Original Article

The Effect Of Neiguan Point (P6) Acupressure On Anxiety And Intensity Of Labor Pain In Primiparous Women

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Abstract

Background and Objective: Reducing the mother's pain, anxiety, and worry before and during childbirth results in a more pleasant childbirth experience and improved cooperation of the mother. This study assessed the impact of Neiguan point (P6) acupressure on anxiety and pain intensity in primiparous women experiencing a normal delivery.

Methods: A randomized clinical trial was conducted with 70 primiparous pregnant women at Torbat Heydariyeh Nohome Dei Teaching Hospital. Participants were assigned to intervention and control groups. To perform acupressure, the women wore the wristband from their entrance into the delivery room until delivery. After delivery, the two groups filled out the Spielberger questionnaire. Moreover, both groups completed the manifest anxiety scale in three stages and the visual pain scale in four stages. The data were analyzed using SPSS 20. In accordance with the research objectives, the statistical tests Kolmogorov-Smirnov, independent t-test, repeated measures analysis of variance, Wilcoxon, and two-time comparison tests were utilized.

Findings: According to the statistical analysis, the mean anxiety scores of the two groups prior to the intervention were not significantly different ($p = 0.70$). Nevertheless, they demonstrated a significant difference immediately after the intervention ($p <0.001$) and two hours after the intervention ($p <0.001$), with the control group achieving a higher score than the intervention group. This indicates that the intervention during childbirth is associated with decreased anxiety. In addition, there was a statistically significant difference ($p <0.05$) in pain intensity at consecutive times between the two groups, and there was a reduction in pain by intervening during childbirth.

Conclusion: In primiparous women, acupressure at point P6 is effective at reducing pain intensity and manifest anxiety. Consequently, physicians, nurses, and midwives are encouraged to use acupressure at point P6 during childbirth.

Keywords: Acupressure, Pain, Anxiety, Normal delivery.

INTRODUCTION

Anxiety followed by fear of childbirth is one of the major problems during childbirth and the postpartum period. In most women, it is accompanied by increased pain, prolonged labor, and an unpleasant childbirth experience. Childbirth is one of the most important experiences in mothers' lives and is a physiologic event. It is highly important to know the factors contributing to delivery with lesser pain, shorter time, and with least intervention. Such factors make childbirth less stressful and more comfortable (1).

Enduring intense labor pain, especially in primiparous women, creates an undesirable childbirth experience. This affects the decision to select the next type of childbirth and reinforces the tendency for cesarean delivery. Prolonged labor is the cause of 8% of mothers' deaths in developing countries. Moreover, a prolonged first-stage delivery is associated with fetal complications such as pressure on the fetal head, impaired oxygen delivery, and a low Apgar score. Prolonged labor increases the maternal mortality rate by 27.3% in women under 15 and 7.9% in women over 15, increasing the rates of cesarean section and instrumental vaginal delivery (2).

Meanwhile, what doubles the mother's anxiety and worry is the fear of childbirth due to the lack of knowledge about the nature and stages of uterine contractions and labor pains. Although a certain degree of anxiety may be necessary for a mother in labor, excessive anxiety exacerbates the pain by secreting catecholamines, increasing pelvic blood flow, and toning the muscles. Based on the published statistics by the Ministry of Health and Medical Education, the cesarean section rate in 2018 was 41.9% in cities and 22.5% in rural areas (3).

Although cesarean delivery is very effective in certain conditions and helps maintain the health of the mother and the baby, like any other surgery, it has some complications, among which one can refer to pelvic injury, infection, uterine bleeding, and pain. In addition, because of the prolonged separation of the babies born by C-section from their mothers, it seems that they are more susceptible than the babies born by natural delivery to complications caused by the separation of mother and baby in the early hours after delivery, such as the delay in starting breastfeeding (4).

There are psychological and social factors affecting the acceptance of normal delivery, including fear of the unknown, tendency to painlessness, intolerance of pain, tendency to physical and mental calm, personality traits of the mother, and genetic backgrounds that make a person vulnerable to stress, unfavorable experiences, worry about adverse complications, improper communication by medical staff, feeling of death and loneliness, worry about baby health, lack of adequate social support and marital satisfaction, younger age, low level of education, lack of suitable job, depression, low level of self-esteem, the unreasonable and irrational expectations of the mother concerning childbirth and the pain associated with it, and the lack of psychological readiness for childbirth and for coping with labor pain (2).

The mother's anticipations, and sometimes the inaccurate and exaggerated information transmitted by other mothers, increase the mother's anxiety about natural childbirth. According to experts, the most important psychological response of women in labor is anxiety and worry, which should be seriously considered. Failure to resolve this problem promptly can cause serious problems for both mother and fetus (6).

Stress and anxiety initiate a vicious cycle of pain, fear, and muscle stiffness. This can disrupt the activity of uterine muscles, hence prolonging labor. Therefore, by breaking this circle, i.e., by reducing anxiety and catecholamines, one should reduce the pain of a normal delivery (7).

There are two methods for controlling pain in natural childbirth: pharmacological and non-pharmacological. The side effects of pharmacological methods for the mother include disorders in the functioning of nervous, cardiovascular, gastrointestinal, urinary, and genital systems; placental abruption; impaired blood flow in the uterus; increased uterine movements; pelvic hematoma; postpartum hemorrhage; uterine tetany contractions; uterine rupture; hypersensitivity; and water retention. Pharmacological methods may also have complications for the fetus, including disorders in the functioning of central nerves, cardiovascular system, eyes, ears, throat, and liver, eye bleeding, low Apgar score, fetal respiratory distress, and expensive drugs (8).

There are many supporters of pharmacological therapy. It is an accessible, quick-acting, and the most effective pain relief method. It is. Moreover, the dose of chemical drugs is quite specific and measurable with weight, age, etc. Despite these, pharmacological treatment has significant side effects, some of which were mentioned above. In contrast, non-pharmacological pain relief methods have many advantages, including no side effects on mother and fetus, no interference with labor, comfort, easy availability, and even pleasantness for mother and fetus (4).

Both pharmacological and non-pharmacological methods are effective in reducing the mother's anxiety. Acupuncture, reflexology, and auriculotherapy are recommended as examples of complementary medicine due to their safety, accessibility, and affordability (9).

One of the oldest types of complementary medicine is acupressure. It is a gentle and healthy treatment that can maintain the order and integrity of the body, the mind, and the psyche. Acupressure helps control anxiety by stimulating brain responses and hormonal activities, increasing blood flow, and regulating metabolism (10).

Acupressure during childbirth helps the individual relax mentally and physically, hence reducing stress and anxiety. It can also be used in changing abnormal positions of the fetus, for example, changing breech presentation into a cephalic presentation (11).

The impact of acupressure on lower back pain has also been examined. It reduces the pain and improves the patient's performance status, with the impact lasting for six months. All these studies attest to the impact of acupressure on pain (12).

The results of the studies by Kordi et al. at point LI4 (13) and Akbari et al. at points GB21 and SP6 (14) indicated

that the use of acupressure effectively reduces anxiety and labor pain. Matthew et al. (2016) also revealed that using acupressure results in a significant reduction in pain. This, in turn, leads to greater coordination between different body organs and improves body balance (9).

Using acupressure to reduce the pain and anxiety of natural childbirth is more necessary, especially in delivery centers in deprived areas that face problems such as fewer midwives, fewer medical facilities, lack of operating room and NICU, and unavailability of obstetricians (15).

With the recent increase in the global desire for painless natural childbirth, acupressure has received considerable attention. Therefore, performing more research on this subject can help increase the knowledge and skills of the medical team and improve the quality of midwifery services and care. Although acupressure at p6 is commonly used to reduce nausea during pregnancy, it has also shown to be effective in reducing anxiety, according to studies. Therefore, considering the importance of acupressure in reducing pain and anxiety during natural delivery, and by searching databases—which mostly contained the studies that examined the effect of complementary and alternative medicine on the variables such as fatigue, stress, depression, and pain, and the few studies that were performed at p6 pressure point on the intensity of the pain and anxiety of natural childbirth simultaneously—and due to the convenience and safety of this method as a non-pharmacological solution in controlling anxiety and pain, and also in order to expand the scope of knowledge related to acupressure, this study examined the effect of acupressure at point p6 on pain intensity and the rate of anxiety in primiparous normal deliveries.

Materials and Method

The present study was a randomized clinical trial. The study population consisted of 70 pregnant women who were admitted for normal delivery to the delivery room of Torbat Heydariyeh Nohome Dei Hospital in the summer and autumn of 2020. Sampling was performed randomly, with the first group as the acupressure group and the second one as the control group. The sample size included 70 people, with both the intervention group and the control group having an equal size (n = 35). The inclusion and exclusion criteria were as follows:

Inclusion criteria:

1- Women with first-time experience of delivery
2- Pregnancy at 37-42 weeks gestation
3- Singleton pregnancy with cephalic presentation
4- Early stage of active labor (dilation 3-4 cm)
5- No medical problems, such as diabetic neuropathy, cardiovascular problems, etc.
6- No skin lesions on areas where acupressure is placed
7- A healthy sense of touch
8- Maternal BMI between 20 and 29
9- Informed written consent
10- No use of other methods of analgesia and anxiety reduction

Exclusion criteria:

1. Withdrawal from the research for any reason
2. Any need for emergency intervention in conditions such as heavy bleeding, regular contractions, accelerated labor, fetal distress, premature placental abruption, episiotomy, and cesarean section
3. Transfer to the operating room or intensive care unit and hospitalization
4. Taking drugs such as oxytocin, pethidine, etc., under the gynecologist's supervision

Research instruments

1. Spielberger's Questionnaire: It is the most reliable tool for measuring anxiety, which has been used in most Western research articles. Hosseini, with 244 samples available for the validity and reliability of this questionnaire, used the split-half method to determine the reliability. The reliability of the test for women was 0.79 in the personality section and 0.94 in the situational section (16). The questionnaire consisted of 40 questions; the first 20 questions identified manifest anxiety, and the answer to each question was determined with 4 options

(never - sometimes - much - too much), with a score between 1-4, respectively. It had three levels, consisting of mild manifest anxiety (20-39), moderate manifest anxiety (40-59), and severe manifest anxiety (50-80).

2. Visual scale of pain: Visual scale was used to assess pain intensity. In this method, a convenient and tangible education is presented to the mothers through a brief explanation of pain-related shapes; then, the mothers cooperate with the nurse in expressing their understanding of the quality and intensity of pain by choosing the shape that suits their pain.

0-1: No pain 2-3: mild pain 4-5: intense pain

6-7: Extreme pain 8-9: Maximum pain 10: Unbearable pain

Way of doing: In the intervention for the experimental group, the acupressure wristbands were worn on the wrists of the women in labor at Neiguan point (P6) from the time of entering the delivery room until one hour after delivery. A similar wristband without a push-button was loosely worn on the wrists of the women in the control group for the same period of time. Both control and intervention participants completed the Spielberger questionnaire. The amount of pressure from the wristband in the experimental group was such that the women felt warm, heavy, and protruding at the Neiguan point. By examining the radial pulse, care was taken to prevent the wristband from disrupting the blood flow in the radial artery. Immediately after removing the wristband, the level of anxiety was measured again in both intervention and control groups using the Spielberger questionnaire. Moreover, pain intensity in both groups was measured using the visual pain scale in dilatations of 3-4 cm, 6-7 cm, and 8-9 cm.

Eventually, the collected data were entered into SPSS software version 20. If the data had a normal distribution, the statistical tests of independent t-test, paired t-test, Wilcoxon, and repeated measures analysis of variance were used. If the data did not have a normal distribution, Mann-Whitney, Wilcoxon, and Friedman tests were used at the alpha level of 0.05.

Results

Descriptive findings

Of the 70 primiparous mothers studied, 35 were in the intervention group (50%) and 35 in the control group (50%). The frequency distribution and demographic characteristics of the mothers in both intervention and control groups are presented in Table 1.

Table 1- Comparison of mean age and weight of pregnant women in the two groups

Variables	Study group	Frequency	Standard deviation ± mean	Independent t-test result
Age	Control	35	28.80 ± 7.82	t = -0.20 dF = 68 P = 0.84
	Intervention	35	29.17 ± 7.55	
Weight	Control	35	78.91 ± 10.55	t = 0.03 dF = 68 P = 0.97
	Intervention	35	78.82 ± 10.58	

According to Table 1, the mean age and weight of the mothers did not show a statistically significant difference between the two groups (p> 0.05).

Checking the normality of variables

Smirnov Kolmograph test was used to check the normality of the data.

Table 2 - **Results of Smirnov Kolmograph statistical test to determine the normal distribution of data in the studied groups**

Study group / Variables	control	Intervention
Anxiety (before intervention)	P = 0.70 Z = 0.69	P = 0.82 Z = 0.50

Anxiety (immediately after intervention)	P = 0.49 Z = 0.96	P = 0.58 Z = 0.88
Anxiety (two hours after the intervention)	P = 0.47 Z = 0.97	P = 0.57 Z = 0.89

According to Table 2, all anxiety variables had a normal distribution at the three measurement times in the two groups.

Intergroup comparisons

Due to the normality of anxiety scores in the control and intervention groups, an independent t-test was used to compare the anxiety scores measured before, immediately, and two hours after. This test showed that the mean anxiety scores were not significantly different between the two groups before the intervention ($p = 0.71$). However, the anxiety scores measured immediately after the intervention ($p < 0.001$) and two hours after the intervention ($p < 0.001$) were significantly different between the two groups. Due to the increase in anxiety in the control group and the decrease in anxiety in the intervention group, the difference between anxiety scores was greater two hours after than immediately after the intervention (Table 3).

Review of intragroup comparisons

Due to the normality of the anxiety score, repeated measures analysis of variance was used to compare the anxiety score before the intervention with the anxiety score immediately after the intervention; it was also used to compare the anxiety score immediately after the intervention with the anxiety score two hours after the intervention between the control and intervention groups (separately). The results showed that in both groups, there was a statistically significant difference between the anxiety scores measured at the 3 specified times ($p < 0.001$). In two-by-two comparisons of the specified times, the findings indicated that in the control group, the anxiety scores measured immediately after the intervention showed a significant increase compared to the scores measured before the intervention. Likewise, the scores measured two hours after the intervention increased significantly compared to those measured immediately after the intervention ($p < 0.001$). In the intervention group, the anxiety scores measured immediately after the intervention had a significant decrease compared to the scores measured before the intervention, and the scores measured two hours after the intervention decreased significantly compared to the scores measured immediately after the intervention ($p < 0.001$) (Table 3).

Table 3: Comparison of mean score of manifest anxiety in the two studied groups at different times of the intervention

Study group / Time		Control (N = 35)	Intervention (N = 34)	Intergroup comparisons results of independent t-test
		Standard deviation ± mean	Standard deviation ± mean	
Before intervention		41.32 ± 10.20	40.45 ± 9.64	t = 0.36, dF = 67, p = 0.71
two hours after intervention		53.82 ± 10.12	36.11 ± 8.38	t = 7.9, dF = 67, p < 0.001
one hour after delivery		65.94 ± 7.58	28.37 ± 5.70	t = 23.28, dF = 67, p < 0.001
Intragroup comparisons	results of repeated measures ANOVA test	F = 34.33 P < 0.001	F = 38.3 P < 0.001	

Acording to Table 3, before the intervention, anxiety was not significantly different between the control and intervention groups ($p = 0.71$). However, the anxiety scores showed a significant difference two hours after the intervention ($p < 0.001$) and one hour after delivery ($p < 0.001$) in the control and intervention groups.

Table 4: Comparison of mean pain intensity at different times in the two groups

Studied groups / Time	Intervention n = 35 Media SD = $\chi 2$	Control n = 35 Media SD = $\chi 2$	Results of the Mann-Whitney test
Dilatation 3-4 cm	4 3.57 ± 1.09	3 2.37 ± 0.87	Z = 4.56, p <0.0001
Dilatation 6-7 cm	5 4.94 ± 1.16	4 4.34 ± 0.91	Z = 2.31, p=0.021
Dilatation 8-9 cm	8 7.46 ± 1.7	6 6.71 ± 1.51	Z = 1.96, p=0.05
Dilatation 10-12 cm	8 7.6 ± 1.77	9 9.23 ± 0.81	Z = 6.1, p <0.0001
results of Friedman statistical test	$\chi 2$=586.4 p <0.0001	$\chi 2$=103.5 p <0.0001	
Results of Wilcoxon statistical test	All times are significant with one another p <0.0001 except for time 3 with time 4.	All times are significant p <0.0001.	

Acording to Table 4, the pain intensity in the intervention group was significantly higher than that in the control group at all times, with the exception of time 4, when the pain intensity in the intervention group was significantly lower than that in the control group. Moreover, in both groups, pain intensity increased significantly at different times. However, this increase was significantly higher in the control group (the control group 6.86, and the intervention group 4.03 with p <0.001).

Discussion

This study aimed to investigate the effect of acupressure at point p6 on anxiety and pain intensity in primiparous women's experiences of normal delivery. In sum, the results of the statistical analysis showed that before the intervention, the mean score of anxiety was not significantly different between the control and intervention groups (p = 0.71); however, the anxiety scores measured immediately after the intervention (p <0.001) and two hours after the intervention (P <0.001) showed significant differences between the control and intervention groups. The increase in anxiety in the control group and the decrease in anxiety in the intervention group, along with the continuation of decrease in anxiety in the intervention group at two hours after the intervention compared to the time immediately after the intervention, and also the obvious difference between the anxiety scores measured two hours after the intervention and immediately after the intervention, all indicate that acupressure reduces childbirth anxiety.

The studies conducted by Ranjkesh et al. (2019) and Khaleghi et al. (2013) on the effect of acupressure on anxiety indicated that acupressure could reduce labor anxiety and that it could be recommended as an auxiliary method because it is non-invasive, cheap, and safe.

Khaleghi et al. (2013) examined the impact of acupressure at point P6 on the anxiety of operating room students at the beginning of the internship. The study results indicated that acupressure was effective in reducing anxiety. Ranjkesh et al. (2019) examined the effect of acupressure at H7, LI4, and SP6 points on childbirth anxiety in nulliparous women. The results showed that acupressure was effective in reducing latent and overt anxiety.

Not completely in line with the objectives of the present study, Mousavi et al. (2016) investigated the effect of foot massage on anxiety and physiological parameters before hysterectomy. The sample size of the study consisted of 60 patients. In the intervention group, the patients received foot massage in one session for 20 minutes at a specific time of day; in the control group, however, no intervention was performed. Anxiety and vital signs were recorded in both groups before and 30 minutes after the intervention. The research findings showed that massage had no significant effect on the patients' physiological parameters such as pulse and systolic and diastolic blood pressures. It also did not affect the patients' anxiety and only reduced the number of breaths. Nevertheless,

the statistical analysis results revealed a significant difference in the degrees of pain intensity at the two consecutive times between the two groups ($p < 0.05$).

Khoshtarash et al. (2012) and Matthew et al. (2016) examined the effect of acupressure on normal labor pain. They found that acupressure leads to the reduction of labor pain. They also suggested that acupressure—due to its cheapness, harmlessness, availability, and non-invasiveness—should be used during labor to reduce the use of drugs, painkillers, oxytocin, etc.

In another study by Khoshtarash et al. (2012) entitled "the effect of foot reflexology massage on pain and physiological parameters after the cesarean section", the samples involved 62 undergoing cesarean section candidates who were randomly allocated to experimental and control groups. In the experimental group, foot reflexology massage was performed using the Ingham method based on basic sequence for 30 minutes in two sessions for an overall 24 hours. The results indicated that foot massage reduced the severity of pain in patients undergoing surgery on the first day but had no significant effect on physiological parameters (16).

Akbarzadeh et al. (2012) (14) conducted a study entitled "comparison of the effect of point 6 and 21 gallbladder massage on the length of the stage of nulliparous women" on 150 pregnant women who were referred to the labor room of the maternity ward of Hafez and Shoushtari hospitals in Shiraz. The effects of acupressure at the two points of SP-6 and GB-21 and in the two stages of intervention, in dilatation of 3-4 and 7-8 cm, on the severity of labor pain were compared with each other and with the control group as well. The participants were divided into three groups: acupressure at point GB-21, acupressure at point SP-6, and control group. Pain intensity was evaluated before the intervention, immediately after the intervention, and 30 and 60 minutes after the intervention using a visual analog scale (VAS) in all three groups. The results showed that acupressure is easy and non-invasive, effective in reducing labor pain, and can be easily used in delivery rooms. This method is effective in promoting satisfaction and positive experiences of childbirth as well as in reducing elective cesarean sections. Moreover, due to the lack of difference between the two points in reducing pain intensity, the use of each point can be impactful.

In a study by Matthew et al. (2016) entitled "effectiveness of foot reflexology in reduction of labor pain among mothers in labor admitted at PSG," which was performed on 30 women in PSG Hospital, the intervention was given to the experimental group and pain was assessed using a numerical scale. The research results indicated a significant reduction in pain. They also showed that acupressure not only fights pain, but the reduction of pressure and pain, in turn, leads to more coordination between different organs of the body, hence improving body balance (9). It should be noted that the mean age and weight of the mothers did not show a statistically significant difference between the two groups ($p > 0.05$) (Table 1-4). Likewise, no significant difference was observed in the frequency distribution of the education level of the pregnant women between the two groups, and both groups were similar in terms of these variables ($p = 0.60$).

In the studies mentioned above, in terms of anxiety and pain, no significant difference was observed in the mean age and weight as well as in the frequency distribution of the mothers' education levels between the studied intervention and control groups, and the two groups in all studies were similar in terms of these variables. In the present study, acupressure at point P6 effectively reduced labor pain and anxiety in primiparous women ($p > 0.05$).

Conclusion

According to the results of this study, acupressure at point P6 effectively reduces labor pain in primiparous women. Moreover, acupressure at point P6 also effectively reduces anxiety in primiparous women. Therefore, acupressure during childbirth is recommended to physicians, nurses, and midwives.

Because of the mothers' lack of knowledge about acupressure and its diverse effects, the mother's physical condition and her anticipations of childbirth, the anxiety of natural childbirth, popular culture regarding childbirth, and the small number of clinical trial interventions at the time of the study, performing acupressure has many difficulties and limitations.

According to the results of this study, acupressure can be an appropriate alternative to medication. Therefore, managers are advised to provide the necessary facilities to train medical personnel in this area. In order to further investigate this issue, it is suggested that future research compare the effect of acupressure at Shenmen point with the effect of acupressure at point p6 on anxiety during natural childbirth in primiparous women.

REFERENCES

1. The effect of massage on the course of the active stage of labor in nulliparous women Dr. Maryam Kashanian1389. (Persian)
2. Alehagen S, Wijma B, Wijma K. Fear of childbirth before, during, and after childbirth. Acta Ob Gyn Scan. 2006; 85 (1): 56-62.
3. .Lowe NK. The pain and discomfort of labor and birth. Journal obstet Gynecol neonatal nurs.1996; 25 (1): 82-92.
4. Comparison of the effect of point 6 and 21 gallbladder massage on the length of the stage of nulliparous women referred to Shiraz patients Marzieh Akbarzadeh 2013
5. Alehagen S, Wijma B, Wijma K. Fear of childbirth before, during, and after childbirth. Acta Ob Gyn Scan. 2006; 85 (1): 56-62.
6. .The effect of education on the use of non-pharmacological methods to reduce labor pain Mehrnaz expensive 2006. (persian)
7. Evaluation of the effect of preoperative foot massage in hysterectomy patientsMahdieh Sadat Mosavi1, Zohre Maryami2 *, Simin Taavoni 3,4, Abbas Rahimiforoshani5Scientific Journal of Hamadan Nursing & Midwifery Faculty - ISSN 2008. (persian)
8. Guyton's Physiology Book Medical Gythology of Guyton and Hahl (Original Original Language) by Guyton Hall (2016).
9. Mathew, AncyMerin, and Frincy Francis. "Effectiveness of Foot Reflexology in Reduction of Laber Pain among Mothers in Laber Admitted at PSG." International Journal of Nursing Education 8.3 (2016).
10. Barrett B. Complementary and alternative medicine: what it all about? WMJ: official publication of the State Medical Society of Wisconsin. 2001; 100 (7): 20-6.
11. Mirza'i, Firoozeh, Kaviani, Jafari, Peyman.The effect of reflexology on the anxiety of primiparouswomen.Life magazine. May 15, 2010; 16 (1): 65-71. (Persian)
12. Nilsson C, Lundgren I, Karlstrom A, Hildingsson I. Self reported fear of childbirth and its association with women's birth experience and mode of delivery: a longitudinal population-based study. Women Birth 2012; 25: 114–21.
13. Kordi M, Firoozi M, Esmaili H. Effect of LI4 Acupressure on Labor Pain in the First Stage of. Labor in NuliparousWomen.Hayat. 2011; 16 (3 and 4): 95-101. (Persian)
14. Comparison of the effect of point 6 and 21 gallbladder massage on the length of the stage of nulliparous women referred to Shiraz patients Marzieh Akbarzadeh 2013
15. Navarra T, Perlman A. The encyclopedia of complementary and alternative medicine: Facts On File; 2004.
16. The effect of foot reflexology massage on pain and physiological parameters after cesarean section Mehrnoosh Khoshtrash 2012. (Persian)