

Home Birth and Hospital Deliveries: A Comparison of the Perceived Painfulness of Parturition

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Cognitive assessments of the amount of pain associated with childbirth by parents electing either homebirth ($n=282$) or hospital delivery ($n=191$) were compared using Thurstone's univariate scaling method of paired comparisons. Subjects compared the pain of childbirth with 8 other painful events. The hospital birth group rated childbirth pain significantly higher than the homebirth group. In the homebirth group, females considered the pain to be less than the males, and in the hospital birth group, the females rated pain higher than the males.

In this research, the difference between home and hospital birth mothers was examined by comparing the perceived pain of childbirth with other painful events. Because homebirth mothers do not consider the option of receiving analgesics, the psychological preparation for labor includes minimizing the expected pain. We are suggesting that, after the homebirth, these mothers report lower pain ratings than their hospital counterparts. As these women tend to seek support and endorsement from their husbands, the ratings of the perceived amount of pain by the male partner will also be lower in the homebirth group than the male partner in the hospital birth group.

Reasons for selecting homebirths have included the cost of hospital deliveries (in the United States), the desire to treat birth as a normal or natural event in the privacy of a

familiar home environment, and the value of personal autonomy for health care decision making. Further, the avoidance of iatrogenic risks perceived to be associated with hospital births, including the use of forceps or a caesarean delivery, electronic monitoring during labor, the use of analgesics and anesthetics, the lack of surveillance and personal care by staff, and the lack of involvement of husbands and other family members in the birth experience are also considerations for preferring home birth (Anderson, Bauwens, & Warner, 1978; Bauwens & Anderson, 1978; McClain, 1983). In Canada, where hospitalization is largely covered by government sponsored health care plans, the economic reasons do not apply. However, in some provinces (including Alberta) the attendance at a homebirth by a physician could result in suspension of medical

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license, and the practice of midwifery is not legally recognized. Therefore, these homebirth mothers are perceived to be accepting unnecessary risks, and are a minority group that makes the decision for a homebirth against prevailing social norms.

The process that these women use to psychologically justify their decision for homebirth has been examined (Bauwens & Anderson, 1978; McClain, 1983) and researchers have suggested that mothers reduce the cognitive dissonance between their decision and the majority decision by using the psychological technique of *bolstering*. Briefly, Festinger's theory of bolstering (Janis & Mann, 1977) is the process by which selection is made between multiple, divergent options so that the individual is motivated to change his/her perceptions of the alternates available. The positive features of the individual's actual preference are exaggerated, and the positive features of alternative options are downplayed and devalued. Such psychological techniques ease the process of rejecting the alternatives, reduce conflict and contribute to creating the decision-maker's "image of a successful outcome, with high gains and tolerable losses" (p.91). Janis and Mann (1977) also note that bolstering is used only when the individual perceives a connection between an action for which s/he feels responsible and the negative consequences of that action. The characteristics of decisions in which bolstering will be used are situations with a high degree of conflict, situations of "lost hope" or the lack of a solution better than the present perceived best, albeit defective, choice.

Measurement of the different perceptions of risks associated with home and hospital groups has been used to illustrate the process of bolstering. McClain (1983) noted statistically significant differences in the perceptions of need for analgesics, the use of oxytocin to induce labor, the use of electronic fetal monitoring and the necessity of episiotomy. Missing from McClain's analysis was the measurement of pain *perception* associated with labor in the two groups. In this study, we argue that it is the *perception* of childbirth pain that is the most

significant issue, and it is this variable that differentiates the two groups. Analgesics may not be available to homebirth mothers, and even if they are available, mothers are reluctant to use them because of the negative effects they are reported to have on the infant, such as postnatal drowsiness and lack of responsiveness. Mothers who deliver in the hospital have a more passive attitude, believing "if the pain gets too bad the doctor will take care of it." Consequently, the management and control of pain is a major challenge to all homebirth parents. Hypotheses tested were:

- Women who elect homebirth will report lower pain estimates for childbirth pain than women who have delivered in hospital.
- Male partners of women who delivered at home will report lower ratings of childbirth pain than male partners of women who delivered in hospital.

METHOD

Sample

This study was conducted in a major western Canadian city. The sample was obtained by contacting all homebirth couples delivered by a physician/midwife group. A total of 282 subjects (149 females who had given or were planning birth at home in the last 3 years and 133 male partners) completed the questionnaire. The hospital group was obtained from the caseload of the same physician and from childbirth classes in the same city. A total of 191 persons (102 females and 89 males) responded. All participants had attended prenatal classes offering Lamaze labor relaxation exercises.

As shown in Table 1, both samples were similar in age and education. There were more multiparous mothers in the home birth group and more first time mothers in the hospital group. This is understandable as more expectant first time parents attend orthodox prenatal classes where they are discouraged from planning a home birth. Thirty-four percent of the home birth mothers

Table 1. Demographic Profile of Respondents

Category	Home Birth (n=282)	Hospital Birth (n=191)
Female	149	102
Male partners	133	89
Age (Years)		
<19	3	3
20-29	153	111
30-39	119	73
>40	6	2
No response	1	2
Education		
Some High School	37	8
Completed High School	101	64
Baccalaureate	125	101
Post Graduate	19	15
No response	0	3
Ethnicity		
Canadian	213	142
Other	69	42
No response	0	7
No. of Children		
Pregnant	20	14
1	97	113
2	106	55
3	59	7
No response	0	2
Time since last birth		
<one year	175	150
One to two years	52	25
>two years	34	13
No response	21	3

and 59% of the hospital birth mothers had experienced only one birth.

Instrument

The pain of childbirth was quantified using techniques of paired comparison: by comparing the pain of labor with other meaningful pain events. The Morse Pain Stimulus Scale was constructed by listing nine common pain conditions in all possible combination pairs. Thus, nine paired stimuli gave a total of 36 items. The items selected were: childbirth, a bad burn, a kidney stone, a heart attack, an eye injury, gallstones, a broken bone, a migraine and a toothache. The respondent was requested to circle the

pain condition in each pair that was considered to be the more painful.

This method of paired comparisons, first developed by Thurstone in 1927 (Green, 1974; Nunnally, 1978; Thurstone, 1974), is an appropriate technique for measuring ordinal estimations of multiple stimuli. The method is based upon the *Law of Comparative Judgement* in which an individual, when comparing two similar stimuli, may rate which has "more" or "less" of a qualitative attribute (Thurstone, 1974). The method is based on the assumption that the individual reacts discriminately according to the intensity of the attribute. Over time, or within populations, there is some variance of these responses so that the distribution of these discriminations is normally distributed around pairs of stimuli on a continuum and the distributions of different stimuli overlap. Therefore, the method is suited where the two stimuli are close together and the subjects have difficulty choosing between them.

Recognizing that the painfulness of childbirth is information that is implicitly and explicitly taught in the process of preparing for childbirth and is information that is communicated by and to others who have not experienced childbirth education, it was realized that perceived pain of labor could be quantified using this technique. Furthermore, as the painfulness of other common conditions are communicated in the same way, comparing the perceived painfulness of childbirth with other painful events permits the weighing of perceived labor pain. This technique has been used successfully to assess differences in the perception of labor pain cross-culturally in Canada (Morse & Park, 1988) and Fiji (Morse, in press).

Test re-test reliability on the scale obtained over a four-week period was high ($r=.97$). Criterion validity was established in a previous study in Fiji (Morse, in press). The scores for the pain estimation for heart attack were compared with the incidence of heart attack in each population. The painfulness of a heart attack was rated highest by the Fiji-Indian males and second lowest by the Fijian males, and as the incidence of heart attack is seven times more common in

the Fiji-Indian population. The scale has also been used cross-culturally to compare pain ratings in the Hutterite, East Indian, and Ukranian cultures in Canada (Morse & Park, 1987; Morse & Morse, in press).

Procedure

A letter explaining the study and the questionnaire was sent to the subjects with instructions to return the questionnaire in the enclosed stamped addressed envelope. Return rates were slightly higher for the homebirth group than for the hospital group (69% compared with 59%).

Data were analyzed using a computer program and only questionnaires with all items completed were included in the analysis. First, the responses of all subjects were compiled to assess the proportion of subjects responding to each stimulus. From this score the total pain stimulus score was derived, standardized, multiplied by ten and reported on a line graph. Analysis was performed on the total population (home birth and hospital birth), and for males and females in each group. Spearman rank order correlation was used to compare the ranking of the stimulus in each group.

RESULTS

Childbirth was perceived to be considerably more painful in the hospital birth group: ranking the third most painful stimuli in that birth group (11.50) compared with eighth in the home birth group (4.75)($p \leq .01$)(see Fig. 1 and Fig. 2).

Analysis of the subsamples showed that there was a discrepancy in the rating of childbirth pain between males and females. The females in the home birth group ranked the pain of childbirth significantly lower than the hospital birth group (3.67 compared with 12.03 respectively) and the same pattern followed for the male samples (5.79 compared with 8.32). Thus, both the hypotheses were supported. In the hospital birth group, however, the females rated the pain higher than the males (12.03 compared with 8.32)($p \leq .001$), while in the homebirth group, the males estimated the pain to be

higher than the females (5.97 compared with 3.67)($p \leq .01$). The difference between the males in each group was more significant ($p \leq .005$) than between the females in each groups. ($p \leq .01$)

In both the home and hospital groups, the multiparae ranked the pain of childbirth slightly lower than the primiparae: fourth (rather than third) in the hospital group and eighth (rather than seventh) in the homebirth group. However, these differences were not statistically significant.

DISCUSSION

It is beyond the scope of this study to suggest that the homebirth women actually felt less pain, as we are not measuring *actual* pain tolerance or perception. Rather, we are suggesting that the *reporting* of less pain is, in itself, interesting. Bolstering theory suggests that cognitive devaluing (in this case the diminishing of the expected pain experience) may give the mother enough confidence to lower her anxiety and thus reduce pain. Another consideration is that bolstering motivates the mother to deliberately skew the questionnaire so that the actual assessment of pain by the respondent is not reported.

The latter observation is, in itself, an interesting coping mechanism. There was some evidence of bolstering on the returned questionnaires. On the homebirth group, individuals had written comments on the questionnaires that suggested the superiority of homebirth. Examples were: "It was just perfect," "Home birth—good choice," "Home 100%," "Home birth!!! All the way!!!," "Home birth—hooray!" In addition, two homebirth subjects who did not fill out the questionnaire sent letters apologizing for not participating in the study explaining that their labor experience could not be "defined as *pain*." On the other hand, the only comments written by the hospital birth questionnaires related to reasons why they did not have a home birth. For example, "[I had] no choice because doctor would only deliver in hospital," "Hospital [birth], due to breech," and "[I] wanted [a] home birth but have had two caesareans." This process of justifica-

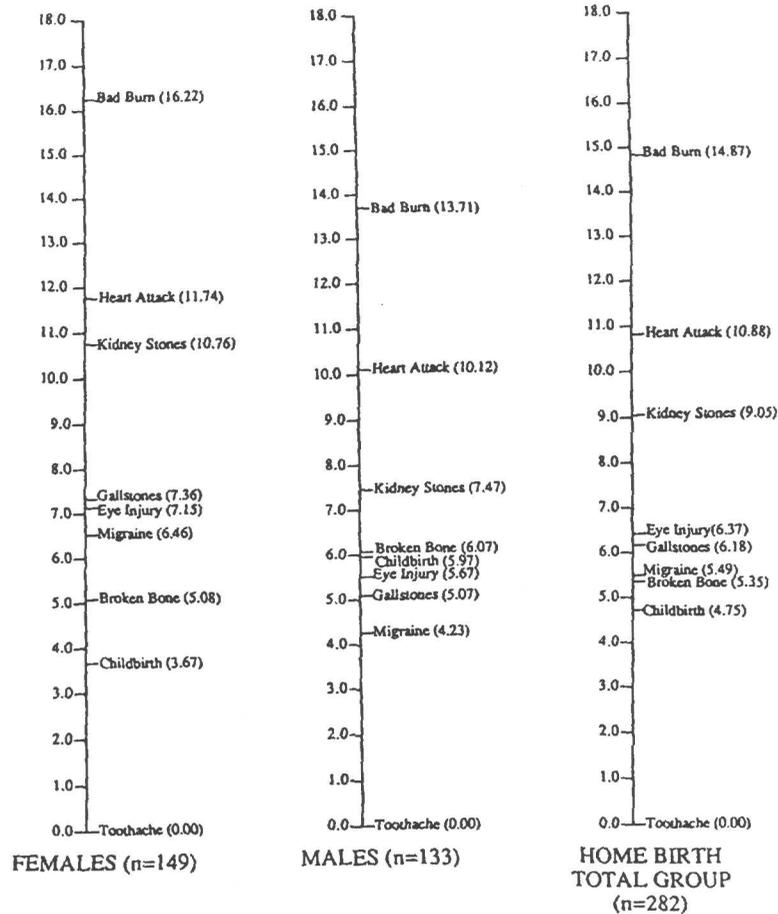


Figure 1. Home birth group: Comparison of childbirth pain with eight other painful events for females, males, and total group.

tion using bolstering needs to be investigated further.

An alternative explanation for the results is that the homebirth group actually do experience less pain sensation during labor. Bates (1987) has recently provided a theoretical explanation for this by suggesting a modification to Melzack and Wall's (1965) gate control theory. She extended the model to include 'social comparison and social learning process with ethno-cultural groups situations,' 'attitudes towards pain,' 'prior pain experience' and 'attention given to pain stimuli or sensation' as factors influencing cognitive control and descending inhibitory control of pain. Bolstering would most likely appear as a subcategory of 'social comparison and social learning process within

ethno-cultural situations' in this model.

Other research also suggests psychological techniques that may be included in this subcategory to reduce pain sensation. The amount of childbirth education (which is likely to be greater in the homebirth group) may decrease anxiety, which in turn, decreases the amount of pain perceived (Beck & Siegel, 1980; Spielberger & Jacobs, 1978). Further, mothers in the homebirth group may have been given instructions that would enable greater self-control (i.e., modeling) and thus, decrease preoccupation with pain (Manderino & Bzdek, 1984). In the hospital, where the control of pain is perceived to be more the responsibility of the staff than the patient, such controls are less likely to be used. It would also be inter-

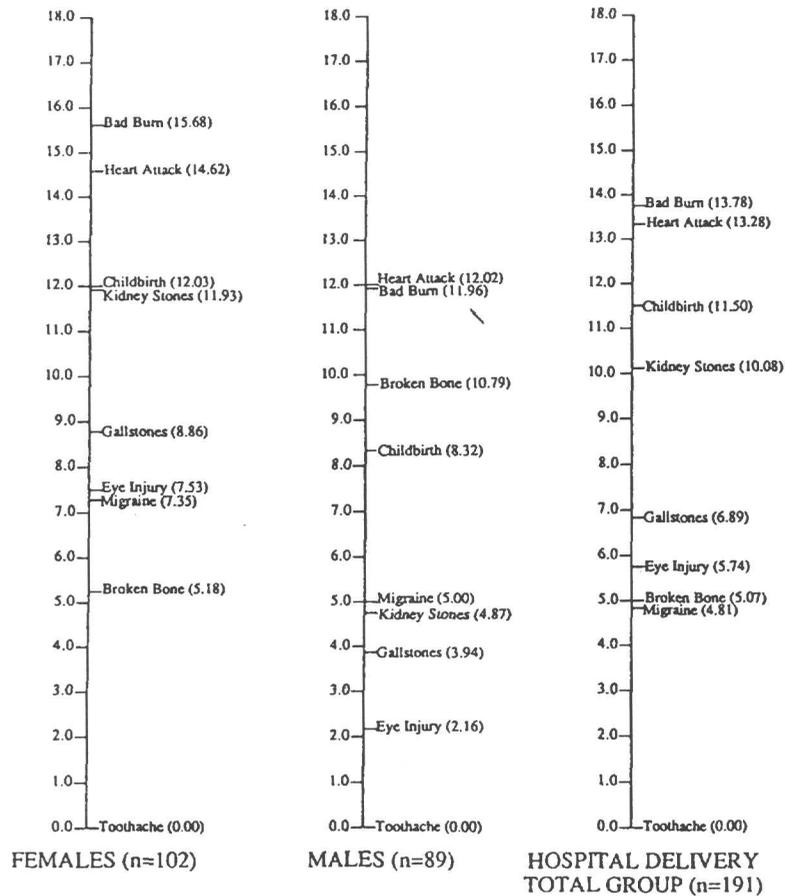


Figure 2. Hospital birth group: Comparison of childbirth pain with eight other painful events for females, males and total group.

esting to replicate this study and, using multivariate analysis, explore the relationship of the pain estimation with variables such as length of labor, type of delivery, age, and parity. Further research is necessary.

It is important to note that in this study there was no attempt to describe the *nature* of the pain experience, but rather to rank the pain intensity by weighing the pain of labor against eight other painful conditions. In 1984, McGuire noted that subjective reports of painful sensations are "difficult to realistically quantify and analyze" (p.152). To date, the best descriptors of the type of pain has been the Melzack Pain Questionnaire (Melzack, 1975). Studies of labor pain have noted that the labor pain stimulus

ranks among the severest forms of pain reported (Melzack, Kinch, Doeskin, Lebrun & Talzer, 1984; Melzack, Tainser, Feldman & Kinch, 1981; Niven & Gijsbers, 1984); yet, in this study, this finding was supported for *only the hospital birth group*. The homebirth group is the only group thus far to rank labor pain low: in this case it was rated less extreme than the pain of a migraine and a broken bone but greater than the pain of a toothache. As previously stated, the Morse Pain Scale has been used extensively to quantify perceived pain in four other cultural groups in Canada (Morse & Park, 1988) and in Fiji (Morse, in press). On all these previous occasions, childbirth rated within the top three pain stimuli and,

consistent with studies by Melzack and his colleagues (Melzack et.al., 1984; Melzack, et.al., 1981) and Niven and Gijsbers (1984), as one of the most severe pains.

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