Original Article

Effect of Nursing Intervention Integrating an Islamic Praying Program on Labor Pain and Pain Behaviors in Primiparous Muslim Women

Abstract

Background: Labor pain has always been a priority issue for primiparous women. Pain behaviors appear as a response to labor pain. This study aimed at examining the effect of nursing interventions integrating an Islamic praying (NIIIP) program on labor pain and pain behavior. **Materials and Methods:** In this experimental design, 42 women in the control group received the usual care; 41 in the experimental group received the usual care and an NIIIP program from the 32nd week of pregnancy. This was done by providing childbirth education which they then practiced at home every day until they entered the labor room in the Bhinneka Bhakti Husada Hospital and Community Health Center Pamulang, Indonesia. They conducted 30 min of reciting from the Quran, stroking, positioning during their inter contractions, just breathing during contractions at the 1st, 2nd, 3rd h after cervical dilation of 3–4 cm. The visual analogue scale (VAS) and pain behaviors observation scale (PBOS) were used to measure pain and pain behaviors. Repeated measures of the ANOVA and t test were used to analyze the data. **Results:** There were significant differences in experience of labor pain ([F = 113.07, df (1, 81), $p < 0.001$] and pain behavior ([F = 147,49 df (1, 81), $p < 0.001$] between the control and experimental groups. There were significant statistical differences of over four times at the points of pain [F = 82.84, df (2, 182), $p < 0.001$] and pain behaviors [F = 165.55, df = (2, 189), $p < 0.001$]. **Conclusions:** The program effectively resulted in lower pain and increased pain behaviors.

Keywords: Intervention, Islamic praying, labor pain, nursing, pain behaviors, primiparous

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Introduction

The majority of pregnant women are worried about labor pain, especially the first time mother (primiparous).[1] Most primiparous women (75%) reported that their pain during childbirth was severe or intolerable,[2] and other studies reported a level of about 37%. This is higher than multiparous women of whom only 20.7% felt severe pain.[1]

Low fetal stations in primiparous women were the cause of the stimulation of pelvic and cervical pain by the fetal head, and thus, they had greater pain than the multiparous women.[3] In addition, the lack of prior experience has also been a cause of increased physiological pain caused by contraction of the uterus. A lack of knowledge causes their minds to increase their fear and anxiety than in turn causes tension in the body, which in turn causes more fear and pain.[4] A neglect of spiritual and cultural factors makes a woman feel that she is in an unfamiliar environment, which exacerbates the fear and pain that influences their attitudes toward childbirth pain.[5,6]

Pain behaviors depend on the intensity and frequency of pain.[7] Severe labor pains often lead to apparently uncontrolled pain behaviors that may have a negative impact on both the mother and fetus. This is because they disturb the autonomic maternal functions and cause a release of catecholamine, which results in abnormal labor and fetal distress.[8,9]

Analgesic medication and cesarean delivery are deemed the last option in Bhinneka Bhakti Husada (BBH) hospital because it is an Islamic Hospital. In Islam, Muslims believe the Quran Surah (QS) At-taghabun, 64: 11 that predestined matters (including sustenance, illness, birth, death, and all calamities and happenings in life) come from Allah, or all that happens is by

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Allah's permission. Thus, Muslim women do not perceive labor pain as a form of punishment but rather as a way of atonement for one's sins, and giving birth is glorious (*jihad*). However, Muslims are encouraged to seek care, to be patient, and to pray and ask help from Allah when in pain.[10]

Women in labor are like *mujahidin* (in the Oxford dictionary of Islam *jihad* is an Arabic word, which literally means striving or struggling and working hard for something, especially something with a praiseworthy aim such as crusades against drugs, smoking, and women in labor). Therefore, a woman does not usually ask for a cesarean section (elective CS), except when it is the last option if the woman has complications because labor in childbirth is a natural or physiological process. Therefore, a non-pharmacological pain relief method is considered a priority.

Many non-pharmacologic modes of labor pain management have been dealt with in previous studies. Most of these studies have focused on physical care only. However, nurses are also obliged to care for the psychological, emotional, cultural, and spiritual needs of each person to decrease discomfort and pain.[11,12] It is absolutely necessary to develop holistically new interventions to achieve this.

From existing studies, only *zikr* therapy (devotional acts in Islam in which short phrases or prayers are repeatedly recited silently within the mind or aloud *such as Alhamdulillah, Subhanallah, Allahuakbar, Astagfirullah,* etc.) has been identified in adult and mental health areas.[13,14] In maternity care, only listening to the holy Quran and this make patients passive.[15,16] There is some scientific evidence regarding the efficiency and effectiveness of active pray (reciting the Quran during pregnancy) on labor pain and not holistic interventions.[17]

This has encouraged the researcher to investigate this problem. Developing the program as a holistic program had the goals of reducing pain and increasing pain behaviors to make it indispensable to give birth by natural ways. This study is part of the nursing intervention integrating an Islamic praying (NIIIP) program that deals with labor pain, pain behaviors, the duration of labor, and neonatal outcomes.

Materials and Methods

This experimental study used control group (CG) and experimental group (EG), and a pre-test and post-test design. It was conducted at an antenatal clinic and labor unit at the BBH Hospital and Community Health Center (CHC) Pamulang, Banten, Indonesia from June, 2016 to January, 2017. The research framework was according to Islamic philosophy (IP), holistic nursing theory (HNT), and labor support. HNT is deemed congruent with IP and was used to guide the study because labor pain is holistic; the women are holistic beings, and nursing is holistic.

The sample size was calculated in accord with the effect the size had when a similar previous study was conducted.[18] The effect size (d) of labor pain was 1.13 = 10–11 women per group, and the effect size of the duration of labor was 0.64 = 31 women per group, power = 0.80 and level of significance = 0.05, was need at least 41 women for each group. A total of 110 participants were recruitment according to inclusion criteria at antenatal clinics. These criteria included mother and fetus without complications, singleton pregnancy, 32 weeks of pregnancy, availability by phone to control interventions every day, and willingness to follow the research guidelines. The pregnant women who met the inclusion criteria and were willing to participate in this study needed to give their informed consent and their mobile telephone number. They were then randomly assigned to either the EG ($n = 55$) or CG ($n = 55$) according to the specified sequence according to the formula for the block randomization that was drawn up. The women who belonged to the EG, besides receiving the usual care during pregnancy, also followed the NIIIP program. The women were given childbirth education at 32 weeks of pregnancy about non-pharmacological pain relief involving breathing, positioning, stroking, and Islamic praying. The content validity index (CVI) of the childbirth education (program) was 0.83. They were given out leaflet as a guide for manual practice at home at least once a day until delivery.

The inclusion criteria of women at labor room included (1) normal gestation for birth; (2) not coming to the labor room at >4 cm of cervical dilation (cd); (3) normal fetal heart rate; (3) latent phase no more than 12 h; (4) cephalic presentation; (5) estimated fetal weight of 2,500 to 4,000 grams; (6) progress of labor not less than 3 h; (7) absence of health complications for the mother or fetus; (8) labor support from the family; and (9) have no contraindication for vaginal delivery. The women who belonged to the EG were undertaking breathing during uterine contractions. Upright positions (walking, standing, sitting, and squatting) were recommended if membrane was not to be ruptured and the family could helped. Positioning and stroking as much as the women can from the active phase of labor until the baby was born (at least 3 times). Islamic praying during inter-contractions for approximately 30 min as much as three times at the 1st, 2nd, and 3rd h after cd of 3–4 cm by involving of the family. The Islamic prayer recited included 14 verses of the Quran, Surah: (1) Al-Mukminun 23: number 12-14; (2) As-Sajdah 32: number 9; (3) Al-Hijr 15: number 29; (4) Al-Imran 3: number 6; (5) Al-A'raf 7: number 172; (6) Al-Qiyamah 75: number 39; (7) Al-Fathir 35: number 11; (8) Ar-Ra'd 13; number 8; (9) Al-Furqan 25: number 54; (10) Az-Zumar 39: number 6; (11) Al-Imran 3: number 36; (12) Ibrahim 14: number 40; (13) 'Abasa 80: number 20; and (14) An-Nahl 16: number 78 by herself. Contemplating how the human being created by Allah (Allah created man from an extract of clay-sperm-into a clot of congealed blood-a

fetus lump-wrapped by bones-wrapped with flesh-then Allah developed the creation to a human within three trimesters. When 16 weeks of pregnancy, Allah made them testify concerning themselves, saying; Am I not your Lord who cherishes and sustains you? they said; yes, we do testify! There is no God but Allah. Then Allah breathed into the fetus of His spirit and gave you the hearing, sight, intelligence, and understanding that perhaps you would be grateful, then Allah makes ease during childbirth), and surrendering oneself to Allah by saying "*laahawla walaa quwwata illabillah*" (there is no power and no strength except from Allah) made pregnant women to do active prayer. After reciting these, they conducted the stroking of the mother abdomen themselves using "love" pattern. These nursing interventions were similar to the main steps of *ruqyah syariah* in Indonesia, which is the reciting of the verses of the Quran for people who are sick while stroking the sick area.

The visual analogue scale (VAS) was used to measure any changes in the severity of pain. Metric calculation was used using a ruler for the VAS in millimeters. The scale was from 0 to 100 mm (from no pain to the worst imaginable pain) as developed by Maxwell (1978). The reliability of the VAS in the pilot study was. 69. In the other study, the reliability of the VAS was. 74.[19] The women were asked to put a mark on the lines in the VAS scales to measure the labor pain by self-reporting at the starting point with a cd 3–4 cm (pre-test), and the end of contractions after intervention at the 1st, 2nd, and 3rd h after a cd of 3–4 cm. At the same time, the researcher or research assistants observed the behaviors that shown by the laboring women by using the pain behavior observation scale (PBOS) instrument developed by Baosoung (1983). The PBOS consisted of five behaviors shown by the women during uterine contraction (vocalization, body movement, breathing control, facial expression, and communication) that were scored from 1 to 3 (1 = bad behavior, 2 = middle behavior, and 3 = good behavior). The total score ranged from 5 to 15. A lower score indicated the women displayed poor pain behaviors and vice versa. The reliability of the PBOS in the pilot study was 0.8. In other research studies, the reliability of the PBOS was 0.8.[19] The participation were excluded when (1) the mother had any adverse medical diseases, psychological depression; (2) should suddenly have a cesarean section; (3) arrived late at the labor room (more than 4 cm of cd) and active phase of labor <3 h. The statistical analysis used software IBM Corporation released in 2012. The IBM SPSS Statistics for Windows, Version 21.0. Armonk, New York and the significance level at $p < 0.05$ (two-tailed) were used to analyze data. Repeated measures of ANOVA were used to test the effects within groups of the program after receiving the program. An independent *t* test was used to compare the group effects of the program between the EG and CG.

Ethical considerations

Ethical approval of this study was obtained from ethical boards of review in Prince of Songkla University (PSU) Thailand (code: MOE 0521.1.05/1663, date June 29, 2016), University of Pembangunan Nasional Veteran (UPNV) Jakarta, and BBH Hospital Indonesia. Pregnant women signed a consent form for the study, they were free to withdraw from the study at any time, and confidentiality of participants (data) was maintained.

Results

Of the 110 women and their family, since the 32 weeks of pregnancy up to the finish of the study nine participants dropped out (four women in the CG and five women in the EG). They withdrew owing to some reasons; used cesarean section with a variety of reasons, moved to their home town, active phase of labor was less than 3 h, and came to delivery room at 7 cm of cd. During data analysis, some outliers were found, and there were 41 women in the EG and 42 women in the CG to be analyzed. All women in the both groups met the assumption of the independent t test and repeated measure of ANOVA. The normal distribution of data was assessed by skewness and kurtosis for pain and pain behaviors. Homogeneity was met by Levene's test score of labor pain ($p = 0.12$) and pain behaviors ($p = 0.87$). No significant in demographic and obstetric data between the control and EG (mother age $p = 0.73$, occupation $p = 0.31$, ethnic $p = 0.75$, educational level $p = 0.96$, painful menstruation $p = 0.69$, gestational age at birth $p = -0.45$, mother weight $p = 0.60$, rupture membrane $p = 0.97$, and characteristics of amniotic fluid $p = 0.26$) were found. Thus, with fairly homogenous sample, randomization, and confounding factors were controlled.

First hypothesis that the program could reduce labor pain was supported. There were significantly different degrees of labor pain between CG and EG ([F = 113.07, df (1, 81), $p < 0.001$], and there were significant statistical different over four times points of labor pain within group, [F = 82.84,

Table 1: Comparison of labor pain of primiparous women during active phase of labor of the two groups (*n*=83) using repeated measure ANOVA

Sources of variance	Sum of Squares	df	Mean Square	F	p	Partial η²
Between-participants						
Group (intercept)	2421099	1	2421099	55017.23	<0.001	0.99
	4975.87	1	4975.87	113.07	<0.001	0.58
Group Error	3564.50	81	44.00			
Within participants						
Time	254.75	2.25	112.97	9.28	<0.001	0.10
Group x time	2272.70	2.25	1007.91	82.84	<0.001	0.50
Error (time)	2222.14	182	12.16			

df (2, 182), $p < 0.001$]. It revealed that the pain was significantly reduced after conducting the program [Table 1].

Second hypothesis that the program could reduce labor pain was supported. The mean score of labor pain at the 1st, 2nd, and 3rd h from cd of 3–4 cm in the EG was lower than CG. Independent t test demonstrated that the differences of mean and standard deviation of labor pain in the EG at 1st h of labor pain was 81.17 (4.83), at 2nd h was 78.43 (5.16), and at 3rd h was 79.31 (6.30) versus the CG scores: 88.95 (1.39), 90.33 (2.03), and 91.42 (2.33), respectively. Independent t test of group differences at each data point presented that EG had significantly less pain scores at first post-test, t = 9.91, $p < 0.001$; second post-test, t = 13.73, $p < 0.001$; and third post-test, t = 11.54, $p < 0.001$ compare to the CG. Figure 1 shows the results indicated; there was a decreased labor pain in the EG, whereas the scores of labor pain in the CG increased in the each time point.

Third hypothesis that the program could increase pain behavior was supported. There were significantly different degrees of pain behaviors between CG and EG ([F = 147.49, df (1, 81), $p < 0.001$], and there were significant statistical different over four times points of pain behaviors score, [F = 165.55, df (2, 182), $p < 0.001$]. It revealed that the score of pain behavior was significantly increased after conducting the program [Table 2].

Fourth hypothesis that the program could increase pain behavior was supported. The mean score of pain behaviors at the 1st, 2nd, and 3rd h from cd of 3–4 cm in the EG was higher than CG. Independent t test demonstrated that the differences of mean and standard deviation of pain behaviors score in the EG at 1st h of pain behaviors was 9.29 (0.90), at 2nd h was 9.75 (0.48), and at 3rd h was 10.21 (0.47) versus the CG scores: 7.54 (0.83), 7.45 (0.70), and 7.35 (0.61), respectively. It was found that a significant difference across the 3 h of both groups (t = −9.15, $p < 0.001$), (t = −17.32, $p < 0.001$), and (t = −23.70, $p < 0.001$), respectively. There was no significant difference of both of group at pre-test (t = −0.33, $p = 0.74$). The mean and standard deviation and p value of total score of pain behaviors in each time point of the EG and CG are shown in Figure 2.

Discussion

This study proves the effectiveness of NIIIP program in order to reduce labor pain and improve score of pain behaviors. Although the labor pain is significantly lower at the early of active phase of labor (3–5 cm and 5–8 cm of cd), it was not significantly lower at the transition time (8–10 cm of cd). These findings were almost consistent with the previous studies that found that reciting the Qur'an at least 30 times during the third trimester of pregnancy significantly decreased labor pain at a cd of 3–5 cm, 5–8 cm, and 8–10 cm.[17]

One study in the Middle East used holistic care; the women who chose active ways for coping with labor pain reported that the pain was significantly less in the transitional stages (8–10 cm of cd) and not significantly different at 3–4 cm of cd and the second stage of labor,[20] which was different to this study. Current study showed that labor pain was not significantly lower at transitional time because at that time there was very severe labor pain. This is natural pain that will increase along with the time until the baby is born. Moreover, this is possibly explained by the differences in race and ethnicity because labor pain is subjective, unique, and influenced by cultural and spiritual factors. In Islamic beliefs, the mother who struggles against natural pain at that time deserves high appreciation from Allah (*jihad*), which gives them a glorious and great reward and they get to heaven.

Regarding pain behaviors, the program significantly improved score of pain behaviors in each time at 1st, 2nd,

Table 2: Comparison of pain behavior scores of primiparous women during active phase of labor of the two groups (*n*=83) using repeated measure ANOVA

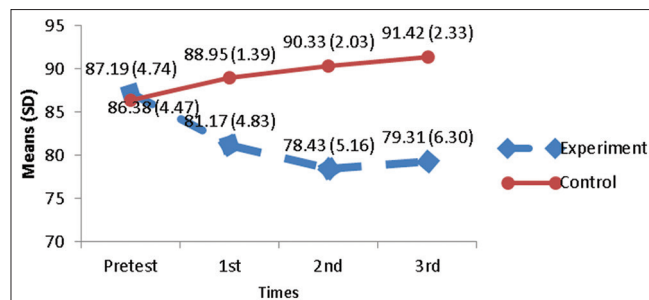| Sources of variance	Sum of Squares	df	Mean Square	F	p	Partial Ƞ²
Between-participants						
Group (intercept)	23366.93	1	23360.93	13648.90	<0.001	0.99
	252.50	1	252.50	147.49	<0.001	0.64
Group	138.67	81	1.71			
Error						
Within participants						
Time	51.32	2.33	21.96	93.52	<0.001	0.53
Group x time	90.85	2.33	38.87	165.55	<0.001	0.67
Error (time)	44.44	189	0.23			

Figure 1: Mean and standard deviation of labor pain
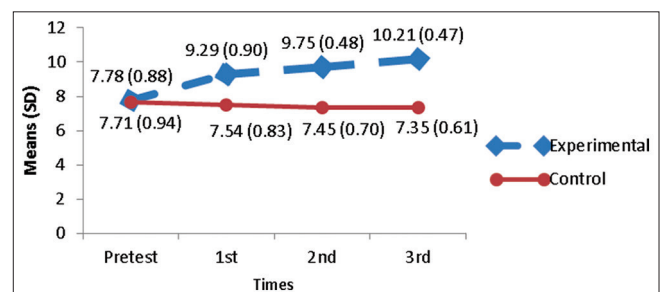

Figure 2: Mean and standard deviation of pain behaviors

and 3rd h after cd 3–4 cm. This is because of doing active prayer and surrendering oneself to Allah should come from in-depth heart (not negligent). The harmony between heart, mind, speech, and action, then request attitude wisdom, inner meticulousness, not being arrogant, patience, fortitude, and good prejudice to Allah as in QS Al-Ghafir 40: 60. In that Surah, Allah says: "call on Me (praying to Me): I will answer your prayer; but this who are too arrogant to serve Me will surely enter Hell abased").

Moreover, Hadith Tirmidzi number 3479 (From Abu Hurairah r. a, Prophet Muhammad (peace be upon him = pbuh) said "praying to Allah confidently will be granted, Allah does not answer prayer from a neglectful heart." Therefore, those praying for their pain were more likely to change positive in pain behaviors, because the more pain, the more surrendering oneself to Allah. Those are surrendering oneself to Allah thought that just Allah has the power for everything (include to reduce pain) and as a source of calm in the life as in QS Asy-syuara 26:217. In that Surah, Allah says, put your trust in Allah, the Exalted in Mighty, the Merciful. In QS Ghafir 40: 44 and QS At-thalaq 65: 3, Allah says… my own affair I surrender to Allah; for Allah (always) watches over His servants.

The study results support the founder of HNT,[12] who reported that praying was one of components of the holistic nursing and was a good medicine for pain and healing. Interrelation between all of the components of holistic nursing is very helpful for women during the perinatal period. The implementation of holistic nursing results in the optimal harmonization of body, mind, and spirit, which enhances psychological, social, cultural, spiritual, and physical health status.[12] Another study reported that massage, position, comforting, encouraging, reassuring, and relaxation for 30 min strongly brings about alleviation of pain.[20] This is also similar to earlier studies reporting that the breathing, massage, mindfulness, position, and involving significant partners brought about an overall significantly lower labor pain and unpleasantness.[21] That passive praying have more robust effects to stop pain than does catastrophizing.[22] All distract attention from pain by providing substitute activities, catastrophizing and hope quest (prayer) during labor.[23] Passive prayer is a commonly used among Muslim women to relieve pain and create the best situation for women and her unborn child, such as when listening to 78 verses of QS Ar-Rahman,[15] or to listening 98 verses of QS Maryam.[16] Different with this study that used active praying together with nursing interventions (stroking and breathing) could make positive behaviors to face labor pain.

The stroking can stimulate large nerve endings and close the gate, so nociceptive responses are not sent to the brain. The stroking can also distract from pain by focusing on the fetus by touching the fundus uterine, which helps relaxation, stimulates and increases the endorphins in the central nervous system (CNS) that inhibit the release of glutamate-aminobutyric acid (GABA) resulting in the production of dopamine (pleasure), thus relieving pain levels. Breathing can inhibit the ascending of nociceptors to the spinal cord and the brain. It can also increase blood flow, oxygenation, and blood plasma melatonin, thus inhibiting the release of tachykinins or *p* substances in the peripheral nervous system as a key protein involved in the transmission of pain, therefore, decreasing the awareness of pain.[24-26]

Islamic praying can distract that act to which the brain responds to directly to close the gate, and inhibit the ascending of nociceptors to the brain, and then to relieve pain.[25] Praying by focusing and concentrating on Allah, produces changes in neural regulation in pituitary hormone secretion by enhancing the endorphins hypothalamic and inhibit GABA (chemical substance) in CNS can increase serotonin to increase production of the neuro hormone melatonin. The melatonin has been shown to depress the CNS modulate autonomic, metabolic, endocrine, and immune functions, and thus, mediate global regulatory changes in various behavioral states including producing a state of calm to reduce labor pain and increase pain behaviors.

Islamic praying in this study used 14 verses of Quran about how the human being is created by Allah, focuses on Allah to remember their agreement with Allah when in the womb at 16–18 weeks of pregnancy "When Allah drew forth from the children of Adam from their descendants, and made them testify concerning themselves, (saying): "Am I not your God (who cherishes and sustains you)? "They said:" Yes! We do testify!" this, lest you should say on the Day of Judgment: "Of this we were never mindful" (QS Al-A'raf, 7: 172), surrendering oneself on Allah, can be distracted from pain by making the large fibers reach the brain and directly close the gate, and also inhibit the ascending of the nociceptor to the spinal cord and brain. By concentrating on Allah, the women can release endogenous opioids, which can relieve pain. The Prophet Muhammad (pbuh) said that Allahs saying in hadith qudsi "I depend on my servant's supposition to Me, I with them when they are praying to Me.

Religious spiritual interventions play an important role as some of non-pharmacological pain management techniques for reducing pain and improve score of pain behaviors. Pain behavior is how pain is expressed by a person when labor pain occurs. Pain behaviors depend on the intensity and frequency of pain. It was noted that in this study if the women had severe labor pain, they tended to have inappropriate (non-adaptive behaviors), such as restlessness, crying out, sobbing, uncontrolled breathing, grimacing, showing desperation, and often asking for help. In the group of low to moderate labor pain, the behaviors were more controlled, such as normal talking, grunting, moaning, and sighing.

Nowadays, there is respect for prayer or spiritual healing practices and complementary therapies, and that these are increasingly needed within all health care settings.[27] The pain is reduced by the use of prayer over time.[28] This is especially so for Muslims, as prayer is very important for living, also could be efficiently employed in all delivery room settings as a part of a holistic intervention.

The limitations in this study were subjects using a manual on self-practice at home cannot be controlled directly by a researcher, and all participants in both groups were primiparous women. Future studies must consider tight follow-up from pregnancy until birth, starting the testing program in the latent phase until third stage of labor, a testing program that compares multiparous women, twins as well as high risk pregnancies with normal labor.

Conclusion

The NIIIP program can create harmonization of mind, body, and spirit as one way to lesser labor pain and increase pain behaviors; thus, the program can enrich the non-pharmacological pain management in maternal nursing that is low-cost, easy to use, noninvasive, and provide significant benefits to women and their infants without causing additional harm. It is in the interest and consent of policymakers and healthcare providers to consider the program for non-pharmacological pain management in the all of antenatal clinics and delivery rooms in Indonesia.

Conflicts of interest

Nothing to declare.

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