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Comparison and Evaluation of Labor Pain and Factors Influencing Pain Perception in Primiparous and Multiparous Women Referring to Tabriz Alzahra Educational Center in 2005-2006

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Abstract: Pain and discomfort are unique features of parturition. In fact, labor pain is the result of complex and subjective interactions between physical, psychological, environmental and supportive factors, which differ from one woman to another. A proper understanding of factors involved in labor pain paves the way for women's higher adaptability to pain and proper use of pharmacologic and non-pharmacologic interventions to relieve pain. In this descriptive-analytical study 300 primiparous and 300 multiparous women, who had vaginal deliveries, were randomly selected and interviewed. The data was collected by questionnaire and the intensity of pain was determined using Visual Analogue Scale (VAS). Data was analyzed using Student's t-test, Pearson's and Spearman's correlation and regression Analysis. The results indicated that physical and environmental factors influence the intensity of delivery pain in primiparous women and physical, psychological, environmental and supportive factors influence the same process in multiparous women.

Key words: Labor pain, factor, pain perception, primiparous, multiparous

INTRODUCTION

Pregnancy and labor have been mentioned as the most important crises in a woman's life (Bahri *et al*., 2004). Pain is a common experience for human beings, which has accompanied humans since the dawn of time and humans have always tried to relieve or alleviate pain (Shoorab *et al*., 2004).

Labor pain is an excruciating pain that mothers have experienced since the dawn of time (Rezaee and Fani, 2000). Intense labor pain upsets the mother, endangers her mental health and has a detrimental effect on her relationship with her infant (Wall and Melzak, 1999).

Some studies have demonstrated that nuliparous women experience more severe labor pain compared to multiparous women. However, some other studies have concluded that there is no difference between multiparous and primiparous women and pain is intense in both groups (McCrea *et al*., 2000). A woman's attitude toward labor pain is influenced by various Factors, including physical, psychological, environmental and supportive factors (Lowe, 1996).

Studies have demonstrated that mother's age and educational status, newborn's body weight, parity, the sex of the newborn, mother's physique and physical strength, mother's socioeconomic status, planned and unplanned pregnancy, history of abortion, history of dysmenorrheal, gestational age, type of delivery and the duration of the first and seconded phases of labor influence the intensity of pain experienced by the mother (Naghibi *et al*., 2001; Frid *et al*., 1988; Olayemi *et al*., 2005). The role of various psychological factors in mother's perception of pain has been documented as a clinical phenomenon. An important psychological factor is fear of giving birth. Fear of giving birth retards the progress of delivery course necessitating surgical intervention (cesarean section) and labor induction (Forood and Madhipoor, 2004).

Some important psychological factors influencing labor pain are: Anxiety and mother's fear of pain in labor; mother's worries concerning herself and her baby's health; irrational expectations of mother concerning labor and its concomitant pain and a feeling about lack of psychological readiness for labor and its pain (Waldenstrom, 1996; Change and Hem, 2002).

Environment, in itself, influences a mother's experience of pain. The environment is considered all the animate and inanimate forces that influence a mother's experience in labor. Tension and stress resulting from pregnancy crisis and labor increase when the mother is hospitalized, which is concomitant with stressful situations and factors, including encounter with strangers, mother's feeling of loneliness, the presence of complex equipment, unpleasant odors, environment

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noise and some routine procedures such as intravenous injections, limitation of food and drinks, repeated vaginal examinations, constant evaluations of the fetus's heart beat, limitations of mother's movements etc (Bahri *et al*., 2004; Lowe, 2002).

Studies have demonstrated that in the critical and stressful circumstances in labor constant support of the mother makes her feel secure and safe, satisfying her and decreasing stress and anxiety levels (Hodnett and Osborn, 1989). Furthermore, constant support from a midwife can lead to positive changes in the course of labor, including a decrease in the duration of parturition and concomitant pain and mother's anxiety and fear (Bahri *et al*., 2004).

Since hospitalization of a pregnant woman, performing routine diagnostic and care techniques during the labor process, the environment and the support from the medical staff influence the mother's experience and perception of pain, the present study was carried out to identify factors involved in the perception of labor pain in primiparous and multiparous women, so that the results might help medical staff adopt proper measures to greatly alleviate labor pain in all the pregnant women.

MATERIALS AND METHODS

The present descriptive-analytical study was carried out on 300 primiparous and 300 multiparous women, who had vaginal deliveries. The subjects were selected using a simple random sampling method. The inclusion criteria included the following: Gestational ages of 37-42 weeks; no limitations in verbal communication; no history of psychological problems before and during pregnancy; vaginal delivery; absence of fast or prolonged (difficult) delivery; live and healthy newborns, no use of auxiliary instruments during delivery such as forceps and vacuum; no use of analgesics. The data were collected Questionnaires which had specially been designed according to the purpose of the study. The instruments applied were five questionnaires incorporating the Visual Analogue Scale (VAS) for pain assessment.

The demographic questionnaire consisted of 40 questions on personal-social and obstetric particulars that were developed for this study after an extensive review of the literature.

The second instrument was an environmental factor questionnaire consisted of 28 questions on environmental, care and treatment factors.

The fear and anxiety of childbirth questionnaire which included 15-item, 5-point Likert scale that ranged from none[5] to very high[1]. Each participant received a total score on the questionnaire ranging from 15-75. High scores indicated lower levels of anxiety and fear of childbirth.

The Expectation of the childbirth Experience (ECBE) questionnaire is a 36-item, 4-point Likert scale that ranged from strongly agree[4] to strongly disagree[1]. Among which 17 items were negatively worded and required reverse scoring. Each participant received a total score on the questionnaire ranging from 36-144. High scores indicated positive expectations of labor process.

The questionnaire related to support of the mother by midwives during labor (psychological, physical and informational support) consisted of 18-item, 4-point Likert scale that ranged from strongly agree[4] to strongly disagree[1]. Each participant received a total score on the questionnaire ranging from 18-72. High scores indicated sufficient support of mothers by midwives during labor.

The parturient women were interviewed after they gave their informed consent and after their physical condition was suitable for an interview. The data was collected immediately after delivery and during the fourth stage of labor.

Content and Construct validity of the questionnaires were established through a panel of 10 experts with specialties in maternity and community health nursing. Then the 5 instruments were piloted with a group of 20 women. The reliability of questionnaires was tested using test- retest, yielding the following results.

Reliability coefficients for the environmental factors Questionnaire was 0.79, for the fear and anxiety of labor Questionnaire was 0.76, for the women's expectations of the Childbirth Experience and midwife support during labor and birth were 0.83 and 0.88, respectively.

Furthermore, Visual Analogue Scale (VAS) was used for assessment of perceived pain. The VAS is a 10 cm straight line that represents a continuum of pain intensity. There are verbal anchors at each and of the line: "no pain" and "worst possible pain". Subjects place a mark on the line that represented their level of pain intensity. The distance from the left-hand side quantifies pain level. The test-retest reliability of VAS on recalled labor pain in postpartum women is high, $r = 0.95$ (Revill *et al*., 1976).

The data were analyzed by WIN/SPSS 13 statistical software. Descriptive statistics: frequency, mean and standard deviation were used to analyse the data. In addition, sample t-test was used to compare mean. To determine associations between variables and pain correlations were used. Pearson's correlational analysis was utilized for continuous variables and spearmen's correlation analyses were applied to discrete/ranked variables. All correlation were two-tailed. Linear regression analysis was performed to evaluate the independent influence of variables on the pain scores. The level of statistical significance was set at $p<0/05$.

RESULTS

The mean ages of primiparous and multiparous women in the present study were 22.8±3.99 and 27.77±6.64, respectively. Approximately (33.7%) of primiparous women and (23%) of multiparous women had attended elementary schools only. A total of (83%) of primiparous women and (83.3%) of multiparous women were housewives. Almost (51.3%) of primiparous women were 37-38 weeks pregnant and (66.7%) of multiparous women were 41-42 weeks pregnant.

The mean weights of the newborns were 3236.56±4.24 gr and 3650.03±3.26 gr in primiparous and multiparous women, respectively. Approximately (97%) of primiparous women and (94.7%) of multiparous women had planned pregnancies. For (81.3%) of primiparous women and for (69%) of multiparous women pregnancy was a pleasant experience. The means of mothers' height in primiparous and multiparous women were 163.40±4.91 and 163.20±4.99 cm, respectively.

The means of weight gain during the whole pregnancy period were 9.68±2.16 and 9.65±2.30 Kg in primiparous and multiparous women, respectively. The means of the duration of the active Phase of labor were 5.86±1.6 and 4.97±1.7 h in primiparous and multiparous women, respectively. The means of the duration of the second phase of labor were 14.90±3.40 and 12.76±3.70 min in primiparous and multiparous women, respectively. Approximately (58%) of primiparous and (42%) of multiparous women had undergone 5-7 vaginal examinations during labor.

A total of (53.7%) of primiparous and (68.7%) of multiparous women responded they had encountered a moderate stressful environment. Comparison of the means of scales related to environmental factors between the two groups revealed a statistically significant difference ($p<0.0005$) (Fig. 1). Approximately (70%) of primiparous women believed that large number of patients in the delivery room contributed to environment stress and (84.3%) of multiparous women believed that the noise in the delivery ward increased their stress.

Evaluation of fear and anxiety levels in the two groups revealed that (86.7%) of primiparous and (77.7%) of multiparous women had a moderate level of stress. Comparison of the means of fear and anxiety scales between the 2 groups did not demonstrate any statistically significant differences ($p = 0.467$) (Fig. 2). The most common causes of fear in primiparous women were fear of being left alone in the hospital (68.7%) and worries about the health of their newborns and most common causes of fear in multiparous women were fear of labor pain (38%) and fear of ruptures in the genital areas (31%).

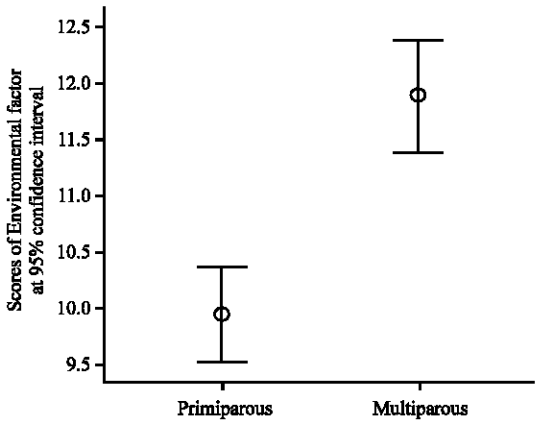

Fig. 1: Interval plots for environmental factors

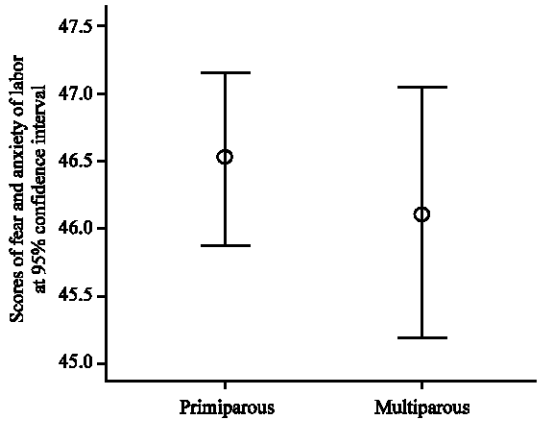

Fig. 2: Interval plots for fear and anxiety of labor

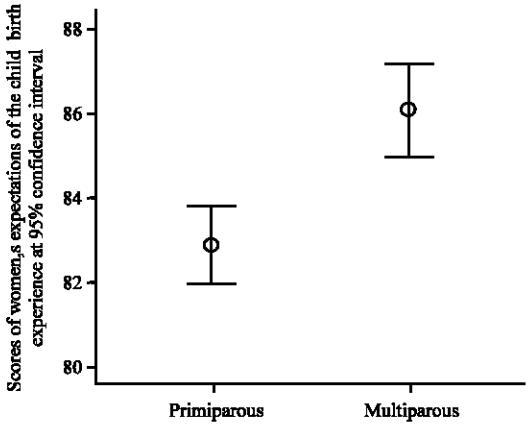

Fig. 3: Interval plots for women's expectation of the childbirth experience

Evaluation of mother's expectation of labor revealed that (82%) of primiparous women and (71.7%) of multiparous women had negative attitudes toward labor

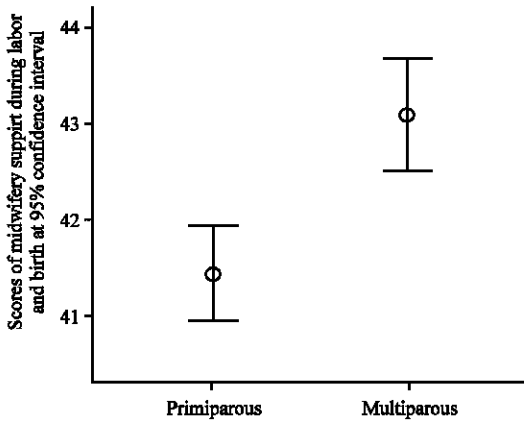

Fig. 4: Interval plots for midwifery support during labor and birth

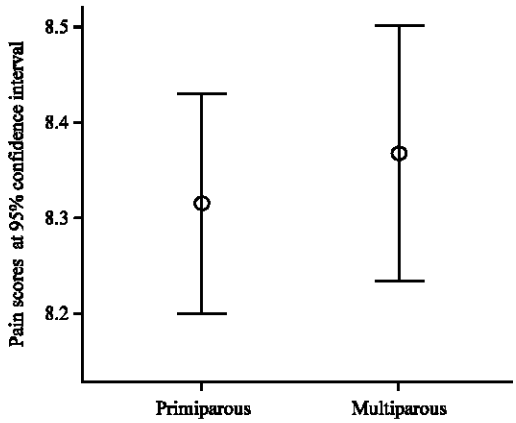

Fig. 5: Interval plots for pain score

experience. Comparison of the means of mother's expectation of labor between the two groups demonstrated a statistically significant difference (p=0.003) (Fig. 3). A total of (88%) of primiparous and (87%) of multiparous women believed they would not be able to tolerate labor pain.

Evaluation of the level of support of mothers during labor demonstrated that (83.7%) of primiparous and (69.3%) of multiparous women believed that midwives had not provided them with considerable support. Comparison of the means of support scores between the two groups demonstrated a statistically significant difference (p<0.0005) (Fig. 4). The most common causes for limited support from midwives, mentioned by mothers were: The midwives had not tried to make mothers acquainted with the instruments and equipment in the delivery room (53.3% of primiparous and 83% of multiparous women), the midwives had not taught techniques aimed at alleviating pain, including respiratory techniques and position change (76.3% of primiparous and 77% of multiparous women) and the midwives had not carried out vaginal examinations gently (77.3% of primiparous and 74% of multiparous women).

Table 1: Cross-tabulation between reported pain level and parity of the sample

Pain level	Primiparous	Multiparous
6	3(1)*	8(2.7)
7	68(22.7)	72(24)
8	101(33.7)	92(30.7)
9	88(29.3)	58(19.3)
10	40(13.3)	70(23.3)
Total	300(100)	300(100)
Mean±SD	8.31±0.99	8.37±1.16

* Numbers in parentheses indicate percent, * Pain scores of 0-5 were not reported in the present study

In the present study (76.3%) of primiparous and (73.3%) of multiparous women reported delivery pain scores of = 8, which indicates the most severe pain experienced by an individual (Table 1). The means of pain scores in primiparous and multiparous women were 8.31±0.99 and 8.37±1.17, respectively. Comparison of pain scores between the two groups using Student's t-test did not demonstrate any statistically significant differences (p = 0.632) (Fig. 5).

Reading the role of various factors in pain perception the results demonstrated that in primiparous there was a statistically significant relationship between pain perception and factors such as infant weight, weight gain by the mother during pregnancy, the duration of the active phase of labor, the duration of the second phase of labor, environmental factors, infant sex and a history of dysmenorrheal. The results also indicated that in multiparous there was a significant relationship between pain perception and factors such as gestational age during delivery, mother's height, the duration of the active phase of labor, the duration of the second phase of labor, vaginal examinations, environmental factors, anxiety and fear of delivery, support of mother during labor, mother's educational status, family's monthly income, infant's sex, the type of pregnancy experience (pleasant or unpleasant), a history of dysmenorrheal and mother's physical strength and fitness (Table 2 and 3).

Regression statistical analysis indicated that out of the statistically significant independent variables in the correlation test in primiparous women variables such as infant sex, infant weight and mother's weight gain during pregnancy, history of dysmenorrheal, the duration of the active phase of labor, the duration of the second phase labor and environmental, care and treatment factors. also, variables such as infant sex, type of pregnancy experience (pleasant/unpleasant), history of dysmenorrheal, anxiety and fear of giving birth, supportive factors and environmental, care and treatment factors in multiparous women had statistically significant relationship with labor pain (p<0.05) (Table 4).

Table 2: Pearson's correlation coefficient between labor pain as a dependent variable and independent (continuos) Variables in the two primiparous and multiparous groups (n = 600)

	Primiparous		Multiparous	
Variable	Pearson's correlation(r)	p-value	Pearson's correlation(r)	p-value
Mother's age	-0.07	0.20(ns)	0.02	0.92(ns)
Gestational age at delivery	-0.11	0.05(ns)	0.18	0.002
Infant weight	0.11	0.04	0.08	0.12(ns)
Mother's height	-0.11	0.05(ns)	0.22	<0.0005
Mother's weight gain during pregnancy	0.39	<0.0005	0.07	0.19(ns)
Duration of the active phase of labor	0.12	0.03	0.18	0.002
Duration of the second phase of labor	0.13	0.01	0.17	0.002
Number of vaginal examinations	0.10	0.06(ns)	0.26	<0.0005
Stress and fear of childbirth	-0.06	0.25(ns)	0.26	<0.0005
Support of mother during delivery	-0.03	0.61(ns)	-0.21	<0.0005
Environmental, supportive, and treatment factors	0.03	<0.0005	0.01	<0.0005
Mother's expectation of labor	0.29	-0.06(ns)	0.09	0.11(ns)

* ns= non-significant

Table 3: Spearman's correlation coefficient between labor pain as a dependent variable and independent (ranked) variables in the two primiparous and multiparous groups (n = 600)

	Primiparous		Multiparous	
Variable	Spearman's correlation (rho)	p-value	Spearman's correlation (rho)	p-value
Mother's educational status	0.02	0.61(ns)	0.19	0.001
Monthly income	-0.06	0.23(ns)	0.24	<0.0005
Infant sex	-0.01	0.004	0.29	<0.0005
Pregnancy experience	0.04	0.40(ns)	-0.28	<0.0005
History of dysmenorrheal	0.28	<0.0005	0.15	0.007
Physical fitness for labor	-0.07	0.22(ns)	-0.28	<0.0005
Type of pregnancy from mother's Viewpoint (planned/unplanned)	0.00	0.91(ns)	0.10	0.07(ns)
Type of pregnancy from husband's Viewpoint (planned/unplanned)	0.10	0.07(ns)	0.09	0.08(ns)
Type of amniotomy (spontaneous/artificial)	-0.01	0.83(ns)	0.12	0.03(ns)
Onset of labor (spontaneous/induced)	-0.14	0.63(ns)	-0.09	0.09(ns)
Time of delivery	-0.01	0.77(ns)	0.005	0.99(ns)

* ns= non-significant

Table 4: Multiple linear regression analysis of the variables which were found at the univariate analysis to be significantly associated with the pain scores

Variable	β[a]	p-value
Primiparous (n=300)		
Infant weight	0.40	<0.0005(s)
Mother's weight gain during pregnancy	0.23	<0.0005(s)
Duration of the active phase of labor	0.85	<0.0005(s)
Duration of the second phase of labor	0.62	<0.0005(s)
Environmental, care, and treatment factors	0.65	<0.0005(s)
Infant sex	0.95	<0.0005(s)
History of dysmenorrheal	0.72	<0.0005(s)
R square	0.83	<0.0005
Multiparous (n=300)		
Gestational age at delivery	0.23	0.08
Mother's height	0.12	0.16
Duration of the active phase of labor	0.34	0.07
Duration of the second phase of labor	0.11	0.16
Anxiety and fear of childbirth	0.59	<0.0005(s)
Number of vaginal examinations	0.14	0.12
Support of mother during labor	0.90	<0.0005(s)
Environmental, care, and treatment factors	0.57	<0.0005(s)
Educational status	0.22	0.66
Monthly income	0.20	0.10
Infant sex	0.60	<0.0005(s)
Pregnancy experience	0.73	<0.0005(s)
History of dysmenorrheal	0.43	<0.0005(s)
Physical fitness for labor	0.25	0.07
R square	0.69	<0.0005

* S= significant, p<0.05, * [a]Beta, standardized regression coefficient

DISCUSSION

Considering the main purpose of the present study, which was to compare labor pain and factors involved in pain perception in primiparous and multiparous women, the results demonstrated that irrespective of the number of deliveries women in Tabriz consider labor a painful experience and the majority of the subjects in the present study reported a high score of pain during labor (≥8). The results of the present study are consistent with the results of a study carried out by Abushaikha and Arwa (2005).

We expected primiparous women to report higher pain cores. It is probable that multiparous women, compared to primiparous women, reported more intense labor pains due to painful experiences from previous deliveries. The results did not demonstrate any statistically significant relationship between mother's age and labor pain and the difference between the two groups was not significant, which is consistent with the results of studies carried out by Chang and Hen (2002) and Klotergaard *et al.* (2001). However, studies carried out by Olayemi *et al.* (2005) and Frid *et al.* (1988) demonstrated a relationship between mother's age and

labor pain. The disparity between the results of studies might be attributed to the younger age of mothers in the present study and a lack of unnerving past experience of pain.

The results of the present study revealed that there was a relationship between labor pain and gestational age at delivery time. The study carried out by Olayemi *et al.* (2005) demonstrated a relationship between pain and gestational age. This relationship might be attributed to an increase in the weight of the fetus proportional with gestational age and its effect on the physical and psychological status of the mother for giving birth.

In the present study, there was a statistically significant relationship between the infant weight and labor pain in primiparous women, which does not coincide with the results of studies carried out by Olayemi *et al.* (2005), Chang and Hen (2002), Klostergaard *et al.* (2001) and Melzack *et al.* (1984). This finding might indicate that in most cases physical factors alone cannot influence an individual's experience and perception of pain.

Furthermore, in the present study there was a relationship between mother's weights and labor pain in multiparous women. Mother's weight gain during pregnancy was identified as a factor involved in pain perception. This variable had a statistically significant relationship with labor pain in primiparous women in the present study, which is not consistent with the results of studies carried out by Ranta *et al.* (1995) and Melzack *et al.* (1984). Mother's weight gain results in a heavier baby and this, in it self, leads to mother's fear and anxiety about her body strength to handle delivery and tolerate the pain associated with giving birth.

There was a relationship between labor pain and the duration of the active and second phases of labor in both groups, which is consistent with the results of studies carried out by Waldenstrom *et al.* (1996) and Dannenbring *et al.* (1997). However, a study carried out by Klostergaard *et al.* (2001) does not confirm this. In general, as the duration of delivery increases the mother gets more tired, leading to a decrease in the individual's capacity to tolerate environmental conditions and also in an increase in the mother's anxiety about herself and her baby, which in itself retards the progression of the labor process.

In the present study, there was a significant relationship between the number of vaginal examinations and labor pain in multiparous women. A study carried out by Abushaikha *et al.* (2005) in Jordan concluded that repeated vaginal examinations are among the factors that exacerbate labor pain. Repeated vaginal examinations give rise to stress and tension in women and most individuals consider it to be invasive. Respecting the patient's individual privacy during examinations, avoiding repeated vaginal examinations and respect for the patient's desires during examinations are important factors in decreasing their stress levels, which in itself can potentially lead to the progression of labor process.

Fear and anxiety about giving birth are major psychological factors which can adversely influence an individual's perception of pain. Reasons for anxiety and fear of giving birth can be the following: Fear of pain, fear of losing control (physical-psychological), fear of injuries to the baby, fear of treatment modalities, fear of becoming a mother or past delivery experience(s). In the present study, there was a significant relationship between anxiety and fear of giving birth on one hand and labor pains on the other hand in multiparous women, which is consistent with the results of studies carried out by Waldenstrom *et al.* (1996) and Saisto (2001). Lack of proper knowledge about pregnancy and labor can be a source of fear or remembering fears due to past labor experiences. Increasing parturient women's knowledge about labor proportional to their cultural and social awareness has a beneficial role in decreasing their fears and pain.

The results of studies carried out by Abushaikha *et al.* (2005), Wadenstrom *et al.* (1996) and Dannenbring *et al.* (1997) have demonstrated that constant support of parturient women by midwives, especially psychological support, is an important factor in decreasing labor pains. In the present study there was an inverse relationship between support from midwives during labor in primiparous women and labor pains. Support from midwives relieves labor pains and at the same time changes the parturient women's attitude toward labor pain, making it positive and helping them easily bear labor pain.

Mother's educational status was another variable which was evaluated in the present study and it was concluded that this variable has a significant relationship with pain in multiparous women. This finding might be attributed to the fact that as an individual's awareness and educational status increases her anxiety about complications of delivery process increases, which in turn, influences the individual's perception of pain.

In the present study a statistically significant relationship was observed between labor pain and the family's monthly income in multiparous women. In the study carried out by Melzack *et al.* (1981). Low socio-economic status had an influence on pain.

Income influences cultural trends and the degree to which an individual believes he/she belongs to a specific culture influences the individual's acceptance of behaviors and his/her understanding. In addition, the family's low income can influence the individual's pain perception through other factors such as stress and anxiety (Owen *et al*., 2003).

In the present study, there was a statistically significant relationship between the infant sex and labor pain in both groups. Some studies have reported that infant sex is a factor which can influence the course of a normal delivery (Yeganeh, 2004).

Dannenberg *et al*. (1997) concluded from his study that there was a significant relationship between labor pains and a feeling of pregnancy being a pleasant experience. In the present study, too, there was a significant relationship between labor pain and pregnancy experience in multiparous women. In most cases if a pregnant woman has positive feelings and attitudes towards pregnancy, labor and its pain, she may not consider it a harrowing experience and she may not be fearful during the labor process.

Another important finding in the present study was the relationship between dysmenorrheal and labor pain in both groups, which is consistent with the results of studies carried out by Frid*et al*. (1988) and Melazack *et al*. (1981). An increase in prostaglandin secretion during menstruation and labor has been identified as a physiologic factor influencing pain perception. However, having negative experiences about pain influences the ongoing pain perception through different mechanisms. Some painful experiences are never forgotten and as a result, similar pain experiences elicite severe responses, especially if the individual has not been trained to cope with pain.

Environment, too, can influence pain perception. In the present study, there was a statistically significant relationship between environmental factors and labor pains in both groups. The parturient woman's stress and anxiety may be aggravated by environmental factors such as noise or an unfamiliar environment (Lowe, 1996).

CONCLUSION

The results of the present study, support the neuromatrix theory, which introduces pain as a body-mind-spirit experience. Our results also lead us to the concept of multidimensional nature of pain experience. The neuromatrix theory is based on the belief that several factors simultaneously gather together for pain perception (Trout, 2005).

It should be emphasized that some disparities between the results of the present study and other studies might be attributed to the influence of cultural differences on pain perception, individual's different attitude to pain, training and education before delivery and the facilities available in delivery rooms in different countries. According to the results of the present study in primiparous women physical and environmental factors have the greatest impact on the perception of labor pain. However, in multiparous women various factors including physical, psychological, environmental and supportive factors influence pain perception. This finding reveals that in multiparous women less attention has been paid to the influence of factors involved in pain perception due to past labor experiences; however, having negative experience of pain and lack of proper adaptation with pain and the repetition of such an experience are the main psychological, environmental and supportive factors influencing the intensity of pain in multiparous women.

This fact highlights one of the most important human needs, i.e. the need for training and education, which is reaffirmed in critical situations such as parturition. Education and training are more important in our country's hospitals, where lack of sufficient room, crowd in the delivery rooms, lack of trained personnel who are able to alleviate labor pains and insufficient support of parturient women are the main problems. We need to identify these problems during pregnancy and before labor so that all the treatment and care personnel would be able to implement proper pharmacologic and non-pharmacologic procedures to alleviate labor pain.

Pain should be considered a general experience not only a physical experience since pain does not serve any known purpose for the mother and the baby and only leads to severe complications. Easing such pain can transform labor into an enjoyable experience throughout a mother's life and can lead to a sharp decrease in demands for cesarean deliveries.

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