

---

## OBSTETRICS BY EAR

### Maternal and Caregiver Perceptions of the Meaning of Maternal Sounds During Second Stage Labor

Susan McKay, RN, PhD, and Joyce Roberts, CNM, PhD, FAAN

---

#### ABSTRACT

In a study at the University of Colorado School of Nursing, Department of Nurse-Midwifery, women's second stage labors were videotaped to study caregiver behavior during second stage labor. Postpartum interviews of the mothers ( $n = 10$ ) and caregivers ( $n = 16$ ) were conducted to learn about their responses as they viewed the videotapes. Qualitative analysis was conducted of the transcribed interviews using the Ethnograph computer software. One of the themes emerging from the data was the significance of maternal sounds. Both caregivers and mothers were able to articulate differences between adaptive and nonadaptive sounds according to their quality, pitch, feeling state, and accompanying verbalizations. Data about women's second stage labor sounds have been categorized according to the following maternal states: work/effort, coping, childlike, out-of-control, and with epidural anesthesia. Typical sounds/verbalization, significance, and facilitative caregiver responses are defined for each category. It is concluded that when a "no noise" rule is evoked during second stage labor, valuable behavioral cues are unavailable to guide caregiver behavior.

Experienced obstetric nurses and midwives, confident in their abilities to assess labor progress vis-à-vis the mother's behavioral cues, often rely less on assessment data obtained from vaginal exams and electronic instrumentation and more upon what is seen and heard. Finely honed skills enable nurses to respond appropriately to a laboring woman's needs, but these may not be consciously known nor appreciated for the sophisticated learning that led to their development. For example, an important behavioral cue that mediates the nurse's be-

havior is the sounds a parturient makes and what these communicate about maternal state of being.

The purpose of this paper is to discuss "obstetrics by ear" during second stage labor—that is, the auditory perceptual skills caregivers use in responding to parturients' behavioral cues. Interviews were conducted with 16 caregivers: four student nurse-midwives, five certified nurse-midwives, five registered nurses, one lay midwife, and one obstetrics technician. All were experienced labor attendants who watched and listened to videotapes of second stage labors in which they participated. Data from these interviews were transcribed and analyzed and will be used to illustrate how caregivers interpret the meaning of ma-

ternal sounds and appropriate caregiver responses. Additionally, the responses of 10 women to hearing their videotaped sounds during second stage labor will also be discussed.

#### METHODOLOGY

The method for analyzing the narrative interview data that had been transcribed and entered into the Ethnograph computer program was the constant comparative method that is associated with grounded theory research.<sup>1-4</sup> Grounded theory is based on the symbolic interactionist perspective that posits that humans act and interact on the basis of symbols that have meaning and value for the

---

Address correspondence to Susan McKay, RN, PhD, University of Wyoming School of Nursing, Box 3065, University Station, Laramie, WY 82071.

actors. The symbols include the words and sounds that communicate messages to others with or without words.<sup>5</sup> The focus of the analysis, yielding the results that are reported here, was the vocalizations of women during the second stage of labor. As the narrative data from the transcripts of videotapes and the interviews with caregivers and mothers were reviewed by the investigators, the importance of vocalizations by the expectant mothers during labor became apparent. Both caregivers and the mothers themselves commented on this aspect of the video as they viewed the videotape with the first author (S. M.). Thus, vocalizations became identified as a basic aspect of the social psychological processes that were occurring, or a "core coding category."<sup>2,3</sup> Comments about or reactions to the mothers' vocalizations were identified in the narrative transcripts and analyzed in regard to each mother's reactions to this aspect of her labor and in regard to caregivers' comments on their interpretation of the meaning of a mother's vocalizations during second stage. This feature of the second stage of labor was, therefore, recognized as one of the critical aspects of "what was going on," and analysis of its meaning followed.

While the entire research team of six to eight individuals, who met periodically to review the videotape

analysis, concurred on the significance of this aspect of the second stage of labor, the major portion of the analysis and interpretation of the incidents, patterns of responses, and the construct of vocalizations during second stage was carried out by the first author (S. M.) in collaboration with the second author (J. R.). Repeated examination of the narrative data resulted in the identification of the examples that are included in the sections of the discussion of behavioral/auditory cues that caregivers can use during labor. The concluding categorization of maternal noises is the authors' classification of the variety of vocalizations that were recorded. The authors' interpretation of the significance of these sounds was based on the caregivers' responses that were observed on the videotapes or described during the interview with the caregivers who viewed the videotapes. Maternal interpretations of the meaning of the noises they made were used to corroborate caregivers' identification of the significance of mothers' sounds.

#### DEMOGRAPHIC CHARACTERISTICS OF CAREGIVERS AND MOTHERS

Sixteen caregivers were interviewed: four student nurse-midwives, five certified nurse-midwives, five registered nurses, one lay midwife, and one obstetrics technician. All caregivers, with the exception of one student nurse-midwife with two years of experience, had worked with laboring women at least three years.

Ten mothers (seven primiparas and three multiparas) were interviewed, with the age range from 18 to 36 years. One mother was black, two were Hispanic, and seven were white. Five mothers labored and delivered at a level III facility, two mothers did so at a level II hospital, one labored at a birth center and was transferred after a prolonged second stage to a level II facility, and two mothers gave birth at home. The mean length of second stage ( $n =$

9), excluding one second stage labor that lasted over eight hours, was 1.38 hours. Four women had epidurals during first stage labor, one of whom also had one dose of butorphanol tartrate and another who also had one dose of nalbuphine hydrochloride, and six had no medication. Five women had childbirth education preparation and five did not.

#### BEHAVIORAL CUES IN LABOR

Earlier nursing textbooks and articles about the care of laboring women often stressed behavioral cues as the basis for providing nursing care. For example, Wiedenbach's text, *Family-Centered Maternity Nursing*, stated, "When the pattern of the mother's behavior—her vocal expressions, her tone of voice, her look or manner—during contractions or any part of her labor, is markedly different from the kind she could, under known circumstances, be expected to follow, the nurse may well suspect that something physical, or psychological, is impairing the mother's ability to cope rationally with the forces at play. Recognition of behavioral inconsistencies is an important aspect of observation, but it is valueless unless an effort is made to understand the meaning to the mother of the behavior she presents."<sup>6</sup>

Smith described "a catch or crow in voice as the patient exhales" that occurs when involuntary bearing-down efforts begin.<sup>7</sup> Hosford, providing another example from the 1960s of the emphasis upon the behavioral changes experienced by women during the childbearing year, summarized the role of the supportive nurse throughout the maternity cycle, with special emphasis upon the phases and stages of labor.<sup>8</sup>

An examination of contemporary obstetrical nursing texts, however, shows great attention to the use of electronic technology and physical assessment, with discussion of the parturient's behavioral cues mini-

---

Susan McKay, RN, PhD, is a professor of nursing at the University of Wyoming School of Nursing in Laramie, Wyoming. She is also co-investigator of "Supportive versus directive care in second stage labor," funded by the National Center for Nursing Research.

---

Joyce Roberts, CNM, PhD, FAAN, is a professor of nursing and director of graduate nurse-midwifery at the University of Colorado School of Nursing in Denver, Colorado. She is principal investigator of "Supportive versus directive care in second stage labor."

---

mized. Patterns of maternal behavior, as discussed by Wiedenbeck, are not addressed or described and consequently often are not perceived, especially by novice caregivers.<sup>6</sup> Therefore, reliance may be placed upon data obtained from sources such as vaginal examinations and uterine contraction recordings instead of maternal visual, tactile, and/or auditory stimuli.

#### AUDITORY PERCEPTUAL PATTERNING

The basis of perception is the ability to identify or impose patterning upon the changing sensory environment.<sup>9</sup> Pattern recognition requires that information retained in sensory memory be compared with the relatively permanent information acquired during the lifetime of the organism, that a match be made, and a pattern recognized.<sup>10</sup> Patterning generates information but requires a receptive, sensitive medium so that the information can be transmitted.<sup>9</sup> For the nurse caring for the laboring woman and listening for auditory cues, pattern recognition can enable her to respond appropriately. For example, a highly experienced nurse-midwife interviewed during a videotape viewing stated:

It's a common cue that I use. Part of my style is that I don't examine people very often. And I look and listen for the behavioral . . . sounds . . . and do a lot of things without checking them . . . I'll assume they're in second stage when I hear that real push . . . and not necessarily go back and check them. And then if I don't see the head in a reasonable length of time, then I'll check to see if, in fact, my ears were right or not.

This nurse-midwife indicated that she had learned her skills at a time when vaginal examinations were seldom done, when what was required was that she look and listen. Thus, parturients' sounds provide important data that influence caregiver behavior.

Auditory perception and under-

standing of the sounds of labor are usually learned in the "school of experience." Caregivers with whom the author has discussed the meaning of maternal noises have sometimes expressed surprise at realizing the importance of auditory cues, often coupled with unawareness that they used auditory patterns in a systematic way as part of their caregiver behavior. As caregivers articulated the significance of various maternal noises, the auditory patterns and caregiver responses have evolved into meaningful categories.

#### BARRIERS TO AUDITORY PERCEPTION OF MATERNAL CUES

An important barrier to perceiving auditory cues of laboring women is limited information about what the sounds mean compounded by lack of awareness that maternal sounds can guide caregiver behavior. Another barrier is cultural beliefs that can affect the caregiver's willingness for the laboring woman to make noise. The hospital culture holds strong norms about what is and is not appropriate behavior for those who work in it or come to it for its services; maternal behavior is shaped to conform to these core beliefs, often with the help of medication.

Nurses may worry about maternal sounds bothering other laboring women or associate all sounds with pain and distress and believe intervention is warranted.<sup>11</sup> Further, the nurse may feel inadequate to help the woman and thus may discourage maternal noise, thereby reducing the availability of auditory cues as indicators of maternal state. One means of control of maternal sounds is clear and directive bearing-down directions that include a "no noise" injunction: "Take a deep breath, hold it, don't make any noise or you'll waste energy." Another similar directive is "Don't let any air out of your mouth while you push."

One mother, who was also a student nurse-midwife, made the obser-

vation that at home she could make any noises she wanted, but she would never be able to do so in a hospital:

I thought it was neat because I was at my home, and I could do whatever I wanted. I did not have to be quiet. I could scream and yell . . . and I feel like in a hospital a lot of times people feel like they're inhibited and . . . people are gonna say "shh" or "give that lady something for pain. She's making too much noise" . . . cause I've been a nurse for a long time, and that's what people say. In my own home . . . nobody was going to tell me to shut up.

Another mother commented that:

My best pushes were when I was making noise, I think. Instead of—you know how you're supposed to hold your breath and not make any noise and push, I would make noise when I would really push good.

A nurse-midwife stated:

I think the noise that she's making with the contractions is perfectly normal, and a lot of women need to make noise with the contractions . . . and that's helpful to them. Some care providers will say, "don't make noise . . . put that energy down to your bottom . . . if you scream you can't push." And I think to some extent that may be true, but I also think that a lot of women need to scream and make noise when they're in labor.

#### THE SOUNDS OF SECOND STAGE LABOR

For both caregivers and mothers, the sounds of second stage have distinctive attributes, can be clearly differentiated from each other, and have meaning. In viewing videotapes of their second stage labors, mothers often expressed surprise about the sounds they had made during labor. Similarly caregivers, some of whom were not very aware of how well "tuned in" they are to the meaning of sounds in laboring women, found themselves able to identify and attribute meaning for caregiver be-

havior to what they heard. The various categories of maternal sound, their significance, and implications for caregiver behavior, are summarized in Table 1 and are a collage of observations from interview data of women and their caregivers.

### Work and Effort

The sounds in this category comprise those recognized by both mothers and caregivers as helpful, adaptive, and signaling effective bearing-down efforts. Typical sounds are guttural in quality and low pitched in tone but noisy, possibly sensual. Descriptive terms to explain the sounds include grunting, primal/animalistic noises, and "uhhhhhhhh."

Obstetric textbooks may mention these sounds as indicating progress, for example: "Deep grunting sounds during contractions . . . often signify that the second stage had begun. The grunting sound may appear

very suddenly and may be so distinct from earlier sounds that this sign of second stage labor is unmistakable, at least to the experienced obstetric nurse."<sup>12</sup> Similarly, Wiedenbach, in discussing the onset of second stage labor, states "She may have an urgent desire to push or bear down. She may experience an audible catch in her throat when she exhales, resulting in an expulsive groan or grunt."<sup>13</sup> Another text states that grunting sounds or expiratory vocalization signal descent and the final phase of bearing down before birth.<sup>13</sup> Neeson and May include the verbal responses of groaning, grunting, or cursing and screaming under assessment for intervention for pain during labor.<sup>14</sup> However, the grunting is inappropriately grouped with groaning, cursing, and screaming. The latter are different maternal states reflecting distress (see Table 1) as opposed to the work/effort represented by grunting, which often requires no intervention

beyond support and encouragement to continue.

As women described their sounds of work and effort and what these meant to them, they sometimes labeled them as "primal." A mother who had given birth at home with a nurse-midwife said:

I remember I made a lot of noise. I remember being aware and that it was sort of like I was hearing somebody else making noise. . . . I remember thinking, "that's rather primal noise." I never heard myself sound like that before.

Another homebirth mother, also delivered by a nurse-midwife, said, "You almost have . . . animal instincts . . . I mean the noise you make. It's more of an intuition or like something that's just supposed to happen."

Primal noises can resemble those of lovemaking and may cause acute discomfort in institutional settings (where such sounds clearly do not

**TABLE 1**  
**Classification of Maternal Noises During Second Stage Labor and Significance for Caregivers**

State	Typical Sounds	Significance	Caregiver Response
1. Work/effort: adaptive/effective	Guttural; grunt; "uhhh"; primal/animalistic; (low pitch)	Expression of effort/pressure; efficient use of abdominals; "I'm working"; "I'm pushing."	Responsive to maternal efforts (noninterference and validation with the laboring woman that her sounds are related to the work she is doing).
2. Coping: adaptive/self-comforting/soothing	Sigh ("oh . . ."); moan; groan; (low pitch)	Expressions of tension relief/release; "I'm coping."	Responsive to expressed maternal effort (noninterference and reassurance of the woman that her sounds assist with tension relief).
3. Childlike: emotions predominate/nonadaptive	Cry (like a baby); whimper; whine (like a puppy); "owie"; (high pitch)	Pain/distress; "It hurts"; "I need help"; "I'm scared"; "I'm going to lose control."	Becomes active to avert more pronounced distress (reassurance and direction about coping strategies).
4. Out-of-control: emotions predominate/transadaptive	"EYEE"; holler; yell; noisy; overbreathing; (very high pitch)	Extreme pain/distress/pain; "I can't do this"; "I've lost hope."	Very active in directing behavior (ie, type of breathing, bearing-down efforts, or bodily activity).
5. Epidural anesthesia: body/mind split	Quiet/normal conversation	Expressions from women do not provide data about physiologic state; "I don't know what is happening."	Variable, from no activity to highly directive; may miss cues because of incongruent maternal physiologic/psychologic states

belong!) and hurried directives to "hold your breath and bear down." Perhaps a reason that sustained breath holding with pushing is so deeply ingrained in nursing practice relates to the kind of primal sounds a laboring woman may make. A homebirth mother observed that "both the noises and the way we interact [the woman and her husband] remind me of how we make love. I am just a little embarrassed saying that, but it's true."

Noble pointed out that partial closure of the glottis (in contrast with the more common practice of complete closure during bearing-down efforts) results in the characteristic sounds of second stage and recruits the abdominal muscles in their role as the muscles of forced exhalation.<sup>15</sup> Unless directions are given to withhold grunting, they will occur spontaneously. Brewer, in discussing the grunts, hums, groans, or throaty yells that accompany expiratory effort during second stage labor, observed that "Many people who hear a mother making loud work noises during pushing think that she is a mother in agony. We now know that this is not the case—weight lifters, piano movers, javelin hurlers, tennis players who serve a lot of aces: all release breathing forcefully with effort."<sup>16</sup>

Caregivers, too, recognize the work and effort implicit in grunting sounds. A nurse-midwife said the following:

I remember being told that you should never have a patient make noises when they push. I actually encourage her, right as the mother is getting ready to let her breath out, to do a good grunt. Because it seems to me that when she does that grunt, she's using her abdominals maximally.

Agreeing that maternal sounds signal helpful effort, a nurse observed that

When they're pushing well, they seem to make a certain grunt . . . when the baby turns the corner, that urge gets stronger, and they usually have a real

base kind of "uhhhh." And then a lot of time you know they're pushing just right. You don't have to be looking. You don't have to be feeling. You know they're pushing right, and that's usually when they get close to crowning.

A highly experienced nurse-midwife corroborated this observation as she watched a videotape:

What I was responding to is the sound—obstetrics by ear. I just heard myself listening, when the head hits the perineum, and they get that urge to push; there's a different sound . . . in their voice. There's a catch in their grunt, but it's different . . . it's kind of a grunt. Making grunts earlier than that, the sound is different. And when you . . . when you hear that sound, it's almost always associated with the baby, the baby has moved.

This nurse-midwife observed that there's a difference in the sounds of the woman's voice "when it's a real push with the head down on the pelvic floor versus somebody . . . telling you when to push or push because the baby's low, but there's still cervix keeping it off the pelvic floor." A nurse working in a birthing center also recognized a different quality of grunt when second stage had begun compared with grunts occurring when the baby had reached the pelvic floor: "They have a typical type of—not a grunt—more like a grunt and moan type sound that they make . . . it's time to start pushing." Another nurse-midwife differentiated the "very deep guttural sounds" occurring during a contraction from the moaning, crying, and complaining that can occur in between contractions, defining the latter as "release" noises. One nurse, however, qualified her remarks saying that if there is a reason why the baby needs to be born faster, the mother should hold her breath and push because this results in a better position. Evidence to substantiate this belief is, however, lacking, and forced pushing may

have detrimental effects for the woman and her baby.<sup>17-21</sup>

To summarize, the maternal sounds of work and effort during second stage labor, as exemplified by guttural, grunting, "uhhhh" sounds that are low pitched and may be characterized as "primal" or "animalistic," are perceived by both mothers and caregivers to be typical, adaptive, and helpful. Their meaning is that effort and pressure are being exerted by the abdominal muscles, and they communicate that the woman is pushing and is working effectively with the contractions. Overall, caregivers seem to agree that grunting during contractions is normal and helpful, that women grunt without being taught, and that grunting sounds during second stage may vary depending upon the descent of the baby onto pelvic floor. The caregiver's role is to be supportive of maternal efforts, but often little else is required.

#### **Coping: Adaptive/ Self-Comforting/Soothing**

Typical sounds of this maternal state, which often are heard between contractions but also during contractions, are sighing ("ohhhh . . ."), moaning, and groaning. As with work/effort sounds, their pitch is low and sounds may have an animalistic quality. One mother related that she sounded "like a beached whale." Another mother explained, "I felt like I had to . . . make noises. I was glad I wasn't screaming though . . . no, it's more like a moan, just like an animal."

For some mothers viewing videotapes of their labor and hearing their own moaning and groaning, the sounds brought back the pain of second stage. One woman, whose family had their own videotape of her labor, was unable to bring herself to watch it with them, thus keeping her distance. During a postpartum interview with the first author (S. M.), she was finally able to watch the tape. She admitted that pre-

viously she couldn't stand to listen to it, that she "tried to go as far away" as she could. She said, "I felt I was going through the whole thing all over again, and it was too soon for me to actually sit down and watch it and deal with it." She said if family members had turned down the volume, she probably could have watched it. Despite this early aversion, as she watched the videotape she said that the moaning sounds were "pretty much familiar . . . I can remember moaning through most of my contractions, just because it seemed to feel better at the time. . . . I wasn't doing it on purpose; I was just doing it, and it seemed to help." A somewhat different experience occurred for a mother who had given birth at home and who had a copy of the videotape of second stage labor but without sound. When interviewed and shown the tape with intact sound, hearing the sounds of her labor brought back the pain experienced during labor much more intensely than did the silent version.

Although obstetric textbooks are curiously silent about the significance of moaning and groaning sounds in helping women to release tension, women and their caregivers identify the unique meaning of these sounds. A nurse-midwife, in discussing noise as a "natural method," differentiated work and release noises, saying that "what you hear during a contraction is very deep kind of guttural sounds, whereas in between you hear kind of a moaning, crying, and complaining." She explained the function of these latter sounds: "She may not be able to relax her legs and bottom effectively, but she may be able to moan and groan and cry a little in between [contractions]; that also serves a function."

Another nurse-midwife related as she watched the videotape:

She was very relaxed. A lot of time when I hear that . . . gentle low moan like that . . . that's a very relaxing, soothing thing for Mom to do for her-

self. She was maybe comforting herself a little bit. Just by slow moaning, and she was moaning each time but . . . as you can see, she's very, very relaxed. It wasn't anything I felt like I needed to say, "Now, stop that moaning." I think that was very healthy for her. I think that's ok.

To summarize, moaning, sighing, and low-pitched groaning are perceived by mothers and caregivers as expressions of tension release. Caregivers can respond to the expressed needs of the laboring woman and validate that the sounds she is making are normal and may help her cope with pain and distress.

### Childlike

In the childlike maternal state emotions predominate, with the parturient's sounds expressing her pain and distress. She may whimper, cry, or whine. The pitch is high. She is communicating "I hurt; I need help; I'm scared; I'm going to lose control; I can't do this." These sounds, especially intensified ones, usually send up a red alert flag for caregivers to become more active to avoid out-of-control behavior.

One mother recognized her distressed state:

Mother (M): I sound distressed.

Interviewer (I): You think so?

M: Yeah.

I: What tells you that?

M: Just the . . . kind of whining and the high pitch . . . of the voice.

Because mothers infrequently discussed this state, probably because it was less frequently seen on the videotapes than grunting, groaning, and moaning, caregivers explained its significance. A nurse responded to hearing crying sounds:

Interviewer (I): What would you say about that noise?

Nurse (N): It's crying . . . next thing I'm probably going to do is try to calm her down just a little bit.

I: So . . . the noise is a signal to you?

N: Yeah, that . . . she needs some reassurance. I think crying is ok because a lot of women cry in labor, but there was something about that sound that I thought if I didn't intervene, it could progress, and we could possibly lose the effort that she was putting into. . . .

I: Okay, so that sound was different from some previous sounds you've heard.

N: Different, much different.

I: How would you characterize it as different?

N: Help, I need help. It's like listening to a baby cry. You know there's a hunger cry, and there's the "hurt cry, and there's the "I want Mommy" cry; this was the "I'm scared, I'm going to lose control. . . ."

This nurse saw her responsibility as bringing the woman back to the task so that she was not going to lose hope. "I was afraid she'd keep going and totally start crying, and when contractions would start, she'd lose control." She was careful to differentiate that she did not mind if women complained or said "it hurts," but she did not want to feed into her self-pity or her saying "I won't do this anymore." Another nurse commented on listening to the mother's tone of voice, "She just sounds . . . just from the tone of her voice . . . that she wasn't very relaxed. . . . She started to cry whereas before she was real relaxed between contractions." A nurse-midwife related childlike whimpering during labor to "whimpery" (like a puppy) behavior during pregnancy. "A whiney kind of sound" was described by another nurse who explained, "she's not really got her heart into it."

When the parturient becomes childlike in her behavior, as exemplified by her sounds, caregivers usually recognize she is requesting help and is having difficulty coping with her pain and distress. Thus, al-

though there is tolerance for crying and whimpering as normal labor behavior, it is not perceived as adaptive behavior in the sense that grunting, groaning, and moaning are. This is especially true when sounds intensify in volume and pitch, indicative that the woman's behavior may become detrimental to labor progress and her ability to cope. The caregiver, therefore, is likely to give reassurance and direction to avoid escalation of this maternal state to one of being out of control and panicked.

### Out of Control

In this state, the parturient has "lost it," is "freaked out," or is having a tantrum. Her emotions predominate and the pitch of her sounds is high. The sounds are of screaming, yelling, "ahhhhhh," and noisy over-breathing. The woman is communicating extreme pain, distress, and panic and is saying, "I can't do this," "I've lost hope." When women lose control, there is usually a flurry of activity on the part of caregivers in trying to direct her behavior more constructively.

Several authors<sup>15,16</sup> have advocated letting women grunt, groan, moan, roar, "feel free to make noise, lose control, or do whatever necessary to give birth," but no caregivers in this study agreed that being out of control was desirable, and some mothers expressed fear of reaching this state. A teenage primipara said, "I wanted to cry, I wanted to scream . . . and I said I'm not gonna act like that, I'm gonna be cool about it." Similarly an older (age 36) primipara, while watching the videotape, said, "I was glad I wasn't screaming. There was a woman who was screaming. And I had just been through this, and I knew so well what she was going through. But they came with drugs right away . . . you didn't hear that for long." A mother having her third baby said she had hollered with a previous birth, but

this time she breathed as the nurse instructed, which made it easier. A primipara had learned in childbirth classes that screaming tenses the body and the pain increases. She said, "So if I'd start to yell . . . I'd think about that . . . this ain't gonna help me . . . that's supposed to make me hurt worse." A primipara who labored at home cried, "I can't do this anymore, I can't do it anymore." Her husband then asked her if she wanted to go to the hospital. She related that his inquiry "shut me up . . . I said, 'no,' I don't want to . . . I don't think I said that [I can't] anymore . . ." She said, however, that she pushed best when she was making animal-like screeches and screaming sounds.

Caregivers often spoke about the out-of-control state. A nurse defined loss of control as "where they are totally screaming and just uncooperative and thrashing around in the bed and not doing anything." She explained that "the shrill screaming, the cussing . . . that's very noneffective, and I don't think there's a place for that." She responds to this maternal state by grabbing hold of the woman's face, looking right in her eyes, and saying, "listen to me"—I am very directive—"I want you to breathe, I don't want you to lose it." Several nurses described the out-of-control state that can occur—especially with a precipitous birth—when the woman says, "The baby's coming, the baby's coming," and "indeed, usually the baby is coming, just kind of sliding out on its own." But when a woman is "just plain screaming" and is arched and tense, the caregiver has her look at her and breathe with her, says "let's push together" and tries to get her focused. A nurse-midwife who felt that women can scare themselves with their screams said, "If they're scared and start screaming, a fear-type of crying-out screaming that gets to be a high intensity, a high pitch . . . I think their own sound . . . can scare

them . . . and that I would try and stop." Another nurse-midwife who attended homebirths agreed, "I think screaming is counterproductive. I do not encourage screaming . . . I will do everything I can to try to get that under control . . . unless the woman is actually giving birth—that's different." No caregivers felt being out of control was an adaptive maternal state, and they described their behavior as active, directive, and oriented toward helping the woman gain control. Although not stated by caregivers, the birth cry/scream can be differentiated from other screaming because of the timing of its occurrence and because its quality is probably similar to the sounds of orgasm.

### Epidural Anesthesia

When a woman has had an effective epidural, the sounds she makes are not an accurate reflection of her physiologic and psychologic states. There is a mind/body split in which she may be more of an interested observer (for example, of the monitor tracings that now provide essential information about contraction patterns) than a participant in her own labor. She is no longer a source of data about her labor's progress. Her sounds are likely to be conversational. The caregiver's activity may be inactive or highly directive, depending upon labor management preferences. Regardless, the caregiver must rely upon vaginal examinations and electronic instrumentation to provide her with information about the parturient's progress.

A nurse-midwife related, "If you've a woman who has an epidural . . . she's not feeling the sensations, and she's lying there very happily, while this baby's precipitating in the bed. She doesn't even know the head's coming out. You miss some very valuable cues." Another nurse said, however, that even though the

woman has an epidural, she still makes some noise.

The sounds of women having epidurals were seldom commented upon in the interviews, probably because only two of the women interviewed had epidurals. More study is warranted of the congruence or lack of it that can be observed between sounds and maternal state when epidurals or other medications have been used.

## SUMMARY

From interviews with women and their second stage labor caregivers, it is apparent that the sounds of labor are behavioral cues that provide important data about maternal state and guide appropriate caregiver behaviors. Differences between adaptive and nonadaptive sounds can be articulated as to their quality, pitch, feeling state, and the verbalization that may accompany each maternal state. The "no noise" rule that is often evoked in hospital settings interferes with women's self-regulation of second stage labor and caregivers' perceptions of valuable cues that guide their helping behavior. Woman's sounds should be expected, supported, and explained and, when they indicate help is needed, it should be offered.

The work reported in this paper was funded by the National Center for Nursing Research.

National Institutes of Health, Public Health Service, grant number R01NR01500. All data reported in this paper are derived from NIH-funded research study on "Supportive versus directive care in second stage labor."

## REFERENCES

1. Glaser R, Strauss A: *The discovery of grounded theory*. Chicago, Aldine, 1967.
2. Glaser B: *Theoretical sensitivity*. Mill Valley, California, Sociology Press, 1978.
3. Hutchinson S: *Grounded theory: The method*, in Munhall PL, Oiler CJ (eds), *Nursing Research: A Qualitative Perspective*. Norwalk, Connecticut, Appleton-Century-Crofts, 1986.
4. Stern P: *Grounded theory methodology: its uses and processes*. *Image* 12:20-23, February 1980.
5. Stern P, Allen O, Moxley P: *The nurse as grounded theorist: history process and uses*. *Rev J Philosophy Soc Sci* 7:200-215, 1982.
6. Wiedenbach E: *Family-centered maternity nursing*, 2nd ed. New York, Macmillan, 1984, p 278.
7. Smith C: *Maternal-child nursing*. Philadelphia, Saunders, 1963, p 156.
8. Hosford E: *The maternity cycle—a time of challenge*. *Bull Am College Nurs-Midwife* 12:45-61, 1967.
9. Sanders D: *Auditory perception of speech, an introduction to principles and problems*. Englewood Cliffs, New Jersey, Prentice-Hall, 1977, pp 79-96.
10. Donahoe J, Wessells M: *Learning, language, and memory*. New York, Harper and Row, 1980, pp 424-430.
11. Nelsson-Ryan S: *Positioning: second stage labor*, in Nichols F, Humenick S (eds), *Childbirth Education: Practice, Research and Theory*. Philadelphia, Saunders 1989, pp 256-274.
12. Ziegel E, Cranley M: *Obstetric nursing*. New York, Macmillan, 1984, p 399.
13. Boback I, Humayun S, Marx G: *Maternity and gynecologic care, the nurse and the family*, 4th ed. St. Louis, Mosby, 1989, pp 420-421.
14. Neeson J, May K: *Comprehensive maternity nursing, nursing process and the childbearing family*. Philadelphia, Lippincott, 1986, p 670.
15. Noble E: *Controversies in maternal effort during labor and delivery*. *J Nurs-Midwife* 26:13-22, 1981.
16. Brewer G: *Nine months, nine lessons*. New York, Simon and Schuster, 1983, p 120.
17. Barnett M, Humenick S: *Infant outcome in relation to second stage labor pushing method*. *Birth* 9:221-228, 1982.
18. Bassell G, Humayun S, Marx G: *Maternal bearing down efforts—another fetal risk?* *Obstet Gynecol* 56:39-41, 1980.
19. Mahan C, McKay S: *Are we over-managing second stage labor?* *Contemp Obstet Gynecol* 24:37-63, 1984.
20. Martinez-Lopez C, de la Fuente P, Iniguez A, et al: *Comparison of two methods of bearing down during second stage*. *Proceedings of the Society for Gynecologic Investigation*, San Francisco, March 21-24, 1984, pp 21-24.
21. McKay S, Roberts J: *Second stage labor: what is normal?* *J Obstet Gynecol Neonatal Nurs* 14:101-106, 1985.