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THE EFFECT OF ROSARY USE AT BIRTH ON LABOR PAIN, ANXIETY, AND COMFORT: A RANDOMIZED CONTROLLED STUDY

DOĞUMDA TESBIH KULLANIMININ DOĞUM AĞRISI, KAYGI VE KONFORA ETKISI: RANDOMIZE KONTROLLÜ BIR ÇALIŞMA

Esra GUNEY [1], Tuba UCAR [1]

[1] Inonu University, Faculty of Health Science, Malatya, Türkiye

ABSTRACT

Purpose: This study was aimed to determine the effects of rosary use on labor pain, anxiety and comfort.

Method: The study, conducted between April 30 and December 30, 2022, was designed as a randomized controlled trial. Power analysis was used in the sample calculation and the sample of the study consisted of a total of 152 pregnant women (76 pregnant women for each group). Pregnant women in the experimental group were given personalized rosaries/dhikrs prepared as intervention material, and it was ensured that they were applied in the active and transitional phase of labor. No intervention was applied to the control group other than routine labor care. Data were collected using the Pregnant Identification Form, Numerical Evaluation Scale, State-Trait Anxiety Inventory, and Childbirth Comfort Questionnaire.

Results: When the total mean scores of the State-Trait Anxiety Inventory and Childbirth Comfort Questionnaire were compared after the use of prayer rosary/dhikr by the pregnant women, it was determined that the difference between the groups was significant (within-group and between-groups) ($p<0.05$). The difference between the mean scores of the Numerical Evaluation Scale was determined to be statistically significant in the third and fourth measurements ($p<0.05$).

Conclusion: It was determined that the use of prayer rosary/dhikr was effective in reducing both state anxiety and pain levels and increasing comfort levels in pregnant women.

Keywords: Anxiety, Comfort, Midwife, Pain, Rosary

ÖZET

Amaç: Bu çalışmada tesbih kullanımının doğum ağrısı, kaygı ve konfor üzerindeki etkilerinin belirlenmesi amaçlandı.

Yöntem: 30 Nisan-30 Aralık 2022 tarihleri arasında yapılan çalışma randomize kontrollü olarak tasarlandı. Örneklem hesaplamasında güç analizi kullanıldı ve araştırmanın örneklemini toplamda152 gebe oluşturdu (her bir grup için 76 gebe). Deney grubundaki gebelere girişim materyali olarak kişiye özel hazırlanan tesbih/zikirler verilerek doğumun aktif ve geçiş fazında uygulanması sağlandı. Kontrol grubuna rutin doğum bakımı dışında herhangi bir müdahale yapılmadı. Veriler Gebe Tanımlama Formu, Sayısal Değerlendirme Ölçeği, Durumluk-Sürekli Kaygı Envanteri ve Doğum Konfor Ölçeği kullanılarak toplandı.

Bulgular: Gebelerin tesbih/zikir kullanımı sonrası Durumluk-Sürekli Kaygı Envanteri ve Doğum Konfor Ölçeği toplam puan ortalamaları karşılaştırıldığında gruplar arasındaki farkın önemli olduğu belirlendi (grup içi ve gruplar arası) ($p<0.05$). Sayısal Değerlendirme Ölçeği puan ortalamaları arasındaki farkın üçüncü ve dördüncü ölçümlerde istatistiksel olarak önemli olduğu belirlendi ($p<0,05$).

Sonuç: Tesbih/zikir kullanımının gebelerde hem durumluk kaygı ve ağrı düzeylerini azaltmada, hem de konfor düzeylerini artırmada etkili olduğu belirlendi.

Anahtar Kelimeler: Ağrı, Ebe, Kaygı, Konfor, Tesbih.

Sorumlu Yazar / Corresponding Author: Esra GUNEY, Assistant Professor, Inonu University, Faculty of Health Science, Malatya, Türkiye. **E-mail:** esra.guney@inonu.edu.tr

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INTRODUCTION

Childbirth, a physiological event, is an important experience in women's life, however, it is a process with unknowns for expectant mothers (Çetin Avcı et al., 2023). Pain relief and birth comfort are crucial during childbirth (Garlock et al., 2017). Even at the beginning of a planned pregnancy, expectant mothers struggle to adapt to the changes in both their body and social life. Pregnant women try to establish a balance in their life, experiencing high levels of distress, tension, and emotional dilemmas (Ngum Chi Watts et al., 2015). This condition makes them prone to psychological problems such as stress, anxiety, and depression. For a woman who has an active role in fertility, pregnancy is a period in which physical changes occur along with the formation of psychological roles of the motherhood (Khouj et al., 2022). A woman who knows she is not alone during pregnancy feels a different responsibility towards the human being she nurtures with her own body. She also needs to act selflessly many times for the healthy nutrition of her baby and for the baby to live a calm and stress-free life. Furthermore, the changing role within the family also imposes the role of motherhood on the woman, in addition to the role of being an equal partner (Lamba et al., 2018). These changes in the woman's life may also create needs in her religious and spiritual life. Having a human being nourished from her body every day may lead to religious and spiritual changes and needs in a woman's life, making her feel of being under the influence of a powerful entity she believes in (Luhrmann et al., 2021).

Childbirth is an ideal period in which women can acknowledge the spiritual dimension of their lives (Callister and Khalaf, 2010). According to research on maternal health during pregnancy, spirituality has stress-preventive effects during pregnancy (Dolatian et al., 2017; Lucero et al., 2013). A sense of belonging to a higher power and belief in Allah, as well as spiritual support, help religious individuals have better mental health and be less affected by life issues in stressful conditions (Pakzad et al., 2018). Indeed, in a study, an open-ended question *"How does your faith or spirituality affect your pregnancy?"* was asked to learn the suitability and meaning of spirituality in the lives of pregnant women, and 47% of them stated that spirituality had a positive impact on their pregnancy. Content analysis of the responses of those who gave positive answers revealed six themes that explain the meaning of faith or spirituality during pregnancy: (a) guidance and support; (b) protection, blessings, or rewards; (c) communication with God; (d) strength and trust; (e) being assisted with difficult moral choices; (f) a generalized positive effect. In fact, the participants expressed to get strength from religious practices such as praying, reading the Quran, and performing prayers (Kılıç, 2019). Based on the theme of *"communication with God,"* this study aims to determine the effects of using rosary, which is believed to facilitate communication with God, on labor pain, anxiety and comfort experienced by women during childbirth.

The research hypotheses of the study are as follows:

H_{1a}: The use of rosary reduces labor pain in women.

H_{1b}: The use of rosary reduces state anxiety in women

H_{1c}: The use of rosary increases birth comfort in women.

MATERIALS AND METHODS

The study was designed as a randomized controlled experimental study. Pregnant women in a province in the eastern part of Turkey constituted the population of the study. The sample size for each study group was calculated as 76 pregnant women (in the both groups), assuming a 1-point decrease in the mean score of labor pain (based on the mean of 4.26 with a standard deviation of 2.19 in the latent phase) with a significance level of 5% in a two-sided test, 80% power to represent the population, and a 95% confidence interval (Öztürk Altinayak and Özkan, 2020).

Inclusion criteria:

✓ Being able to communicate,

✓ Being primigravida,

✓ ≥18 years,

✓ Being at or beyond 32 weeks of gestation and having no diagnosed risks in the current pregnancy,

✓ Having no diagnosed disease related to the fetus during pregnancy,

✓ Having no obstacles to normal vaginal delivery.

Exclusion criteria:

✓ Have a previous birth,

✓ Being in the first trimester of pregnancy,
✓ Having any diagnosed risks in the mother or baby,
✓ Planning a cesarean delivery.

Among 79 women included in the experimental group, one (1) underwent a cesarean delivery, and two (2) refused to fill out the post-test data collection tools, resulting in their exclusion from the study. Among 81 women included in the control group, two (2) underwent a cesarean delivery, and three (3) refused to fill out the post-test data collection tools, resulting in their exclusion from the study. Therefore, the study was completed with a total of 152 pregnant women (76 women each groups).

Randomization

Simple randomization method was used during the inclusion phase of pregnant women who met the inclusion criteria and agreed to participate in the study. During the assignment phase to the groups, the Numbers heading on the Random.org site was used and columns between 1-152 were created. Which number would be the experimental group and which number would be the control group were determined by drawing lots at the beginning of the study. The assignment of pregnant women in the sample to the groups was carried out according to the result of the drawing. The randomization process was evaluated according to the criteria published by CONSORT to determine the quality of such studies and is shown in Figure 1.

Data Collection

The data were collected in the maternity ward of a public hospital located in the eastern part of Turkey from April 30th to December 30th, 2022, through face-to-face interviews using a questionnaire in two stages from pregnant women who agreed to participate in the study.

In the first stage, pregnant women who attended the prenatal education class affiliated with the relevant public hospital and met the inclusion criteria were provided with information about the research. Written informed consent was obtained from those who agreed to participate in the study. Their contact numbers were received, and their estimated due dates were noted. They were informed that they would be contacted again at the beginning of the designated week for delivery. Thus, the first stage was completed.

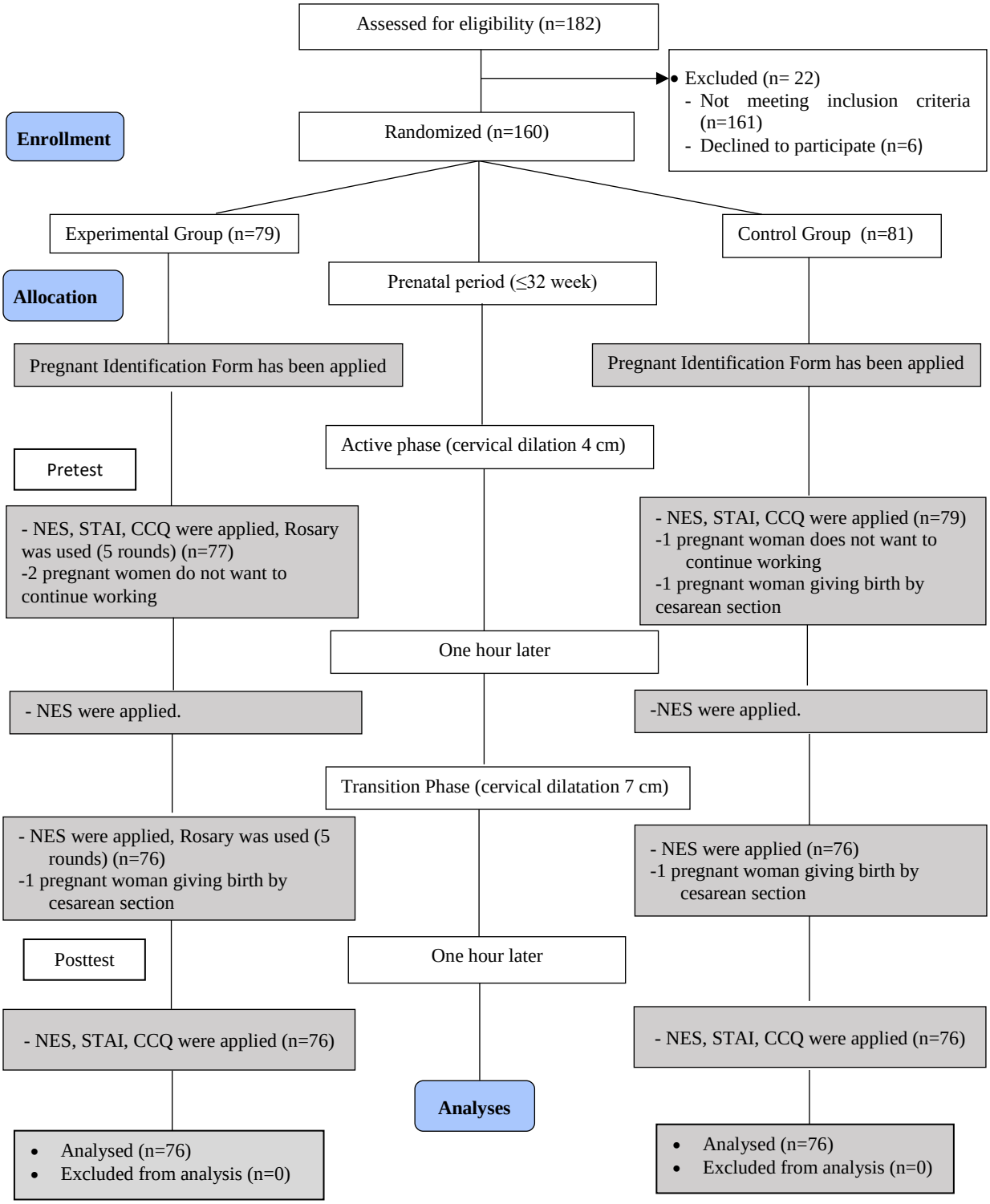
In the second stage, as the estimated due week approached, the researchers contacted the pregnant women to discuss the timing of labor and asked them to inform the researchers when they would go to the hospital for delivery. The researchers went to the hospital to meet with each pregnant woman and provided information about the study to those in the latent phase of labor (0-3 cm) for those in both the experimental and control groups. They inquired whether they wanted to continue participating in the study. Pregnant women in the experimental group who agreed to continue participating in the study were given detailed information about the intervention materials, and then they received the intervention. No intervention was applied to pregnant women in the control group, apart from routine care during delivery.

Intervention materials: The intervention materials consisted of a separate rosary for each pregnant woman and a card that included some prayers/invocations. The rosaries were obtained in a 99-bead form, and the prayers/invocations were selected based on the first three prayers/invocations that appeared when searching "invocations for easy childbirth" on Google.

Pregnant women in the experimental group were administered data collection forms (Pregnant Identification Form-PIF, Numerical Evaluation Scale-NES, State-Trait Anxiety Inventory-STAI, Childbirth Comfort Questionnaire-CCQ) during the active phase of labor (4-6 cm). Afterward, the intervention materials explained earlier were given to these women, and they were instructed to recite the prayers/invocations for 5 rounds. One hour later, the NES was administered a second time. For the women transitioning to the transition phase (7 cm), the NES was administered a third time, and they were instructed to recite the prayers/zikrs for a second time. One hour later, the final test data were collected by administering the data collection forms (NES, STAI, CCQ) again. Thus, the data collection process was completed.

Pregnant women in the control group received no intervention related to the research materials, except for routine childbirth care. However, they were administered data collection forms (PIF, NES, STAI, CCQ) during the active phase of labor (4-6 cm) to collect pre-test data. Following the intervention schedule for those in the experimental group, the NES was administered for the second time one hour

after the active phase, and for the third time in the transition phase (7 cm). One hour after the transition phase, the final test data were collected by administering the data collection forms again (NES, STAI, CCQ). Thus, the data collection process was completed.



PIF: Pregnant Identification Form, NES: Numerical Evaluation Scale, STAI: State-Trait Anxiety Inventory, CCQ: Childbirth Comfort Questionnaire

Figure 1. CONSORT Diagram of Participants For Each Stage in This Study

Data Collection Tools

Data were collected using a Pregnant Identification Form, the Numerical Evaluation Scale, the State-Trait Anxiety Inventory, and the Childbirth Comfort Questionnaire.

Pregnant Identification Form

This form includes questions to determine the socio-demographic characteristics of pregnant women (age, education level, employment status, income level, etc.) and their obstetric characteristics (number of pregnancies, gestational age, obstetric history, etc.) (Desmawati et al., 2019; Kocak et al., 2022; Avcıbay et al., 2018).

Numerical Evaluation Scale

When assessing pain using the NES, patients are asked to select the number that best describes the intensity of their pain. The scale ranges from 0 (no pain) to 10 (worst possible pain), thus patients are asked to mark the scale to measure the intensity of their pain (Breivik et al., 2008).

State-Trait Anxiety Inventory

The STAI was developed by Spielberger et al. in 1970, and adapted to Turkish culture by Öner and Le Compte (1983). The Cronbach's alpha coefficient of the scale was found to be 0.83 (Öner and Le Compte, 1983). The State Anxiety Scale includes items to describe how individuals feel and express their emotions in specific conditions at a particular moment. The items in the State Anxiety Scale are rated on a 4-point Likert-type scale, ranging from "(1) not at all true" to "(4) completely true", based on the degree to which the individual feels the described emotion or behavior in their current situation. The total scale score ranges from 20 to 80, where higher scores indicate higher levels of anxiety, while lower scores indicate lower levels of anxiety. In this study, the Cronbach's alpha coefficient of the scale was found to be 0.88.

Childbirth Comfort Questionnaire

The CMQ was developed by Kerri Durnell Schuiling (2003) based on Kolcaba's Comfort Theory, and was adapted and validated in Turkish by Potur et al. (2015). This is a 5-point Likert-type scale consisting of 14 items. Each item is expected to be answered considering the comfort and ease in the delivery room. In the original scale, each item can be scored between 1-5 (1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree). The minimum and maximum total scale scores are 14 and 70, respectively. The Cronbach's alpha coefficient of the scale was found to be 0.75 (Potur et al., 2015). In this study, the Cronbach's alpha coefficient of the scale was found to be 0.70.

Statistical Analysis

The data were analyzed using SPSS 25.0 for Windows software (SPSS, Chicago, IL, USA) and evaluated using descriptive statistical values, including numbers, percentages, means, and standard deviations. Independent samples t-tests were used for comparisons between the experimental and control groups, and paired samples t-tests were used for intra-group comparisons. A significance level of $p < 0.05$ was considered statistically significant.

Ethical Considerations

For conducting the study, an ethical approval was obtained from the İnönü University Non-Interventional Clinical Research and Publication Ethics Committee (Decision No: 2021/2645), and a permission from the institution where the data would be collected (E-67743454-100-102051). This study was performed in line with the principles of the Declaration of Helsinki. All pregnant women in the study were informed about the study on the first page of the data collection tools, and their informed consent was obtained.

RESULTS

Table 1 compares the pregnant women's socio-demographic and obstetric characteristics. There were no statistically significant differences ($p > 0.05$) between the two groups in terms of age, education level, employment status, place of residence, income status, planned pregnancy, and pregnancy control variables (Table 1).

Table 1. Comparison of Pregnant Women According to Some Sociodemographic and Obstetric Characteristics (n=152)

Characteristic	Experimental group (n=76)		Control group (n=76)		Test[a] and p value
Age	n	%	n	%	
18-24 year	28	36.8	33	43.4	p=508
≥25 year	48	63.2	43	56.6	
Education level					
≤ High school	43	56.6	37	48.7	p=0.417
≥ University	33	43.4	39	51.3	
Employment status					
Yes	11	14.5	16	21.1	p=0.396
No	65	85.5	60	78.9	
Place of residence					
Province	61	80.3	54	71.1	p=0.257
District	15	19.7	22	28.9	
Income status					
Low	25	32.9	20	26.3	p=0.478
Medium	51	67.1	56	73.7	
Planned pregnancy					
Yes	62	81.6	68	89.5	p=0.249
No	14	18.4	8	10.5	
Pregnancy control					
Yes	73	96.1	67	88.2	p=0.130
No	3	3.9	9	11.8	

[a]Fisher's Exact Test

Table 2 compared the NES mean scores of pregnant women in the experimental and control groups. There was no statistically significant difference between the groups' NES mean total scores for the 1st and 2nd measurements ($p > 0.05$), but there was a statistically significant difference between their mean scores for the 3rd and 4th measurements ($p < 0.05$) (Table 2). This indicates that the pain scores increased in both groups, but the increase was less pronounced in the experimental group. In addition, there was a statistically significant difference in their intra-group NES mean scores ($p < 0.001$), and the analysis of variance (ANOVA) test showed a high effect size ($\eta 2 = 0.60$ for the experimental group, $\eta 2 = 0.81$ for the control group). This suggests that the pain scores increased during labor in both groups, but the increase was statistically significant in favor of those in the experimental group (Figure 2).

Table 2. Comparison of in-Group Repeated Measurements of NES and Between-Group Mean Scores

		Experimental group*	Control group **	Test[a] and p value
		Mean±SS	**Mean±SS**	
NES (min 1-max 10)	1. measurement [a]	6.171±1.15	6.06±1.06	t=0.584 p=0.560
	2. measurement [b]	6.72±1.13	7.00±0.97	t=-1.604 p=0.111
	3. measurement [c]	7.55±0.85	8.18±0.97	t=-4.244 **p=0.000**
	4. measurement [d]	8.18±0.48	9.15±0.76	t=-9.964 **p=0.000**
	Test ve p değeri	F=113.450, **p=0.000**	F=328.552, **p=0.000**	
	Eta(Ƞ2)	0.60	0.81	

NES: Numerical Evaluation Scale F: Repeated-Measures ANOVA, *t*: Independent samples *t*-test, Bonferroni* a<b<c<d, ** a<b<c<d

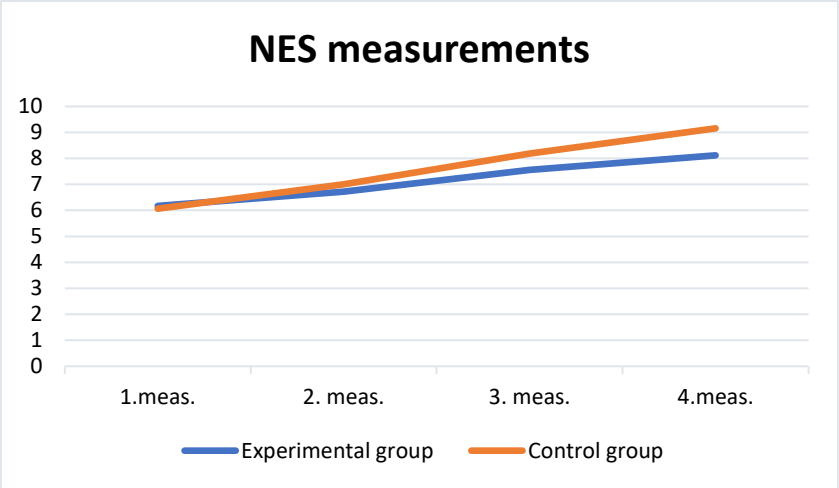


Figure 2. The Numerical Evaluation Scale Mean Score Curve of Pregnant Women in The Experimental and Control Groups

Table 3 compares the pre- and post-test STAI and CCQ mean total scores of pregnant women in the experimental and control groups. There was a statistically significant difference ($p < 0.05$) between the groups' STAI and CCQ mean total scores. This indicates that pregnant women in the experimental group had higher anxiety levels and lower comfort levels in the pre-test evaluation, but their anxiety levels decreased and their comfort levels increased after the intervention. On the other hand, pregnant women in the control group had lower anxiety levels and higher comfort levels in the pre-test evaluation, but their anxiety levels increased and their comfort levels decreased in the post-test evaluation (Table 3).

Table 3. Comparison of the Pre-and Post-Test STAI And CCQ Mean Total Scores of Pregnant Women in The Experimental and Control Groups (n=152)

	Experimental group (n=76)	**Control group (n=76)**	**Test[a] and p value**
	Mean±SS	**Mean±SS**	
STAI pre-test	37.13±4.15	34.50±4.15	t=3.901 **p=0.000**
STAI post-test	37.90±3.80	39.65±4.46	t=-2.599 **p=0.010**
Test[b] ve p value	t=-2.639 **p=0.010**	t=-8.882 **p=0.000**	
CCQ pre-test	28.18±3.53	31.22±3.31	t=-5.469 **p=0.000**
CCQ post-test	31.43±2.22	26.13±2.52	t=13.753 **p=0.000**
Test[b] ve p value	t=-7.112 **p=0.000**	t=11.023 **p=0.000**	

STAI: State-Trait Anxiety Inventory, CCQ: Childbirth Comfort Questionnaire, [a]Independent samples *t*-test [b]Paired-samples *t*-test

DISCUSSION

This study revealed the significant effect of using rosary in reducing labor pain and anxiety and increasing birth comfort in women. Although there was an increase in the pain levels of pregnant women using rosary starting from the active phase until delivery, this increase was found to be less than that for those in the control group ($p<0.05$; Table 2, Figure 2). While there is some evidence in the literature about the assessment of labor pain, anxiety, and comfort in women who have previously given birth, there are no studies specifically evaluating the effect of rosary use. However, similar results to our study results have been shown in several studies on the effects of different interventions with similar aims in the literature. A study in which an Islamic prayer program was applied as a midwifery intervention to reduce labor pain in primiparous women found that praying for half an hour every day from the 32nd week of pregnancy was effective in reducing labor pain (Desmawati et al., 2019). Similarly, it has been

proven that reciting the Surah Al-Inshirah (Kocak et al., 2022), listening to certain verses from the Quran (Ria et al., 2020), and focusing on the Virgin Mary flower during labor (Türkmen et al., 2021) are effective in reducing labor pain. According to these study results supporting our findings, the H_{1a} hypothesis of the study is accepted.

As another result of our study, the women who used rosary from the active phase until delivery experienced an increase in their anxiety levels, but this increase was less than that for those in the control group ($p<0.05$; Table 3). A randomized controlled study on the effect of spiritual counseling on stress and anxiety found that spiritual counseling was effective in reducing anxiety levels (Haghighat et al., 2018). Another study conducted to reduce childbirth anxiety by providing education on childbirth, breathing, and relaxation techniques to women in labor determined a decrease in their anxiety levels after the education (Avcıbay et al., 2018). The use of religious rituals such as using rosary, watching religious videos, etc., has been shown to reduce labor-related stress and anxiety (Brooks et al., 2016), and similarly, it has been proven that prayer reduces stress and anxiety levels in mothers with infants in the neonatal intensive care unit (Sharifnia et al., 2016). According to these study results supporting our findings, the H_{1b} hypothesis of the study is also accepted.

As the final result of our study, the women using rosary from the active phase until delivery experienced an increase in the level of birth comfort, while there was a significant decrease in the comfort level of those in the control group ($p<0.001$; Table 3). A literature review reveals studies supporting our study results. It has been found that women who listen to the Surah Al-Inshirah during labor and focus on the Virgin Mary flower experience a higher level of birth comfort (Kocak et al., 2022). Additionally, there are studies in the literature that evaluate the effects of different interventions on birth comfort. Massage and heat therapy applied from the active phase have been shown to have a positive effect on birth comfort (Türkmen and Oran, 2021). In addition, dancing during labor, acupressure application during birth, taking a shower, and applying a warm shower in the early stage of labor have been proven to increase the level of comfort during birth (Akin et al., 2022; Solt Kirca et al., 2022; Taşkın and Ergin, 2022).

One of limitation to this study is the inability to evaluate the comfort levels of women in the postpartum period. Additionally, this study was conducted in one single center and excluded women with high income levels pose. Furthermore, rosary use has positive effects not only on pregnant women but also on midwives. However, since midwives were not evaluated in the study, it is recommended for further studies to examine the effects of rosary use on both pregnant women and midwives.

CONCLUSION AND RECOMMENDATIONS

This study demonstrated a decrease in the intensity of labor pain and anxiety levels, as well as an increase in the level of birth comfort among pregnant women in the experimental group. Therefore, the use of rosary as a non-pharmacological method can be applied to reduce the intensity of labor pain and anxiety levels in pregnant women, which can decrease the need for pharmacological methods and positively affect their birth comfort. However, further research is needed to assess the relationship between rosary use and pain, anxiety, and comfort during childbirth.

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Conflict of Interest

The authors declared no conflict of interest.

Author Contributions

Plan, design: EG,TU; **Material, methods and data collection: EG,TU**; **Data analysis and comments:** EG; **Writing and corrections:** EG

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