Original Article

Pregnant Women's Opinions and Preferences Regarding Non-Pharmacological Interventions in Labor Pain Management: A Comparative Study

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Abstract
Objective: To determine the knowledge and preferences of primiparous and multiparous pregnant women about non-pharmacologic methods used in the management of labor pain and to compare their views on non-pharmacologic methods.
Methodology: This descriptive study was conducted with 220 pregnant women (110 primiparous and 110 multiparous) in the last trimester of pregnancy. "Descriptive Information Form" and "Information Form on Non-pharmacologic Methods Used in Birth Pain Management" were used to obtain the data.
Results: 50% of primiparous pregnant women and 56% of multiparous pregnant women had no knowledge about non-pharmacologic methods used for relief of labor pain. The rates of using non-pharmacologic methods and the number of preferred methods were found to be statistically significantly higher in primiparous pregnant women than in multiparous pregnant women ($p<0.001$). The methods that primiparous and multiparous pregnant women knew the most were pilates, yoga and massage, while the methods they knew the least were daydreaming, music and aromatherapy. The methods most preferred by primiparous and multiparous pregnant women were massage, breathing exercise and pilates.
Conclusion: Primiparous pregnant women have higher rates of using non-pharmacologic methods in their lives and the number of methods they prefer**.** In the study, the nonpharmacologic methods that primiparous and multiparous pregnant women knew and preferred in the management of labor pain were similar.

Keywords: primiparous; labor pain; non-pharmacologic methods; multiparous.

Introduction

Pain is defined as physical, emotional, or spiritual discomfort caused by illness or physical injury that can affect a person's daily life activities. Labor is one of the most painful experiences in women's lives (Konlan et al., 2020). Labor pain consists of psychological, physical, emotional and spiritual dimensions and is one of the most severe pains. However, not everyone experiences labor pain in the same way. Factors such as individual characteristics, previous experiences and cultural beliefs are also important in this (Mathur et al., 2020). Physiological factors such as uterine contractions and cervical dilatation, which enable labor to occur, cause

pain during labor (Shaterian et al., 2021). Psychological factors such as stress, feelings of abandonment, loss of control, and anxiety during labor can also lead to increased pain intensity (Sahile, 2017). Lack of previous birth experience also causes anxiety and fear during labor (Yuksel et al., 2017). Studies have found that pregnant women who have had previous birth experience prepare themselves for birth and feel safer as a result of their experiences (Deng et al., 2021). Pharmacological and non-pharmacological interventions are widely used in the management of labor pain. The aim of the methods used is to prevent harm to the mother and fetus and to ensure a pleasant birth (Karabulutlu, 2014). Non-pharmacological methods are more preferred than pharmacological treatments because they are low-cost and enable women to actively participate in childbirth (Young et al., 2021). In addition, the use of non-pharmacological methods allows the birth to take place in its natural flow helps to increase the satisfaction of the pregnant woman at birth (Tandogan & Oskay, 2021). The World Health Organization (WHO) recommends the use of non-pharmacological methods in childbirth. Non-pharmacological methods used in recent years to relieve labor pain include breathing techniques, accompanied birth, water birth, yoga, freedom of movement, and aromatherapy (Bertone & Dekker, 2021). In a study reviewing the literature, it was found that the lack of knowledge of pregnant women about non-pharmacological methods and their doubts about their effectiveness made it difficult for midwives to use these methods in labor (Ingram et al., 2022). Lack of knowledge or reluctance of pregnant women about non-pharmacologic methods may prevent the success of the methods used (Anarado et al., 2015). When the literature was examined, studies examining the views of pregnant women on non-pharmacological interventions in the management of labor pain were found (Heim & Makuch, 2022). However, there is no study comparing the opinions of multiparous and primiparous pregnant women about non-pharmacologic methods in labor pain management and determining the methods they prefer.

The aim of the study was to determine the knowledge and preferences of primiparous and multiparous pregnant women about non-pharmacologic methods used in the management of labor pain and to compare their views on non-pharmacologic methods.

Methodology

Type, population and sample of the study: The study has a descriptive research design. The study was conducted between 11.11.2022-11.01.2023. The sample size was calculated using the G*Power (3.1.9.2) program with a margin of error of 0.05 and 95% power. Assuming that the evaluations to be made in dependent groups would have a moderate effect size (d=0.3), it was determined that there should be at least 110 people in the groups according to the calculation made using the chi-square test. Pregnant women who spoke Turkish, were over 18 years of age and had no communication problems were included in the study. Pregnant women who had a risky condition related to the mother and newborn in the current pregnancy and who had a history of risky delivery were excluded from the study. Risky pregnancies were excluded because they would require interventions at birth and the use of pharmacological painkillers. The flow chart was prepared in line with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) flow diagram (Vandenbroucke et al., 2014).

Ethical issues: Ethical approval of the study was obtained from Istanbul University-Cerrahpasa Social and Human Sciences Research Ethics Committee (2022/342). Moreover, the participants were informed that their identity information would be kept confidential and that the data would only be used for this study. Informed consent was obtained from all participants who agreed to participate in the study. All stages of the study were conducted in accordance with the Declaration of Helsinki.

Data collection tools: The data were collected through an online questionnaire via Google Form. In the introduction part of the online questionnaire, the participants were asked to accept the study and approval was obtained. The study data were obtained with the "Introductory Information Form" and "Information Form on Non-pharmacological Methods Used in Birth Pain Management".

Introductory information form: It was prepared by the researcher by reviewing the literature (Pirdal et al., 2016; Sahin et al., 2019). It consists of 11 questions about the age, gestational week, and socio-demographic characteristics of the pregnant women**.**

Information form on non-pharmacological methods used in labor pain management: It consists of 18 questions created by the researcher in line with the literature (Anarado et al., 2015; Heim & Makuch, 2022). It was created to measure the knowledge of pregnant women about non-pharmacological methods and to determine their knowledge and opinions about non-pharmacological methods used in labor pain.

Data analysis:Statistical Package for Social Sciences (SPSS) for Windows 26.0 program was used to analyze parametric and non-parametric data. Descriptive statistics were given as number, percentage, mean and standard deviation. The conformity of the data to normal distribution was evaluated by Shapiro-Wilk test. In intergroup comparisons, chi-square test was used for categorical data and Mann Whitney U test was used for continuous data. Significance value was accepted as $p<0.05$ in all analyzes.

Results

Of the primiparous pregnant women who participated in the study, 42.7% were between 25-30 years of age and 36.4% of the multiparous pregnant women were between 25-30 years of age. Ninety percent of primiparous pregnant women and 92.72% of multiparous pregnant women were housewives. The gestational week of primiparous pregnant women was 34.11±2.95, while the gestational week of multiparous pregnant women was 34.92±2.94. 40% of primiparous pregnant women graduated from high school and 30.9% of multiparous pregnant women graduated from secondary school. The income of 79.1% of primiparous pregnant women and 65.5% of multiparous pregnant women was equivalent to their expenses. The family type of 91.8% of primiparous and 90% of multiparous pregnant women was nuclear family. 90% of primiparous and 86.4% of multiparous pregnant women lived in metropolitan cities.

0.9% of primiparous pregnant women and 4.5% of multiparous pregnant women thought that non-pharmacologic methods would have side effects. 67.3% of primiparous pregnant women and 37.3% of multiparous pregnant women use non-pharmacologic methods in their lives. 99.1% of primiparous pregnant women and 93.6% of multiparous pregnant women prefer non-pharmacologic methods for relief of labor pain (Table 1.). The rates of using non-pharmacologic methods in the lives of primiparous pregnant women were found to be statistically significantly higher than multiparous pregnant women ($x^{2:}$ 19.841; $p<0.001$). The number of methods preferred by pregnant women for relief of labor pain was found to be 6.00±2.27 (min:1-max:11) in primiparous pregnant women and 3.00±2.28 (min:0-max:10) in multiparous pregnant women, and the difference was statistically significant ($p<0.001$) (Table 1.). As the age of the pregnant women increased, the number of methods they knew (r=: -, 197) and practiced (r=: -, 198) decreased ($p<0.001$). In addition, a positive correlation was found between the number of methods known and practiced by pregnant women (r= , 271; $p<0.001$).

Fifty percent of primiparous pregnant women and 56% of multiparous pregnant women had no knowledge about non-pharmacologic methods used for relief of labor pain. Most of the pregnant women thought that non-pharmacologic methods would reduce labor pain. The methods most known by primiparous pregnant women were pilates (45%), yoga (37%), massage (30%), breathing exercise (29%), while the least known methods were daydreaming (4%), music (4%), aromatherapy (7%) and acupuncture (7%). The methods most known by multiparous pregnant women were pilates (32%), massage (24%) and yoga (21%), while the least known methods were daydreaming (2%), music (2%), aromatherapy (4%) and hypnosis (4%) (Figure 1.).

The methods most preferred by primiparous pregnant women were massage (87%), breathing exercise (84%), pilates (75%), while the least preferred methods were acupuncture (3%), hypnosis (16%), yoga (19%) and music (20%).The methods most preferred by multiparous pregnant women

were massage (80%), breathing exercise (61%) and pilates (54%), while the least preferred methods were acupuncture (0%), aromatherapy (7%), music (10%) and hypnosis (12%) (Figure 2.).

Table 1. Pregnant Women's Opinions on Non- Pharmacologic Interventions in Labor Pain Management (n = 220)

		Primiparous (n=110)	Multipar (n=110)	x^2	p
		% (n)	% (n)		
Planned pregnancy	Yes	53.6 (59)	39.1 (43)	4.679	.031
	No	46.4 (51)	60.9 (67)		
Receiving treatment to conceive	Yes	11.8 (13)	1.8 (2)	7.155	.007
	No	88.2 (97)	98.2 (108)		
Receiving prenatal care	Yes	57.3 (63)	41.8 (46)	5.255	.022
	No	42.7 (47)	58.2 (64)		
Are you familiar with non-pharmacological methods?	Yes	48.2 (53)	42.7 (47)	0.660	.417
	No	51.8 (57)	57.3 (63)		
If you don't know, would you like to get information?	Yes	98.2 (108)	92.1 (101)	F	.210
	No	1.8 (2)	7.9 (9)		
Do you think non-pharmacological methods will have side effects?	Yes	0.9 (1)	4.5 (5)	5.371	.068
	No	66.4 (73)	53.6 (59)		
	I don't know	32.7 (36)	41.8 (46)		
Do you use non-pharmacological methods (such as headache, menstrual pain) in your life?	Yes	67.3 (74)	37.3 (41)	19.841	<0.001*
	No	32.7 (36)	62.7 (69)		
Are you afraid of pain during labor?	Yes	94.5 (104)	90.9 (100)	.607	.436
	No	5.5 (6)	9.1 (10)		
Do you think it is normal to feel pain during labor?	Yes	97.3 (107)	92.7 (102)	1.531	.216
	No	2.7 (3)	7.3 (8)		
Would you like to use non-pharmacological methods for labor pain?	Yes	99.1 (109)	93.6 (103)	F	.065
	No	0.9 (1)	6.4 (7)		
Do you think that non-pharmacological methods can be effective in reducing pain in labor pain?	Yes	98.2 (108)	96.4	F	.683
	No	1.8 (2)	3.6		
Would you like midwives to use non-pharmacological methods in the delivery room?	Yes	100 (110)	97.3 (107)	4.200	.122
	No	0 (0)	2.7 (3)		

	Primiparous (n=110)		Multipar (n=110)			
	$\bar{x} \pm SD$	min-max	$\bar{x} \pm SD$	min-max	Z	p
Number of preferred methods	6.00±2.27	1-11	3.00±2.28	0-10	**-5.01**	<0.001*

x^2 :Chi-square, F: Fisher exact, Z: Mann-whitney U

Figure 1. Percentage of non- pharmacological methods known by pregnant women for relief of labour pain

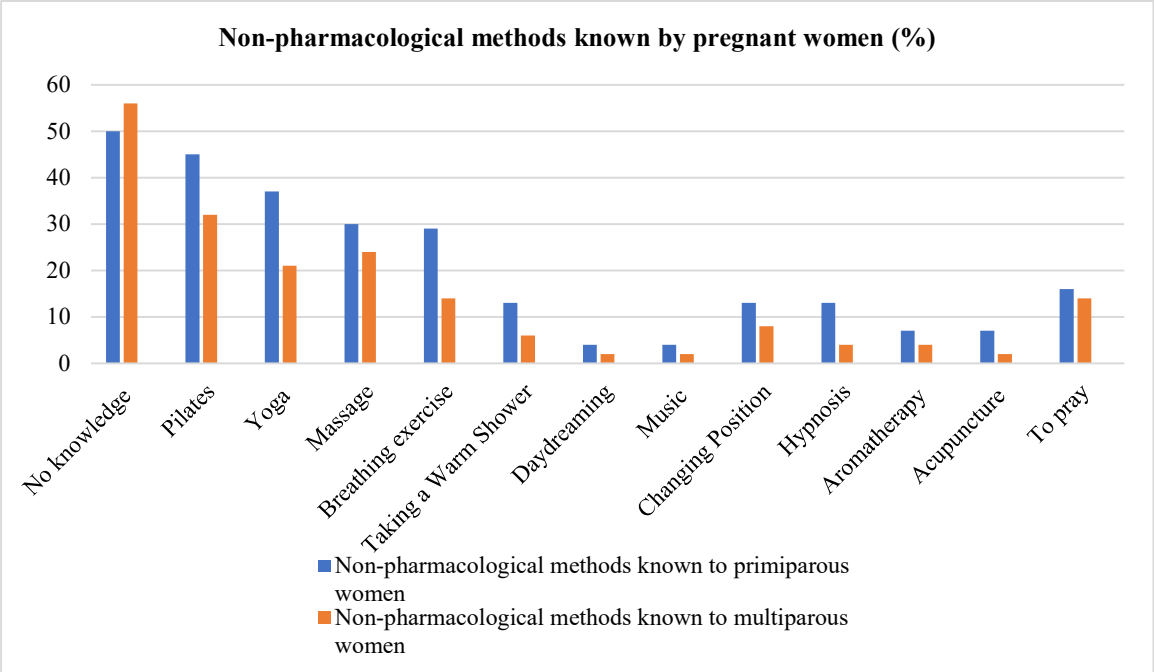
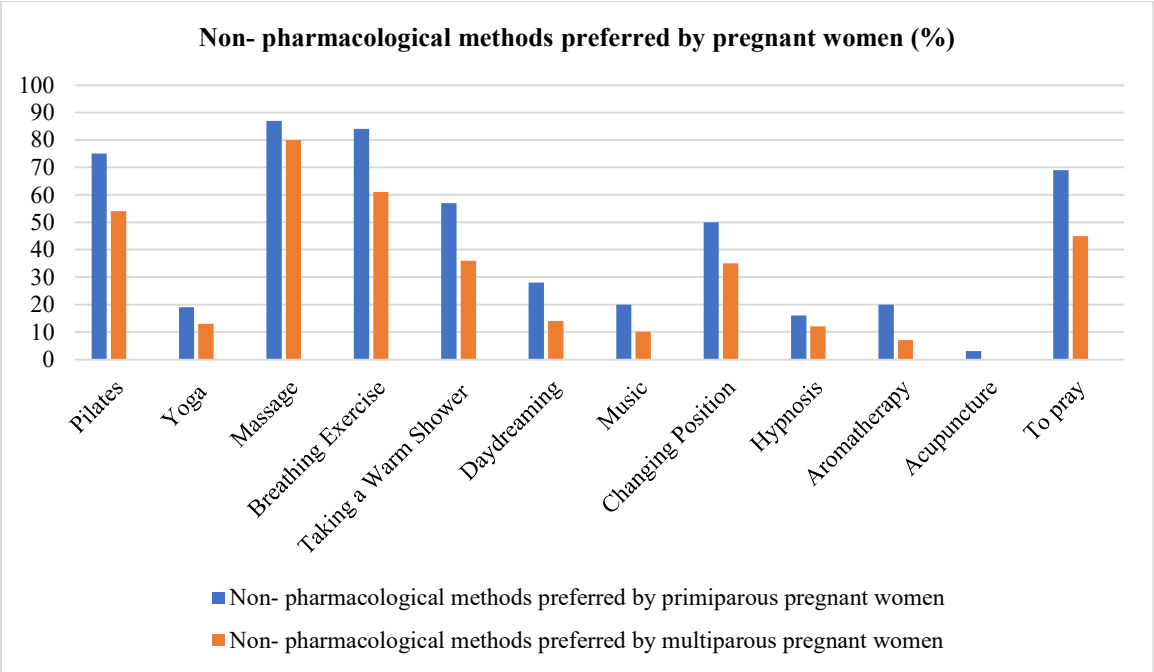


Figure 2. Percentage of non- pharmacological methods preferred by pregnant women for relief of labour pain



Discussion

Approximately half of the primiparous and multiparous pregnant women who participated in the study had no information about non-pharmacologic methods used in the relief of labor pain. However, the rates of preference for non-pharmacologic methods for the relief of labor pain are high in both groups. Almost all primiparous pregnant women prefer non-pharmacologic methods

for the relief of labor pain. This may be due to the fact that primiparous pregnant women have significantly higher rates of using non-pharmacologic methods in their lives. In a recent study conducted in our country, it was concluded that the rate of pregnant women's knowledge of non-pharmacologic methods was lower than their preference rates (Koyuncu & Bulbul, 2023). This situation may have led pregnant women to prefer non-pharmacologic methods because of their fear of labor pain. In addition, most pregnant women think that non-pharmacologic methods are effective in reducing labor pain (Nori et al., 2023).

In a study conducted in Nigeria, 68.6% of pregnant women had knowledge of non-pharmacological methods for coping with labor pain, in another study conducted in India, 78% of women had knowledge, and in a study conducted in Brazil, 96.5% of pregnant women knew at least one non-pharmacological method (Anarado et al., 2015; Heim & Makuch, 2022; James et al., 2012). Our findings are consistent with the studies in the literature. The methods that primiparous and multiparous pregnant women know the most and the least are similar. Similarly, the most preferred methods of pregnant women were also found to be similar. The methods most preferred by pregnant women were massage, breathing exercise and pilates. The methods they knew the most were pilates, yoga and massage. In a study conducted in Nigeria, it was found that the first four most known methods were breathing exercises, massage, changing position and relaxation techniques (Anarado et al., 2015). In a study conducted in Brazil, it was found that the four most known methods were taking a warm shower, using a birth ball, breathing exercises and standing in an upright position (Heim & Makuch, 2022). In a recent study conducted in our country, the four non-pharmacological methods most preferred by women in labor to reduce labor pain were found to be position change, massage, social support and use of a birth ball (James et al., 2012). In the study, the number of non-pharmacologic methods preferred by primiparous pregnant women to relieve labor pain was found to be significantly higher than multiparous pregnant women. This may be because multiparous pregnant women think that they can cope with pain because they have experience of labor pain. The fact that primiparous pregnant women used more nonpharmacologic methods in their lives may have also affected the number of methods they preferred. In addition, the fact that primiparous pregnant women have more fear of childbirth may also have affected (Shakarami et al., 2021).

In the study, massage was the most preferred method by pregnant women. Massage is an application that has a therapeutic and relaxing effect applied to soft tissue with various techniques. Massage, which has many techniques, affects the organism physiologically, physically and psychologically. It helps to stimulate the sympathetic nervous system and relax the muscles. Muscle relaxation reduces pain and increases the pain threshold by removing toxins (Sozer et al., 2019). Massage also makes the pregnant woman feel cared for and improves the quality of care. In the light of the studies, it is known that massage applied during labor pain reduces pain perception and anxiety of pregnant women and increases fetal and maternal well-being. A Cochrane review of fourteen studies concluded that massage significantly reduced labor pain (Smith et al., 2018). In a study conducted in Iran, it was found that massage during labor reduced labor pain and increased labor satisfaction in primiparous pregnant women (Maghalian et al., 2022). In a study conducted in our country, it was concluded that massage was effective on perceived labor pain in women (Tektas et al., 2017). In a systematic review evaluating the effectiveness of non-pharmacological methods in relieving labor pain, it was found that massage was the most effective method in reducing pain perception as well as reducing anxiety and stress levels (Osório et al., 2014). In a randomized controlled study conducted in our country, massage was found to be effective on the perception of labor pain and comfort (Turkmen & Oran, 2021). In a meta-analysis study including forty-three studies, it was found that acupuncture, aromatherapy and massage therapy had positive effects on alleviating labor pain. In the same study, aromatherapy was reported to be the most effective method (Hu et al., 2021). In this study, acupuncture and aromatherapy were

among the least preferred methods by pregnant women. Among the factors affecting the methods preferred by women to relieve labor pain, the level of knowledge about the benefits of the methods also affects (Almushait & Ghani, 2014). This may be due to the lack of knowledge of pregnant women about acupuncture and aromatherapy.

The second most preferred method by pregnant women in the study was breathing exercise. Breathing exercise provides relaxation by reducing muscle tension during labor and increases pain tolerance (Vakilian & Keramat, 2013). Breathing exercise shortens the duration of labor, reduces intervention and labor anxiety, and increases labor satisfaction. The most common instruction given to women by midwives in the delivery room to cope with pain is to breathe deeply when the uterus contracts. Methods that women can initiate on their own are effective in relieving pain (Hodnett, 2002). The fact that breathing exercises are an easy and safe technique that can be practiced without the presence of health personnel may be the reason why they are preferred by women. In a randomized controlled study, breathing exercises were found to reduce labor pain (Mehdizadeh et al., 2005). In a study conducted in our country, it was similarly found that breathing exercises applied during labor reduced the perception of labor pain and resulted in a more positive birth experience (Yildirim & Sahin, 2004).

Almost all pregnant women want nonpharmacological methods to be applied by midwives. A study conducted in Jordan showed that midwife support (communicating with pregnant women, being physically close) made a difference during labor despite the unfavorable delivery room conditions faced by pregnant women (Abushaikha & Oweis, 2005). Midwives are the primary health care workers who accompany women during labor and play a role in the management of labor pain. Pregnant women who were exposed to continuous support by midwives were found to be more likely to have spontaneous vaginal birth and less likely to use analgesia (Bohren et al., 2017). It is important that midwives are knowledgeable and competent about non-pharmacologic methods and that pregnant women are willing to apply non-pharmacologic methods. This will ensure the active participation of pregnant women, so midwives should not ignore the preferences of pregnant women (Baransel, 2021; Madden et al., 2013).

In a study conducted in our country, it was found that midwives had high awareness of non-pharmacologic methods, but generally applied methods that did not require knowledge, skills and equipment (Calli, 2022). According to the results of the study, the most frequently used non-pharmacologic methods by midwives were respiratory techniques, sacral pressure and massage. Midwifery care provided during trauma provides women with the opportunity to apply non-pharmacologic methods. Training of midwives on non-pharmacologic methods and improving the conditions in the delivery room will allow midwives to apply more diverse non-pharmacologic methods. Nurses, like midwives, have an important role in using non-pharmacologic methods (Boateng et al., 2019). Including non-pharmacologic methods in nursing and midwifery education curricula will enable them to gain the ability to use non-pharmacologic methods. Evidence-based practices should be emphasized in education and students should be given the opportunity to apply these techniques in simulated environments.

The study limitations are that the study was conducted in a single center, the study data were based on participants' self-reports. Therefore, the study results are limited to the research sample and cannot be generalized.

Conclusion: In the study, it was found that pregnant women were willing to use non-pharmacologic methods and thought that non-pharmacologic methods were effective in relieving labor pain. Primiparous pregnant women were found to use non-pharmacologic methods more in their lives and to prefer non-pharmacologic methods more in relieving labor pain. It is important to know the opinions and preferences of pregnant women about non-pharmacologic methods and to encourage them to participate actively. Midwives are the primary healthcare professionals who support women during labor and delivery. Non-pharmacologic methods applied in the delivery room are generally applied by midwives according to their own competencies and environmental

conditions. The use of non-pharmacological methods also enables the provision of individualized, woman-centered care to pregnant women under the leadership of a midwife. It is seen that midwives generally use methods that do not require equipment. The willingness of pregnant women will positively affect the use of non-pharmacologic methods by midwives.

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