Effect of the Quran sound on labor pain and other maternal and neonatal factors in nulliparous women

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Abstract

Because non-pharmacological methods of pain relief have no side effects on the mother and fetus and are easy to use, they are applicable in the labor process of labor. The present study was conducted to determine the effect of Quran sound on the intensity of pain and other parameters influencing the first stage of labor, as well as the nulliparous women, admitted to Ghamar-Bani Hashem Hospital in Khoi city, Iran. This was a quasi-experimental study conducted on 60 nulliparous women, selected and randomly divided into two groups. Immediately after entry to the delivery room, vital signs were recorded and the intensity of baseline pain was monitored and recorded using Visual Analog Scale. Then, only for the trial group, during the active phase of first stage of delivery, Quran sound (recited by Abdolbaset) was played alternately through headphones for half an hour; then, the intensity of pain and vital signs were measured and recorded. The statistical t-test was used for analysis of data, and the significance level was considered less than 0.05. The majority of subjects were 20-24 years old. The intensity of pain during the active phase of delivery showed a significant differences in the two control and trial groups. It is recommended that the Quran sound be used as a non-pharmacological method for pain relief, shortening the duration of the first stage delivery, improving the vital signs, and increasing the infant's Apgar score.

Keywords: Quran Sound, Delivery, Pain

Introduction

In women's lives, labor is one of the most important crises, in which devastating effects of mental, emotional, and physical stresses are inevitable. Labor is an event with deep mental, social, and emotional dimensions, remaining in the mother's mind for ever and any unpleasant event can lead to terrible psychological impacts [1]. Pain is a mental experience, influenced by various physiological, mental, environmental, and cultural factors [2]. Labor pain is one of the most severe pains that women experience in their life time, affecting all aspects of a pregnant mother as well as her family's lives. Intense labor pain confuses the mother, disrupts her mental health, and affects her relationship with her child and spouse. Such a pain can lead to distress, fear and anxiety about the next pregnancy [3].

Pain elimination is considered as one of the primary priorities in satisfying human physiological needs [4]. Hence, labor pain relief has long been an important issue in midwifery. Additionally, as the elective cesareans rates have recently been increased, health officials have focused on promotion of painless as well as less-painful methods for natural childbirth. These methods aim

to promote the maternal health level besides reducing cesarean and mother mortality rates due to complications of anesthesia, bleeding and infection; also propagate natural childbirth and encourage mothers to choose it.

A non-pharmacological method of pain relief is music therapy, which increases both stimulation and pain thresholds. Music is the most ordinary and primary tool for relieving the pain and diverting the mind [5]. Music has many physical and mental therapeutic properties [6]. Listening to one's favorite music reduces the pain signal transmission to the central nervous system, leading to relaxation of muscles, diverting the mind from pain, and less pain intensity [7]. Music reduces patient's need for medication, and leads to reduced heart rate and deepening of breathing; it also has positive effects on pain, anxiety, and depression [8]. Many studies have been conducted to evaluate the effects of music. Larson-Beck in his study revealed that music has pain-reducing effects [9]. Ajorpaz, in a clinical trial conducted on 50 mothers undergoing cesarean in 2010, concluded that the level of anxiety was reduced in the trial group after hearing the Quran sound through headphones [10]. In a double-blind clinical trial, Keshavarz showed that after playing the Quran sound, the trial group had lower level of pulse and breathing as well as higher oxygen saturation rate compared with the control group [11]. Considering that today, physiologically-normal and healthy pregnancy, delivery with minimum intervention along with physical, mental, and social maternal care, as well as reduction of cesarean rate to around 10-15%, are among the objectives of Islamic Republic of Iran Ministry of Health [12] and international organizations, this study was conducted to determine the impact of Quran sound on labor pain and other maternal and neonatal factors.

Method

This was a quasi-experimental study, conducted over a 6 months period at Ghamar-Bani-Hashem hospital in Khoy city, Iran. Study population consisted of all nulliparous women admitted for childbirth to this hospital. Given the study guide [13, 14], sample size comprised of 60 women that were randomly divided into trial (30 women) and control (30 women) groups. Study inclusion criteria were: being primiparous, being in the active labor phase (dilatation of 4 cm), no history of childbirth or surgery, and no history of addiction, chronic pains, or disorder of 5 senses. This study was approved by the ethics committee of Urmia University of Medical Sciences. Prior to performing the practical stages, objectives and methods of the study were explained to the participants and their written consent was obtained. Also, participants were assured of confidentiality of data. Data collection tools and methods were regular observations and questionnaire. The Beck's Depression Inventory was initially used to detect any depressive disorder in the participants. A questionnaire was also applied in two parts; the first part included personal details and questions about music and Quran which was completed before transferring to the labor room. The second part contained questions for pain assessment on a numerical scale of 0 to 10, which was completed during the labor. In the labor room, when the patient expressed her pain for the first time, it was evaluated and recorded by the numerical scale tool. In the trial group in the first stage of delivery, the Alrahman verse recited by Abdolbaset was played twice; first time during 4-6 dilatation and second time during 7-10 dilatation, each time for 30 minutes, using a Walkman and headphone. The patient was requested to close her eyes while listening to reduce any visual interference. The researcher was present in the room to minimize the environmental interfering factors. Immediately after listening to Quran, the patient's blood pressure, pulse rate, and breathing were measured again, and the pain level was monitored every 30 minutes for 2 hours. All the above actions were also performed for the control group, except playing the Quran sound. For validity of the questionnaire, it was consulted with ten professors of the Urmia University of Medical Sciences, and for the reliability,

test-retest method was used. For data collection, mercury barometer and sweeping second hand watch were used in all research units. In this study, the researcher and the trained colleagues visited 10 mothers that qualified as study subjects and recorded their pain intensities independently. The recorded results were almost similar.

To obtain the results, the questionnaires were first numbered, and then the collected data from each group were analyzed using SPSS software, version 11.5. Descriptive statistics were used for tabulations, absolute frequency distributions and percentage, and mean and standard deviation.

Independent t- test was used for analysis of the relationships and differences.

Results

Majority of subjects were 20-24 years old; 90% were housewives and 85% were happy with the household income. Most participants (63.3%) had high school education; 96.7% lived in urban and 3.3% in rural areas. There were no differences between demographic indicators of trial and control groups. The obtained results are presented in five Tables.

Table 1 *Mean and standard deviation distribution and comparison of pain intensity between the two groups in the first stage of labor*

Group	Case, Mean ±SD	Control. Mean ± SD	Statistical test		
			P	df	T
At entry	6.4±1.04	6.2±1.09	0.4	58	0.84
6 cm Dilatation	5.3±0.71	8.1±0.93	0.001	58	-12.8
7 cm Dilatation	6.46±0.81	8.6±0.99	0.001	58	-9.3
Full dilatation	6.2±1.005	9.4±0.18	0.001	58	-13.6

Table 2 *Mean and standard deviation and comparison of the first stage duration between the two groups*

Group	Case, Mean ±SD	Control, Mean ±SD	Statistical test		
			P	df	T
Duration of the first stage	3.3±0.66	4.2±0.55	0.001	58	-5.5

Table 3 *Mean and standard deviation distribution of systolic blood pressure of subjects in the first stage of delivery in the two groups*

Group	Systolic blood pressure		Statistical test		
	Case, Mean ± SD	Control, Mean ± SD	P	df	T
At entry	108.83±7.39	110.1±3.03	0.21	58	-1.2
During the first stage	102.4±7.61	121.1±6.82	0.001	58	-9.9

Table 4 *Mean and standard deviation distribution of diastolic blood pressure of subjects in the first and second stages of the diastolic pressure control in the two groups*

Group	Diastolic blood pressure		Statistical test		
	Case, Mean ± SD	Control, Mean ± SD	P	df	T
At entry	108.83±7.39	110.1±3.03	0.21	58	-1.2
During the first stage	102.4±7.61	121.1±6.82	0.001	58	-9.9

Table 5 *Distribution of mean and standard deviation and comparison of the infant's Apgar score of the first minute between the two groups*

Infant's Apgar score of the first minute	Case, Mean ±SD	Control, Mean ±SD	Statistical test		
			P	df	T
	8.7±0.43	8.4±0.62	0.03	58	2.1

Discussion

Results of the study revealed that listening to the Quran sound had an impact on the intensity of pain in the first stage of labor in nulliparous mothers. Fan, in his study also stated that non-invasive pain reduction methods such as music therapy may be effective on labor pain relief, especially in the first and third stages in nulliparous women [15]. In another study, Abhari showed that music has pain-reducing effects on the first stage of labor in nulliparous mothers [16]. In the present study, listening to the Quran sound resulted in a shorter duration of first stage of labor in the trial group (P < 0.001). In a study by Dahcheshmeh, it was also shown that listening to music during labor caused reduction in the first stage of labor duration [17]. In a study by Mosavi titled "comparative assessment on the effects of Quran sound and music on the intensity of pain in the active phase of the first stage of labor in nulliparous women", it was revealed that compared to the control group, both Quran sound and music can reduce the labor pain at least in the first 4 hours of the active phase. However, the intensity of pain in the Quran group was significantly less than the music group; duration of the active phase in the intervention groups was shorter compared with the control group, and in the Quran group it was significantly shorter than the music group [18]. According to the findings of this study, the mean values of vital signs (pulse rate, respiratory rate, and diastolic and systolic blood pressures) in trial and control groups showed statistically significant differences. These results are similar to the results of a study assessing the effects of Quran sound on the vital signs of patients before open heart and after gastric surgeries [19]. In the present study, there were no significant differences between age, occupation, income, residence area, and level of education and the labor pain in the two groups. Peng in his study on common behaviors during labor concluded that there were no significant differences between occupation, education, age, and number of pregnancies and labor pain [20]. Yet, Merchetz in his study showed that women with higher levels of education could endure more pain [21]; in this study, the infants' Apgar scores in trial and control groups were significantly different. In a study by Ansari, Quran sound was considered as the conventional music of Islamic societies [22]. Therefore, Quran sound can be regarded as a type of music. Chelen believes, music can bring peace and comfort; thus, reduce pulse rate, blood pressure, and respiratory rate, due to the reduced adrenalin level [23]. Music has an impact not only on adults and children, but even on the fetus. The initiative used in this respect involved fetus reaction to melodic sounds, including singing of the mother. During filming this procedure, specific reactions were observed on the fetus face, considered as signs of response to the melodic sounds [10]. Simons in his study titled "effect of music on the labor pain" concluded that music was very desirable for women undergoing labor and most of them were tended to repeat the same experience in their future labors [24].

Study limitations:

Since it was not possible to conduct a blind study, the interviewer's views may have influenced the results in the first stage of data collection.

Conclusion

Given the obtained results, Quran sound can be used in the first stage of labor as a non-pharmacological pain management and for shortening the first stage of labor, as well as improving other parameters including vital signs and fetal outcomes.

Contributions

Study design: RB
Data collection and analysis: RB
Manuscript preparation: RB, HEP

Conflict of interest

"The authors declare that they have no competing interests."

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