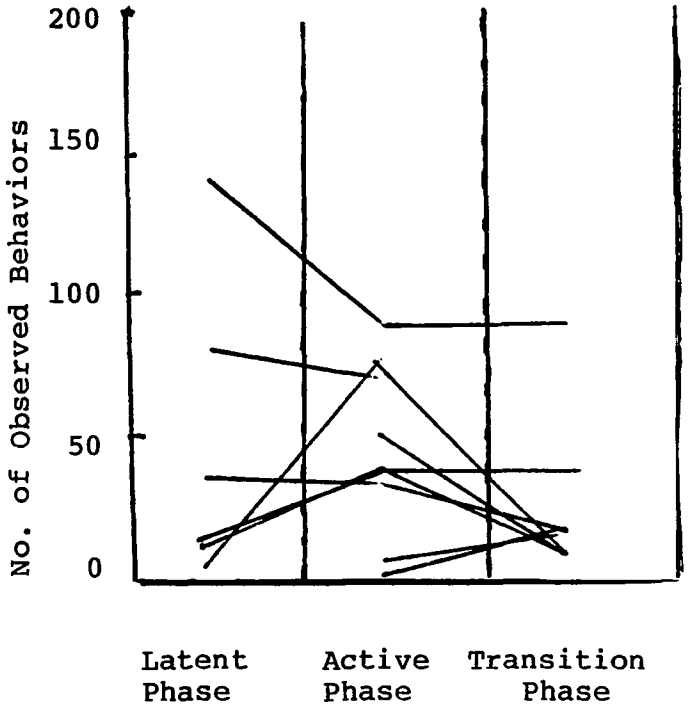

Figure 50. Total frequency of observed behaviors of ten women

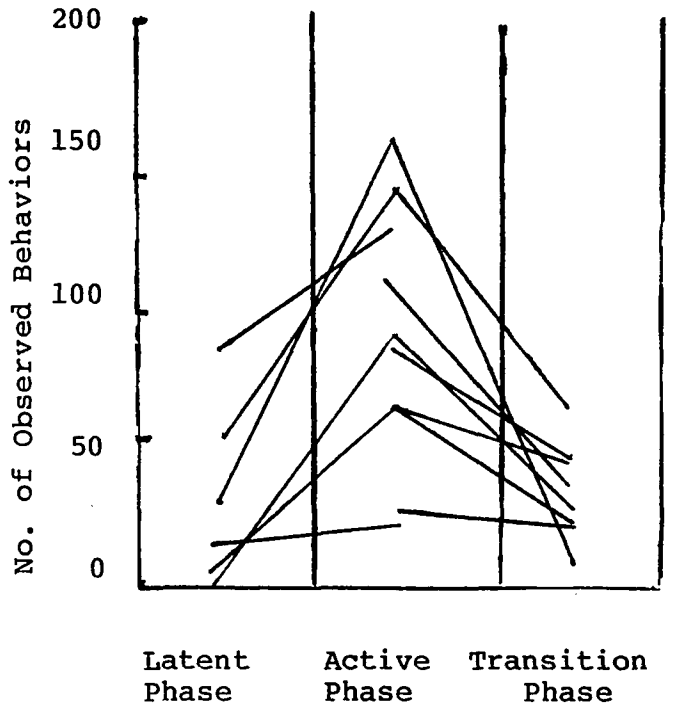

Figure 51. Total frequency of observed behaviors of ten women

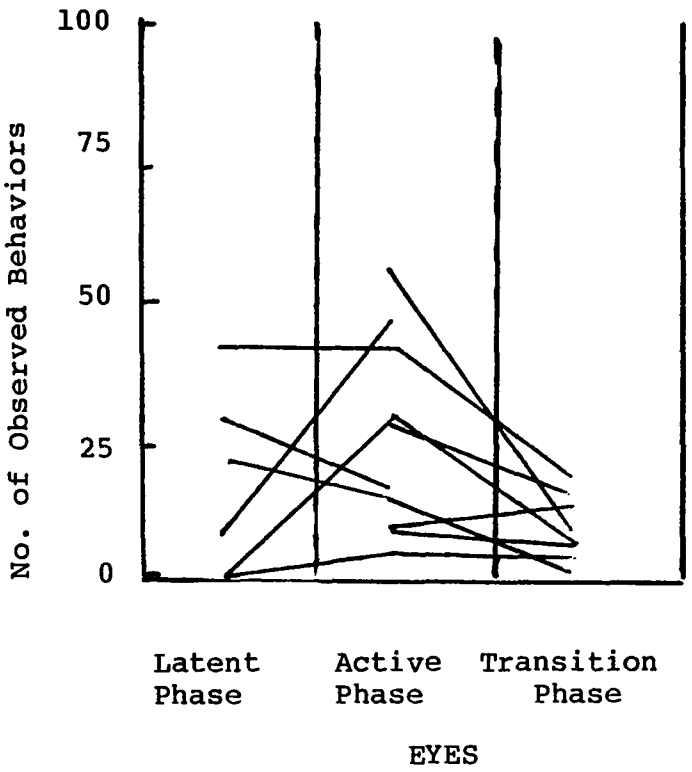

Figure 52. Total frequency of observed behaviors of ten women

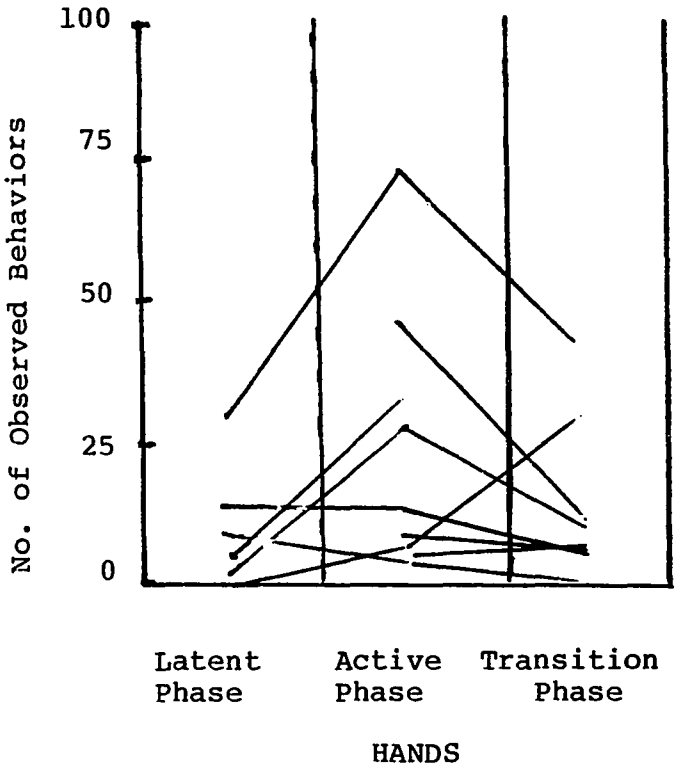

Figure 53. Total frequency of observed behaviors of ten women

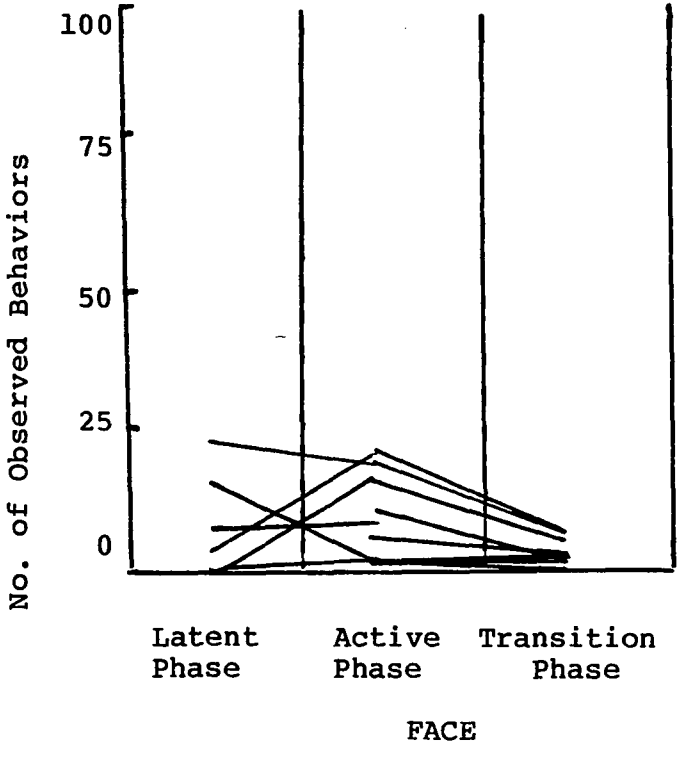

Figure 54. Total frequency of observed behaviors of ten women

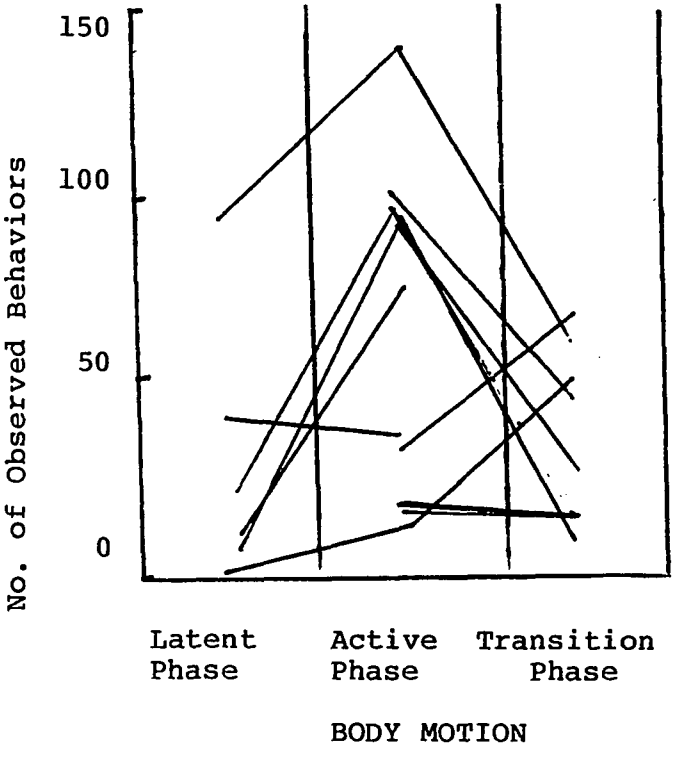

Figure 55. Total frequency of observed behaviors of ten women

categories, face behaviors data are remarkably flattened, despite an enlarged scale (Figure 54).

Conclusions

1. Women in Stage I labor communicate primarily through bodily behaviors (54 percent) as opposed to vocal behaviors (46 percent). Of the six categories of communication, paralanguage (33.1 percent) is the most frequently observed channel, followed by body motion (26.8 percent). The least frequently observed channel was face (5.3 percent).
2. The data do not support the notion that women communicate less as Stage I labor progresses through the three phases.
3. The data show no decrease in language communication frequency as Stage I labor progresses.
4. All communication behaviors in Stage I increase in frequency during the active phase and decrease in the transition phase to a level approximating the frequency during the latent phase.
5. The most frequently observed behavioral subcategories for each of the six communication categories according to phase are summarized in Figure 56. Criteria for inclusion was 12 percent or greater frequency in each phase. Behaviors appear in descending order of frequency.

STAGE I LABOR PHASE

Category of Communication	LATENT	ACTIVE	TRANSITION
LANGUAGE	*Exclamations!	*Exclamations! Expresses feelings of pain	*Exclamations! Gives facts RE labor Expresses feelings of pain
PARALANGUAGE	*Out-of-control breathing Deep abdominal breathing	*Moans/groans/hisses Out-of-control breathing	*Out-of-control breathing Pants, Blows Pant-blows
HANDS	*Touches others Touches objects	*Touches objects Touches others	*Touches own face Touches others Touches objects
EYES	*Closes eyes Focuses eyes	*Closes eyes	*Closes eyes Focuses eyes Averts/covers eyes
FACE	*Frowns/grimaces Lip activity Mouth open, Smiles Raises brows	*Frowns/grimaces	*Frowns/grimaces Munches ice
BODY MOTION	*Leg/foot movement Reaches for— Arm movement	*Leg/foot movement Reaches for— Head movement Arm movement	*Leg/foot movement Reaches for— Head movement Arm movement

*Most frequently observed in each phase and category

Figure 56. Most frequently observed communication behaviors in normal laboring women in descending order of frequency

6. The data show that many women in Stage I labor attempt to communicate (or maintain communication) with themselves through both bodily and vocal behaviors (e.g., self touching, closed eyes, aversion of head, and exclamations reflecting emotion).

Discussion and Implications for Nursing

A wide variation in the quality of the childbirth experience still persists within our culture, despite standardization of treatment and settings. Why is it that women, delivering within the same hospital on the same day, may report widely differing reactions to the childbearing experience? Some new mothers describe their labor as "fantastic," but others say it was "horrible (Tanzer, 1968)." Some women report feeling "complete and fulfilled," but others say they felt "passive," "lost," and "out of control." On the same postpartum unit, some women smilingly say they want to have a dozen more, while others gravely say, "This will be the last."

Given that every women has a unique combination of hopes, fears, and needs, the labor and delivery professional must question such varied responses to learn the causes and to seek solutions.

The expected outcome resulting from these ongoing studies is to increase satisfaction by women in the childbearing experience. It has been proposed that one factor

in this highly complex process that affects women's feelings about the childbearing experience is the timeliness of nursing intervention during labor to meet women's care needs, and, thereby, help them cope. This study has investigated the possibility that observable behaviors in labor are attempts to communicate by women and that these behaviors may be utilized by the nurse in assessing care needs and implementing them before the need is critical.

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It has long been accepted that communication skills are the primary tools with which to establish the initial nurse-client trust relationship. It requires both the nurse's time and energy in finding the responsive chord with which the client will send and the nurse will receive messages of need in labor. We have shown in this study

that laboring women are continuously sending messages to the environment, not all of which are verbalized. In order to receive and interpret these messages, the basic prerequisite is that the nurse be there with the laboring woman for frequent and ongoing reassessment throughout labor.

The data have shown that 46 percent of all communication by women in labor is through vocalization and that 54 percent is through bodily behaviors. Of the 3,868 segments of communication observed and recorded, only 12.6 percent of all behaviors in labor is verbalized messages. This information means that the nurse who bases her care solely on needs which are verbalized is operating on a far less effective base than the nurse who utilizes all communication channels available. There is far more information being sent by the laboring woman that can be taken into consideration for planning care.

In considering the data results that show communication behaviors increase between latent and active phases (e.g., a 350 percent increase in body motion behaviors) and subsequently decrease between active and transition phases, nurses can use this knowledge to provide realistic anticipatory guidance for laboring women as to what can be expected in the phase ahead. Prior to the urgency of the active phase experience, the nurse can present care alternatives to the woman (e.g., positioning

possibilites, comforts, medications, breathing techniques, etc.), so that when the actual labor stimuli do increase, the situation is less threatening to her coping abilities.

The client and support persons can benefit from the knowledge that control over the situation can and is being demonstrated during the transition phase, through evidence that frequencies of observed behaviors as labor progresses is reduced rather than increased. In classroom childbirth teachings and at bedside, this objective data supports a de-emphasis on the terrors of the transition phase by childbirth educators and medical staff. The fact that all sample behaviors increased in the active phase and decreased in transition within range of the initial latent phase recorded tends to suggest that women feel their greatest loss of control over behaviors during the active phase but manage to regain their coping by the transition phase. Therefore, knowledge of the childbirth process can be seen to be an important coping aid for women. Nurses are in an important position to recommend classes for all pregnant women, regardless of the predicted delivery mode. Although knowledge of the physiological process reduces levels of fear and/or anxiety, the professional should remember to include in their teachings that childbirth training is no guarantee of a painless labor.

It was concluded that all behaviors that are observable in labor can be classified into the six

communication categories in the study. Figure 57 presents an instrument developed from the study data for the observation and recording of these behaviors according to these categories and by phase of Stage I labor. The observer encircles or notes the frequency in number of a behavior during and following a single contraction, plus observed stimulus if applicable. The data from each individual contraction is transferable to a single computer card for analysis of behavioral patterns in varying combinations.

Compared to Standley's tool, this instrument's purpose is to catalog all behaviors throughout Stage I for categorization as communication and for comparison of behaviors among the individual subjects. Standley systematically examines the environment in relationship to the laboring woman in mid-course of active labor only and within a limited time frame.

Of all six categories, paralanguage was the communication channel most frequently observed (33.5 percent), undoubtedly due to the inclusion of breathing behaviors observed in the women during labor within our culture. Paradoxically, the subcategory of out-of-control breathing was most frequently observed in both latent and transition phases and was the second most often seen paralanguage behavior during the active phase. This is puzzling in light of the strength of Lamaze influence in young women who

Cerv. Dilation: _____
Number: _____
Directions: Record frequency and/or encircle

LANGUAGE	PARALANGUAGE	EYES	FACE	HANDS	BODY MOTION
Nonlabor	Laments	Contact	Expressions	Tactual	Movement
Requests info.	Laughs/giggles	Envir. search	Smiles	Self	Arms
Gives info.	Cries/wails		Mouth open	Face	Flex
Polite trans.	Moans/groans	Persons	Frown or	Hair/head	Extend
Acknowledges	Screams/whoops	Prim. supp.	grimace	Abd/fundus	Legs/feet
Other topics	Sniffs	Fam/friend	Wrinkles	Leg/thigh	Side-side
	Belches	Staff	forehead	Sacrum	Flex
	Yawns		Upper lip	Arm	Extend
	Grunts	Objects	taut	Chest	Rocking
		Averts or	Juts chin	Perineum	
Labor	Breathing	covers	Perspires		Trunk/Should.
			Nares flare	Persons	Arches
Requests/Needs	Deep abdominal	Movement	Pantomimes		Tenses
	Shallow chest		Flushes	Objects	Head
Comfort	Pant-blow	Open	Relaxes		Side-side
Facts	Holds breath	Focused	Tongue out	Gestures	Vertical
Meds	Gasps/gulps	Bulges			
Others	Blows/sighs	Open	Activity	Open	Unmoving
	Pants			Relaxes	
Gives info.	Out-of-control	Closed	Lips: licks	"Stop"	Reaches for:
	(Irreg., puffs)	Squints	- compresses	"No"	_____
Facts		Squeezes	- purses		_____
Orders, plan		Flutter or	- bites	Closed	
Comparison		blink	Vomits	Fist	Orientation
			Munches ice	"Come"	
Expres./feelings		Open/closes	Drinks		On back
			Dozes/sleep		On side
Pain					Sitting
Fear					Stands/walks
Shock					Prone
Anger					
Doubt					
Regret					
Approval					
Disapproval					
Affection					
Exclamations					

Stimulus:

Between
Contractions:

Figure 57. Instrument for recording observed behaviors during one contraction

deliver today. It may be that young women have accepted the notion that use of breathing techniques are necessarily a part of childbirth from their peers or lay literature. However, women have either not received sufficient education in utilizing these techniques or they are finding use of breathing techniques to be ineffectual for reducing pain. This warrants more study.

Body motion was the second most frequently observed channel of communication by women in labor (26.8 percent), with leg/foot movement most frequent in all three phases. This is consistent with the communication theory that leg movement represents desire for flight. Many women in labor say they would like to put on their clothing and go home!

Although the data showed only 1 percent of body motion to consist of rocking behavior, I believe more study relating to this activity may reveal information about thresholds of tension or distress. Literature on autism defines this as "stimulus-seeking" behavior, although why a laboring woman should seek additional stimulation when there is already excessive amounts is perplexing. Mehrabian (1972) has theorized that rocking in a nonlabor situation reduces tension. Wiedenback (1958) lists pelvic rocking as "What She May Do" activities during both latent and active phases. This study observed the behavior in all three phases but was noted more frequently in the active and transition phases.

Language was the next most frequently observed channel. Exclamations by women of emotions were the behaviors most frequently verbalized in all phases of Stage I labor. This may reflect the notion that women attempt to communicate with or maintain communication with themselves. Women were shown to continue to verbalize facts and feelings regarding their labor throughout Stage I. Although no subject verbalized feelings of love or affection in this sample, the category will remain in the observation instrument for future study.

Eye communication, the next most frequently observed channel, showed the behavior of eye-closing most frequent in all three phases. This observation is also contrary to prepared childbirth class teachings (e.g., "focal point"). This behavior may be an effort to either communicate with the self exclusively or to withdraw from the stimulation of the labor environment.

Most frequent hands behaviors varied according to phase and consisted of touching others (latent), touching objects (active), and touching own face (transition). Face-touching in communication theory is said to occur in shame or when one is experiencing negative attitudes toward self. While this is certainly possible in a Freudian sense during labor, a more recent notion refers to the subconscious checking of self body parts and orifices as body boundaries

are disrupted and penetrated during labor (McConnell and Datson, 1961). Touching of perineum/anus was observed only once in this study, contrary to expectation.

The least frequently observed channel of communication was face (5.3 percent), although it is theoretically and evolutionarily the most important bodily signalling area. This was a disappointing result. Perhaps since turning the face to another signals that the other person may begin encoding a message, laboring women may be preferring to discourage added or unnecessary stimulation from the environment. Within all three phases, frowning/grimacing was the activity most frequently observed of face behaviors.

The variety of ethnicities within the sample may have limited the conclusions of the study. It is well known that behavior tends to reflect culturally-determined attitudes (Howells, 1972) and that childbearing behavior patterns differ greatly from culture to culture. For this reason, it is illogical to compare behaviors of the individual women. For example, Subject 5 (black, but also unmarried, untrained, teenage, and primiparous) provided 1,000 total behaviors during a 307-minute observation. On the other hand, Subject 3 (Anglo, but also married, untrained, 22 years old, multiparous, and the only inductee) provided 445 behaviors during a 495-minute observation. Since there are so many factors which might affect behavior, only a

single ethnic group should be studied to reduce the complexity of variables. Nurses have long been aware of these cultural differences in response to labor. Even so, I witnessed repeated expressions by nurses of disapproval of subjects' behaviors during this study, initiating a staff-client conflict which can color the entire behavioral course of labor and delivery (e.g., Figure 44).

The sample size of ten subjects, although adequate for establishing a baseline of behaviors which are observable in each phase is a limiting factor in generalizability of the data to the population at large. Future studies will consist of larger numbers of subjects.

It is notable that the subjects with childbirth preparation (Figures 43, 45, 46, 48, and 49) show a flattened curve in at least four of the six categories of communication. This similarity will be investigated more thoroughly in future studies in terms of learned coping abilities and/or control, although there are undoubtedly other factors that affect responses (e.g., ego strength, family interrelationships, need for peer approval, and levels of pain tolerance). All these factors should be considered by the nurse in individualizing the "standard" care plan for the normal laboring client.

It is very difficult to compare this research with other laboring behavior studies. This is exploratory

research, presents only frequencies and percentages, and makes no attempt to define relationships or interpret the behaviors observed and recorded. I have attempted to draw a picture of the kinds of behaviors women demonstrate when they are in Stage I labor. It is hoped that this work will provide a foundation upon which others can base descriptive research which will define the concepts and relationships.

Angelini's descriptive work (1978) on nonverbal communication in labor strongly influenced my thoughts regarding behavior as communication, although it was intended to assist nurses in understanding their patients' needs through interpretation of behavior. Werts et al.'s study of variables leading to staff use of the term "difficulty in labor" was subjective, full of bias, and irrelevant. Wiedenbach did not document either the source of her observations or rationale for categorization in her outline by phase of expected characteristics in laboring women. The behaviors listed may be reported by the patient (e.g., "irritable abdomen," "generalized discomfort") or observable (e.g., "shaking of legs").

On the other hand, Richardson carefully constructed a study for purposes of exploratory observation and recording of behaviors by categories and by phase. Whereas my study assumes that all behavior are attempts to communicate, Richardson assumes all behavior results from the

stimulus of pain. Analysis of the data required further subcategorization as to whether the behavior desired another to approach or avoid the woman. As a matter of communication theory (Pitcairn, 1976), approach and avoidance behaviors appear within a wide spectrum of evolutionary behaviors which includes aggression, cut-off, submissiveness, and ambivalence. Richardson did not explain her rationale for determining that only approach and avoidance are demonstrated in the laboring situation.

In conclusion, is the goal of defining the meanings of women's behaviors during labor possible or even pertinent to nurses who care for laboring women?

This seems to be an era in childbearing wherein medical intervention and the requesting of intervention by women is in disfavor in our society and where consumerism dictates not only the birth scenario and participants, but the professional role as well. Because of this trend, many women who are yielding to pressure from peers, family members, and lay literature find themselves unwilling or unable to request help or medication. It has been shown in this study that 1 percent of all language communication was observed to verbalize a request for medication. Often nurses see a woman struggle unnecessarily through a potentially, psychologically-damaging labor, so that it can not be said of her that "she gave up" by requesting

intervention. Or she falsely verbalizes ("I'm doing okay"), responding to questions with answers she believes are expected by caregivers and family. When these events have been permitted to occur without professional intervention, how does a woman feel about the childbearing experience after it is over? If the labor and delivery has not achieved the ideal fantasized, the woman usually blames herself. There may be anger and guilt, but usually there is just disappointment. I contend that this unhappy outcome is preventable through careful and ongoing assessment throughout the labor by professional nurses who recognize mixed messages in their clients and who responsibly intervene by presenting to the woman other available options for her care.

Therefore, although it may not be necessary for the nurse to know exactly what each body motion means, it is imperative that the nurse recognize a signal for help, regardless of how it is communicated to the environment. In the animal world, a certain attachment behavior (Henderson, 1974), which has been observed in birds and apes, has been given the term "care-eliciting." It is a pattern of activity on the part of one organism which evokes from another responses which give either comfort, expressions of concern, or affection. Their function is to signal for help.

Do laboring women exhibit care-eliciting behaviors? Are they sometimes signalling for help? Is the ultimate

function of nursing to respond to the care-eliciting behaviors demonstrated by our clients and patients? Where there is a signal, whether verbalized or sent via bodily behaviors, the laboring woman depends on the professional nurse to respond rather than ignore, to understand rather than to judge, and to intervene where necessary based on knowledge and experience.

Recommendations for Further Study

This exploratory study was to define observable behaviors of the three phases of Stage I through a system of discrete categorization with a sample consisting of women expecting normal labors and deliveries and without handicaps to communication. Recommendations for further study are:

1. Replication of the study with a sample size of 25 women meeting the same criteria.
2. A second exploratory study with the sample consisting of laboring women with identified high-risk factors, for the purpose of comparison of behaviors observed with those of the normal, laboring women of this study.
3. A descriptive study of possible causal factors in behavior, such as environmental stimuli (e.g., IV initiation, injections, vaginal examinations, etc.).

4. A correlation of behaviors to various sample characteristics (e.g., parity, preparation for childbirth, marital status, etc.) and to the ethnic group.
5. Use of videotape to record labors, after which the subject is asked to watch the tape and report her thoughts, feelings, or meanings at the time of the observed behaviors. These results can then be compared with and applied to the data as analyzed by communication categories.

Appendix A

Subject's Consent

I consent to participation in the study by Donna Carol Gustafson R.N., graduate student at the University of Arizona College of Nursing, entitled Communication of the Laboring Patient. I understand the objective of this study is the observation and collection of data pertaining to the communication, verbal and nonverbal, of the laboring patient. I am aware that although there is no direct benefit to me, there is a potential benefit to future laboring women and families through improvement of care.

There is no cost or payment to me, and I understand that the identity of my family and me will remain confidential. The data will be used for a Master's thesis, and for education and possible publication. I understand that my care will not be affected if I participate or not. I understand that I am free to ask questions and receive answers at any time, that there is no known risk involved in my participation, and that I can ask the observer to leave at any time, allowing me to withdraw from participation in the study without ill will.

My selection for participation was made with the assistance of the staff nurse and was based on: (1) the fact that I am normal and healthy, and (2) the fact that a normal, healthy delivery is expected. The procedure will consist of the observer sitting in a corner of the labor room of the hospital setting, making anecdotal notes on the communication directly observed during Stage I labor for later transcription, and talking with the subject after delivery. The observer will not be the primary care-giver.

I have read this Consent, and the nature, demands, risks, and benefits of the project have been explained to me. I understand that this consent form will be filed in an area designated by the Human Subjects Committee with access restricted to the principle investigator and the thesis committee members. A copy of this consent form is available to me upon request.

Subject's signature_____

Date_____

Witness' signature_____

Date_____

dg

Appendix B

THE UNIVERSITY OF ARIZONA COLLEGE OF NURSING
MEMORANDUM

TO: Donna Carol Winn Gustafson

444 W. Orange Grove Rd, Apt 403 85704

FROM: Ada Sue Hinshaw, R.N., Ph.D. Director of Research ASH
Margarita Kay, R.N., Ph.D. Chairperson, Research Committee

DATE: September 29, 1981

RE: Human Subjects Review: "A Description of Communication by Women in Labor"

Your project has been reviewed and approved as exempt from University review by the College of Nursing Ethical Review Sub-committee of the Research Committee, and the Director of Research. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research, if you need access to it.

We wish you a valuable and stimulating experience with your research.

ASH:ss
1981

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