

Assessment of Factors Affecting Afterpain in Multiparous Women Delivered in Mashhad 17-Shahrivar Hospital, Mashhad, Iran

Mahin Tafazoli (MSc)¹, Maryam Khadem Ahmadabadi (MSc)^{2,3*}

¹ Lecturer, Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

² Graduate, MSc in Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

³ Midwife Officer, Social Security Organization, Khorasan Razavi, Iran

ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original article</p>	<p>Background & aim: Afterpain is a common phenomenon after vaginal delivery. Any factor that causes a delay in the process of uterus sub involution and consequently returning its size to pre-pregnancy status could affect the severity of afterpain. This study aimed to investigate the factors related to afterpain in multiparous women delivered in 17-Shahrivar Hospital, Mashhad, Iran.</p> <p>Methods: In this descriptive study 210 multiparous women during 2-4 hours after uncomplicated spontaneous vaginal delivery with moderate or severe afterpain were conveniently selected and included in the study. Afterpain was measured each hour during the first 12 hours of postpartum period using Visual Analogue Scale (0-100 mm). The duration of lactation and ambulation, the need for any medication to relieve afterpain and also vital signs were recorded during this period. Data were analyzed with SPSS Version 14, using t Student and correlation test.</p> <p>Results: The mean score of afterpain severity was 55.1±16.7. There was a positive correlation between the number of pregnancies and the duration of breastfeeding with mean score of afterpain. Also the length of ambulation decreased the afterpain intensity. However, the intensity of afterpain had no significant relationship with stimulation with oxytocin in labor, prescription of methyl ergonovin and also oxytocin after delivery.</p> <p>Conclusion: Considering that longer duration of breast feeding and ambulation in early postpartum period could decrease afterpain, it is suggested to encourage postpartum mothers to begin breast feeding and ambulation as soon as possible after birth.</p>
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Introduction

After-pain is the pain resulted from the rapid and intermittent contractions of the uterus, after the exit of placenta and membranes (1-2). It is felt in lower abdomen and lower back, similar to delivery pain (3). The severity is similar to that of menstrual cramps with severe discomfort, and is sometimes worse than delivery pain (4). It usually continues for 3-4 days (1-4), and rarely lasts one week after delivery (5). Hold Croft reported that more than 80% of women experience after-pain and this

pain could continue for one week after discharge from hospital (6).

Any factor which causes a delay in the process of uterus contractions, and interrupts appropriate restoring to the pre-pregnancy status is effective in increasing after-pain (7). After-pain is influenced by many factors which are as follows: multiparty (2, 3, 8-11), over-distended uterus due to a large baby (12), multiple gestation (8, 13), polyhydramnios (8), mother breastfeeding (2, 3, 7-9, 11, 13),

* Corresponding author: Maryam Khadem Ahmadabadi, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran. E-mail: earmanak87@gmail.com

assisted delivery with tools (8, 11), administration of medications during and after delivery to facilitate the delivery or prevent postpartum hemorrhage (8,14,15), analgesia during delivery (3,15), the placenta removal by hand (8), mother's physical and psychological disorders (3), consumption of magnesium sulfate during delivery (16), a history of narcotics use and chronic pain (17), full bladder (8, 12), mother's delivery position (7, 12) and cultural factors such as mother's race, religion and knowledge (14).

In multiparous women, the severity of after-pain increases due to the decreased strength of uterine muscle after multiple pregnancies, and increased sensitivity of the central nervous system (8, 9). However, in nulliparous women, after-pain is less common and is usually not experienced due to the high strength of the uterine muscles, since smooth muscles of the uterine are well contracted after delivery (2, 8, 14, 16, 18). The mechanism, by which the uterine contraction is affected by the number of deliveries, is still unknown (8). Immediately after delivery, hormonal secretion is required for production and secretion of milk (15). During lactation, following the release of oxytocin hormone from posterior pituitary, smooth areola muscles are contracted and cause milk production. Also, the released hormone leads to the contractions of the uterus smooth muscles, which causes the mother to experience more severe uterine contractions (2-4, 8).

Calcium consumption as supplements (500 mg tablets), taken twice daily, during the third trimester of pregnancy and postpartum period, can prevent after-pain (19). Also, consumption of magnesium supplementation for treatment of leg cramps, premature uterine contractions or pregnancy hypertension reduces the incidence of after-pain and decreases postpartum analgesic consumption (13). Decreased strength of uterine muscles following multiple pregnancies or excessive uterine enlargement (multiple, polyhydramnios), also increase the sensitivity of the central nervous system (8, 16), and increase the severity of after-pain.

After-pain can lead to neuro-hormonal stress responses (11), anxiety (18), sleep and emotional disorders, depression, anorexia and mother's inability to perform daily

routines (3). When pain continues, fatigue, anxiety and insufferable pain occur (18). Also, after-pain can cause the mother to refuse breastfeeding immediately after delivery and impede the flow of breast milk (14, 20). Physiological stress induced by this pain during lactation can lead to the mother's disability in breastfeeding, and decreases mother's attention to the neonate, and impairs their relationship (3).

Due to the high prevalence of after-pain, and insufficient research on the associated factors, this study aimed to evaluate the factors related to after-pain in delivery of multiparous women in 17 Shahrivar Hospital, Mashhad, Iran.

Materials and Methods

In this descriptive-analytic study, 210 multiparous women were selected by non-probability available sampling method, 2-4 hours after delivery, and this process continued for 12 hours. The mothers were hospitalized in the post-delivery section.

The inclusion criteria were as follows: mother's consent to participate in the study, being a Muslim Iranian, multiparity (more than one delivery or fetal viability outside the uterine), vaginal delivery with cephalic presentation, having a singleton healthy infant with 37-40 weeks of age, mother's ability to breast-feed and baby's ability to drink milk, and spontaneous withdrawal of placenta and membranes.

The exclusion criteria were: lack of breast-feeding, cutting or tearing of the perineum, chemical or herbal drug consumption to relieve the pain within 24 hours prior to delivery, consumption of magnesium compounds during the last month of pregnancy, use of analgesia (epidural anesthesia, spinal, entonox and pethidine) during delivery, high-risk pregnancy, medical disease during pregnancy, mental diseases, narcotics and tobacco consumption.

At first, the subjects were evaluated by interviews observations and questionnaires to assess the delivery process by using mothers' records and the stored data. Then, 2-4 hours after delivery, the severity of after-pain was determined every hour (for a 6-h period), using 0-100-mm visual analogue pain scale. During this period, lactation duration, the length of

ambulation, need for narcotics, and vital signs were recorded by one of our study researchers on an hourly basis. Validity of the forms was confirmed by the content validity method based on the most recent literature and the views of 15 members of the faculty. The validity of visual analogue scale for pain assessment was confirmed by Gift (1989), using validity method and simultaneous use of McGill, Cats and Mlzak questionnaires (1999). Reliability of the questionnaires was confirmed by test-retest and equivalent reliability. The reliability of visual analogue scale for pain assessment was confirmed by Gift (1989). Also, the reliability of this scale in this study was approved by $r = 97\%$ ($P < 0.001$).

In this study, the researchers attended the hospital every day, in the morning and in the afternoon. The study objectives were explained for the participants, and mother's consent was obtained. Afterwards, a sampling form was completed, and if they were eligible, the other forms were filled. Before the intervention, and every hour of the 6-hr period, visual analogue scale was used to assess the most severe pain of the lower abdomen and the back, which was reported in the last hour. Also, the degree of mother menstruation pain was estimated by verbal multidimensional scale.

The length of lactation and ambulation, and vital signs were hourly recorded by one of the researchers. Ferrous sulfate tablets were administered routinely. The mothers' pain was measured every hour, and if additional narcotics were required, the routine analgesics of the section/hospital (e.g. ibuprofen) were prescribed. One hour after consumption, the mother was assessed with visual analogue pain scale, for the response to additional narcotics. The data related to pain severity assessment was recorded until the subjects felt the appeal of additional narcotics, again. The subjects were excluded from the study any time they requested. Data was analyzed by SPSS software version 11.5, using correlation tests and descriptive statistical tests. P -value less than 0.05 were considered statistically significant.

Results

The mean age of the mothers was 27.9 ± 4.2 yrs, and the mean weight was reported as 65.7

kg. Ninety seven percent of the participants were housewives, and 62.4% were in class-2 of socio-economic status. Among the subjects, 94.1% had no history of physical exercises during pregnancy. The mean duration of the active phase of labor was 135.3 ± 89.9 (min), and the mean duration of the second stage of labor was 9.7 ± 5.6 (min). Oxytocin was used to expedite the delivery in 81.2%, and the rate of oxytocin consumption after delivery in 98% was equal or less than to 30 mu. Methylergonovin was used in 23.8% of the participants, after delivery. Mean gestational age (weeks) was 39 ± 1.2 and the mean of pain severity within 2-4 hours after delivery, was 55.1 ± 16.7 . According to the results of Spearman correlation test, no significant relationship was found between the duration of the second stage of labor and the mean severity of after-pain, but this association was significant in relation with the length of ambulation. Also based on the results of Pearson correlation test, no significant correlation was found between the gestational age, maternal age, maternal weight and height, length of the active phase of labor, neonate's weight and head circumference with mean severity of after-pain. However, there was a significant correlation between the breastfeeding duration, duration of walking, and parity with mean severity of after-pain (Table 1).

Table 1. Correlation between the mean severity of after pain and the studied variables

Variables	P-value	r
Duration of the second stage of labor	0.299	-
The length of ambulation	<0.001*	-
Breastfeeding duration	<0.001*	0.397
Maternal age	0.283	0.108
Maternal weight	0.272	0.11
Maternal BMI	0.104	0.163
Active phase of labor	0.787	-0.029
Neonate's head circumference	0.580	-0.056
Neonate's weight	0.794	0.026
Parity	0.034*	0.063
Gestational age	0.311	-0.102

Based on t-test results, the mean severity of after-pain had no significant associations with the shift work of (mother's) examination, history of painful menstruation, painful menstruation treatment, history of abortion and stillbirth, expediting the delivery with oxytocin,

methylergonovin, and oxytocin after delivery, and neonate's gender.

According to ANOVA test, no statistically significant relationship was found between the mean severity of after-pain and the mother's education and occupation, spouse's education, socioeconomic status, history of back pain during pregnancy, mother's feelings towards pregnancy and towards neonate's gender, and the severity of dysmenorrheal.

Based on t-test results, the mean severity of after-pain had a statistically significant relationship with the need for additional narcotics ($t=2.367$, $df=99$, $P*=0.030$). Also, T-student test indicated a statistically significant relationship between the length of ambulation and the need for additional narcotics (Figure 1).

T-student test showed that there was a significant relationship between the duration of breastfeeding and the need for additional narcotics.

Discussion

The results in this study showed that there was a positive correlation between the mean severity of after-pain with parity and duration of breastfeeding. Hold Craft (2003) reported that the increased number of deliveries significantly affected the number and the mean duration of uterine contractions. Also, the mean duration of uterine contractions had a significant and positive correlation with breastfeeding, and

the severity of after-pain, which was reported by the mothers through pain visual score (9).

The findings of the current study showed that the mean severity of after-pain had no significant relationship with the stimulation of labor by oxytocin, consumption of oxytocin and methylergonovine after delivery. Jangsten (2005) also reported that the mean severity of after-pain in women, who had active care (use of oxytocin 10 IU ml) during the third stage, was not significantly different, compared with others (14). Jangsten's results were in accordance with the results of the present study.

The results of this study showed that increasing the length of ambulation after delivery reduces the need for narcotics. The mean duration of walking after delivery was 19 ± 9.7 in the group who needed additional narcotics, while it was 40.2 ± 19 in the group who didn't need additional narcotics. Thus, movement has been introduced as an effective factor to reduce after-pain in women (7). It has been reported that by encouraging the mother's mobility and movements during labor, the need for analgesics and anesthesia reduces, and the mother might easily tolerate the pain caused by uterine contractions (17).

Longer duration of delivery causes more stress and fatigue for mothers (21, 22). It has been reported that those who had longer and more painful labors needed additional narcotics after delivery (32). In our study, there was no correlation between the duration of labor and severity of the after-pain. The lack of correlation may be due to the mothers' multiparity and the

The length of ambulation

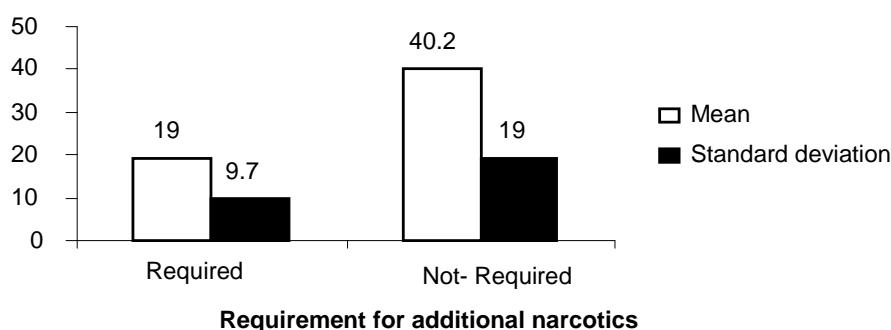


Figure 1. Comparison of the mean and standard deviation of the length of ambulation and the requirement for additional narcotics.

short duration of delivery.

In the present study, no relationship was found between the mean severity of after-pain and the severity of painful menstruation. Hold Craft (2003) also reported that the severity of dysmenorrhea is not related to the mean severity of after-pain (9).

Women who exercise regularly during their pregnancy have higher plasma beta endorphin levels and lower labor pain (24). In the present study, since only five women had the history of physical exercise during pregnancy, the statistical analysis and drawing conclusions were not logical.

In the present study, maternal age, weight and BMI were not related to the severity of after-pain. Klostergard et al. (2001) didn't also report any relationship between the maternal age and BMI with labor pain (25).

In one study, older women and those with higher socio-economic status had less pain in comparison with younger mothers who had lower socio-economic status (26). In the present study, such relationship was not observed. It can be due to the homogeneous socio-economic status of the participants who almost all were in social classes II and III.

However, the novelty of this study lies in the factors which are not mentioned in the previous studies, and as evaluated in this experiment, some of which are considered effective. Some limitations of this study are lack of evaluation of environmental factors such as light, noise, congestion, genetic and individual differences, hereditary and psychological factors which influence pain threshold; controlling these factors was not possible for the researchers. It is recommended that the effects of other factors on the severity of after-pain be evaluated in further studies. These factors are associated with pregnancy, delivery and different delivery positions.

Conclusion

Since after-pain can lead to the pain in nervous-hormonal stress responses which (11) prohibit the mother from performing daily tasks, and due to the fact that pregnancy and puerperium period is very important in fetal, maternal, and infant health, supportive care should be developed for this period to improve

the relationship between mother and infant, and reduce the side-effects. Therefore, mother's support and follow-up during this period is essential. Considering the importance of health promotion, protection of women, the high incidence and prevalence of after-pain, and the need to investigate the related factors, we hope that the results of this study trigger the conduction of high-quality clinical and non-invasive services, and encourage taking a step towards improving the health and satisfaction of women in the society.

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Conflict of Interest

No conflict of interest exists.

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