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# THE EFFECT OF ANTENATAL EDUCATION ON READINESS, FEAR, PAIN, DURATION AND SATISFACTION OF LABOR IN NULLIPAR WOMEN

# Nullipar Kadınlarda Doğum Öncesi Eğitimin Doğuma Hazıroluşluk, Ağrı, Korku, Doğum Deneyiminden Memnuniyet ve Doğum Süresi Üzerine Etkisi

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## ABSTRACT

This study aimed to examine the effects of antenatal education, on readiness, pain, fear, duration and satisfaction levels of nullipar women for delivery. A semi-experimental and prospective design was used. The study was made between December 2014 and March 2016. The data were collected in the 24-32nd (beginning of training), 28-36th (end of 4 weeks training) gestational weeks and 48-72 hours after deliveries. The study sample consisted of 30 participants for the study and 30 participants for the control group, 60 participants in total. The 4-week education program was applied to the study group. Data were collected using an introductory information, the birth process evaluation form, visual analogue scale, Lederman's prenatal and postpartum self-evaluation scale. In the study group the total delivery durations and the hospitalization durations were lower; their cervical dilatation levels at arrival were more; and their birth fear (latent, active, transition phase), birth pain (latent, active phase), satisfaction with the delivery and being ready for the delivery points were lower. The use of antenatal education program in the antenatal period is recommended to decrease the birth fear and the delivery pain, shorten the delivery duration, increase the satisfaction with the delivery point.

**Keywords:** Antenatal education, Birth, Fear, Pain, Satisfaction.

## ÖZ

Bu çalışma, doğum öncesi eğitimin nullipar kadınların doğuma hazıroluş, ağrı, korku, süre ve memnuniyete etkisini incelemeyi amaçlamıştır. Yarı deneysel ve ileriye dönük bir tasarım kullanıldı. Çalışma, Aralık 2014 ile Mart 2016 tarihleri arasında gerçekleştirilmiştir. Veriler 24-32 (eğitimin başlangıcında), 28-36 gebelik haftalarında (4 hafta süren eğitimin sonunda) ve doğumdan 48-72 saat sonra toplandı. Araştırma örneklemi, araştırma için 30, kontrol grubu için 30 kişi olmak üzere toplam 60 kişiden oluşmaktadır. Çalışma grubuna 4 haftalık eğitim programı uygulanmıştır. Veriler, tanıtıcı bilgi, doğum süreci değerlendirme formu, görsel analog skala, Lederman'ın doğum öncesi ve doğum sonrası değerlendirme ölçeği kullanılarak toplanmıştır. Çalışma grubunda toplam doğum süreleri ve hastanede yatış süreleri daha düşüktü; hastaneye ilk başvuruda servikal dilatasyon daha fazlaydı; doğum korkusu (latent, aktif, geçiş aşaması), doğum ağrısı (latent, aktif aşama), doğumdan memnuniyet ve doğuma hazır oluş puanları daha düşüktü. Doğum korkusunu ve doğum ağrısını azaltmak, doğum süresini kısaltmak, doğum deneyiminden memnuniyeti artırmak için antenatal dönemde eğitim programının kullanılması önerilmektedir.

**Anahtar kelimeler**: Ağrı, Doğum, Doğum öncesi eğitim, Korku, Memnuniyet.

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## INTRODUCTION

Birth is a subjective experience involving the interaction of physiological, psychosocial, cultural and environmental factors (Olza et al., 2020). Cultural values and learned behaviors affect women's perceptions of birth and birth outcomes (Kömürcü & Ergin, 2008; Mongan, 2012; Ratfisch, 2012). In our culture, birth is considered as a situation that is very fearful and requires interventions due to the effect of media, health professionals and the environment. Women are increasingly undergoing cesarean delivery without any medical indication and cesarean rate is 52% in Turkey (TDHS, 2018). In particular, women who have not given birth express their increasing concerns due to insufficient information about childbirth. (Madhavanprabhakaran, D'Souza & Nairy, 2017). Thus, it is not surprising that the lack of information and misconceptions of childbirth in an unprepared woman can induce excessive fear and anxiety before labor and lead to prefer cesarean labor (Uçar & Gölbaşi, 2019).

The antenatal education class is important for changing the negative perception of women in childbirth in the prenatal period and increasing their psychological readiness. Providing education to the couples in the antenatal period (Smyth, Spence & Murray, 2015) has been accepted widely in recent times in order to increase the vaginal delivery rates (Ayers, 2014; Hutton & Hall, 2013) by decreasing the birth fear. Women who were ready for childbirth, their childbirth was scheduled and had a deliberate pregnancy, had more positive and pleasant childbirth experiences (Tabaghdehi et al., 2020). The purpose in childbirth education is to train the mother candidates about the processes that are going to be performed by the healthcare staff. Another purpose of education is to inform the pregnant woman, who is a part of the healthcare team, about what she can do during delivery and to gain the ability to apply them. (El-Kurdy, Hassan, Hassan & El-Nemer, 2017; Kömürcü & Ergin, 2008; Mongan, 2012; Ratfisch, 2012). Education can also affect obstetric outcomes, such as the type of delivery and use of birth-related interventions (Conesa Ferrer et al., 2016; Firouzbakht et al., 2015; Madhavanprabhakaran et al., 2017).

There are quantitative studies in the literature. However, the majority of these studies have been conducted in the descriptive style, and therefore, the randomization and training programs were not explained in an adequate manner in studies (Ferguson, Davis & Browne, 2013), there were methodological weaknesses in these studies, and there was lack of theory/philosophy based approaches (Gagnon & Sandall, 2007). It has been reported in the literature that there is need for empirical studies as the effects of childbirth education on the experiences of women during birth are not known exactly (Brixval, Axelsen, Andersen, Due &

Koushede, 2015). For this purpose, we searched for antenatal education philosophies/methods. An education program that is structured according to certain philosophy/philosophies ensures that a standard program is applied by any practitioner. Hypnobirthing, Lamaze, Bradley, Dick Read, Odent, active delivery, Leboyer methods are among the known preparatory philosophies/methods for delivery of mothers. However, among these, the ones that have standard programs are limited. One of those that have a standard program is the "Education Class for Awareness of Labor" (ECAL), which was developed by Mete et al. (2015). This ECAL program, which consists of 4-week training, was prepared by using the Dick-Read, Hypnobirthing, Lamaze, Bradley, which are among the labor preparation philosophies; and by making use of the social cognitive learning theory of Bandura, and the adult education principles (Mete, Ertuğrul & Uludağ, 2015). The Ministry of Health in Republic of Turkey has increased the institutionalization period of antenatal education programs. Because of the mentioned points it was decided to determine the effects of "ECAL" on the preparedness for delivery, pain, fear, duration and satisfaction of the women.

## MATERIAL AND METHOD

A quasi-experimental and prospective design was used. The following hypotheses were tested:

H1. The average of the preparedness for the delivery points of the women who participate in the "ECAL" in 28-36th weeks of the gestation is lower than those women who do not participate.

H2. The average of the birth fear point of the women who participate in the "ECAL" in 28-36th weeks of the gestation is lower than those women who do not participate.

H3. The average of the pain points of the women who participate in the "ECAL" is lower than those women who do not participate.

H4. The average of the birth fear points of the women who participate in the "ECAL" is lower than those who do not participate.

H5. The duration of the delivery in women who participate in the "ECAL" is shorter than those women who do not participate.

H5a. The cervical dilatation of the women who participate in the "ECAL" is more when they arrive at hospital than the women who do not participate.

H5b. The duration of the hospitalization of the women who participate in the "ECAL" is shorter when they arrive at hospital than the women who do not participate.

H5c. The duration of the expulsion of the women who participate in the "ECAL" is shorter when they arrive at hospital than the women who do not participate.

H6. The average of the satisfaction of the delivery points of the women who participate in the "ECAL" is lower.

**Sample**

Before the study was commenced, we announced, through posters and internet advertisements, that antenatal education was going to be offered in the city free of charge by nurses. The education was offered by an author (MÇ) who had a trainer certificate and was experienced in labour preparation. MÇ has also been an active educator in the antenatal education classes offered at an urban university school of nursing for 5 years. Women and their husbands who volunteered to participate in the study, and who met the inclusion criteria, comprised the study group. The control group consisted of women who received routine antenatal care at an outpatient maternity clinics in hospital. The data were collected between December 2014 and March 2016 in a large city located in the west of Turkey. Each group included 30 participants.

For the women in the study and the control group, were accepting to participate in the study in a voluntary manner, being over the age of 20 and nulliparous, having no high-risk during pregnancy, being in the 24-32 gestation weeks when included for the study, being expected to have normal spontaneous delivery. Subsequently, inclusion also required: giving birth at full term, having a healthy baby and having experienced no postpartal complications. For the women in the study group; not having participated in the whole of the four classes of "ECAL"; and for the women in the study and the control group; having epidural, having caesarian, having delivered as preterm, and having birth complications were the exclusion criteria.

At the beginning of the study, a power analysis was made in the G-Power Program by using the data of a previously conducted study (Serçekuş & Mete, 2010) ($\alpha$ =0.05, average difference =12.0, standard error=16.7). It was found that 33 pregnant women should be included in each group for 80% power. At the end of the study, the power analysis was made by using the own data of the study with the NCSSPASS Program. The sampling of the study consisted of 30 participants for the study group and 30 participants for the control group, 60 participants in total. The power of the study was computed as 80% minimum and 100% maximum according to all average values of the other scales -except for the visual analogue scale (VAS) transition phase birth pain. Generally, it is accepted that 80% power is adequate in studies (Akgül, 2005).

As shown in Figure 1, "ECAL" was continued until the number of the pregnant women reached 30 after having vaginal delivery without epidural by completing their training. A total of 16 group trainings (80 couples) were performed by the author of the study. The data were continued to be collected in the control group in the antenatal period until the number of the participants who had vaginal delivery without epidural reached 30. A total of 102 pregnant women were reached in the control group. The data of the pregnant in the study group were collected in the antenatal period at the childbirth education class. The control group were formed of the women who matched the pregnant women in the study group in terms of the gestation weeks and socio-demographical characteristics, and were selected among the women who planned to give birth at the same hospitals with the pregnant women in the study group and where their gestational follow-up activities were made. In antenatal period participants in the experimental groups withdrew because of problems such as medical conditions, and in the control group because of wrong contact number or simply wishing to withdraw from the study. The study and control group postpartum data were collected also at the same hospitals and within the first 48-72 hours after the delivery in the patient rooms at the services or at homes in case the mothers were discharged earlier. Private hospital and university hospital had different birth procedures, so the numbers of women in the control group and in the initiative group that gave birth in the same hospital were matched in numbers. In the postpartum period, participants in the experimental and control groups withdrew because of caesarian birth, epidural vaginal delivery. In total, 30 participants in each group completed the study

## Data Collection

### Introductory Information Form

The form consists of questions about the name, family name, age, gestational week, educational status, working status, occupation, delivery type preference, telephone numbers, e-mail addresses, and expected delivery dates.

### Prenatal Self-Evaluation Scale

The scale was developed by Lederman in 1979, and consists of a total of 79 items, and is in the form of 4-point likert scale, has seven sub-dimensions. The validity and reliability study of the scale for Turkey was conducted by Beydağ and Mete (2008). "Readiness for Delivery" and "Birth Fear" sub-dimension are in the form of 4-point likert style consisting of 10 items. Minimum 10 points, maximum 40 points may be received from the Readiness for Delivery Scale and the Birth Fear Scale. Low points indicate that the Readiness for Delivery is good, and

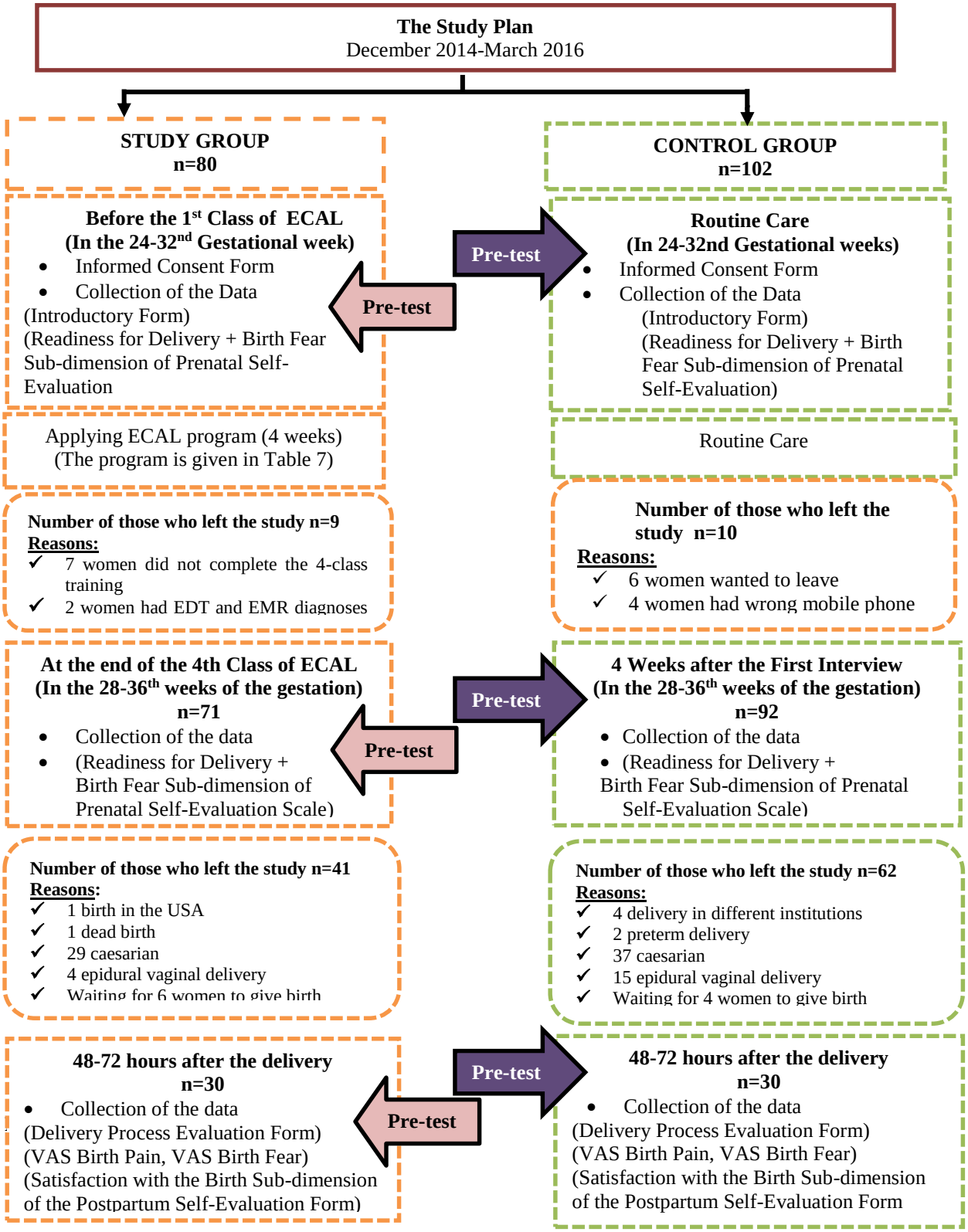
Birth Fear is low (Beydağ and Mete, 2008). The scales were filled twice, the first one being before the initial training of "ECAL" (in the 24-32nd Gestation weeks) in the study group, and second one in the last class of the 4-week training (28-36th Gestation weeks); and in the control group, the scales were filled in the first interview made in the similar weeks with the study group (24-32nd Gestation weeks) and after 4-weeks (28-36th Gestation weeks). The internal consistency coefficient of the "Readiness for Delivery" subscale in this study was 0.76, "Birth Fear" subdimension was 0.80.

**The Birth Process Evaluation Form**

The Birth Process Evaluation Form had a total of 14 items that included questions about the institution in which the women gave birth, the person who delivered the baby, gestational week in which the delivery happened, the weight of the newborn, the arrival time to the delivery room, the opening of the vagina at arrival, the duration of the birth, the pain and fear during the delivery period. The total delivery duration was taken as the duration between any of the indications of the delivery (the coming of the mark and the amniotic fluid, the onset of the contractions, etc.) and the time when the delivery was observed. The data were collected from the hospital records within the 48-72 hours after the delivery and from the statements of the women. The form was applied to the pregnant women in the control group. The evaluation of the pain and fear points was made with the VAS.

**Postpartum Self-evaluation Scale**

The scale, which was developed by Lederman and Weingarten in 1981, had seven sub-dimensions and 82 items. The reliability and validity of the scale was made by Beydağ and Mete (Beydağ & Mete, 2007). Satisfaction from the delivery experience sub-dimension was used in this study. The scale is designed in the form of 4-point likert scale, and consists of 10 items. The minimum point in the scale is 10 and the maximum point is 40. High points show that the patients are not satisfied with the birth experience (Beydağ & Mete, 2007). The scale data were collected 48-72 hours after the delivery both in the study and in the control group. The internal consistency coefficient of the "Satisfaction from the delivery experience" subscale in this study was 0.80. The study plan, the application of the data collection forms and the sampling chart are given in Figure 1.




"ECAL" training was provided to groups of five to six couples, once a week (120 minutes) for four weeks. The content of the "ECAL" is presented in Table 1. "ECAL" was provided by using simulator mannequins, compact discs and slide presentations."ECAL"

activities were performed in the hall that was prepared as the childbirth education class at university. The hall is 35 $m^2$, and is suitable for providing training for maximum eight couples. Cushions and exercise mats were prepared in order to make the pregnant sit comfortably during the training. There are pleasant photographs, positive words and statements on the noticeboards on the walls.

**Table 1.** Education Class for Awareness of Labor Training Program

| Week | Name of the Class | Class Contents |
|---|---|---|
| 1 | "First Step to a Beautiful Delivery Experience" | Introduction, thoughts and expectations about the training program, emotions and thoughts about the concept "delivery", the underlying reasons of positive/negative emotions and thoughts about delivery, history of fear, explaining the aims of the class, "Fear-Tension-Pain" cycle, the role of the hormones in delivery, the effect of fear on the hormones needed for the delivery and on the delivery action, explaining the aims of the preparation for delivery classes, summarizing the first class, muscle and relaxation exercises, assignment. |
| 2 | "I am Aware of My Body and My Mind" | Summarizing the previous class, sharing the assignments of the first class, the three rules that are influential in changing the viewpoint on delivery (thought, emotion and behavior, the power of the language, motivation), the methods that may be used to ensure relaxation (breath exercises, visualization/imaging, imagination, forming a mental area), muscle and relaxation exercises, assignment. |
| 3 | "We are Having Our Baby" | Sharing the assignments of the second class, summarizing the previous class, the indications of the start of the delivery, real/fake birth pains, the stages of the delivery and its mechanism (opening, delivery, the birth of the placenta), the practices recommended to be made at home when the delivery starts, the hospital process, the delivery video, talking to the doctor and other healthcare staff about the delivery, muscle and relaxation exercises, assignment. |
| 4 | "The End of the Journey that is Full of Peaceful and Beautiful Memories, and New Beginnings" | Sharing the assignments of the third class, summarizing the previous class, last preparations for the delivery (delivery pack, transportation to hospital), caesarian, epidural anesthesia, postpartum early period, delivery video or positive delivery history, relaxation exercises, ceremony for participation certificate, evaluation of the training. |

## Data Analysis

In analyzing the study data, the Statistical Package for Social Sciences (SPSS) 15.0 was used. Intent-to-treat approach wasn't used. Numbers, percentages, standard deviation, Fisher $\chi 2$ were used in definitive analysis of the data. The issue of the data being at normal distribution was tested with Shapiro Wilk test. The Readiness for Delivery and Birth Fear in the antenatal period were analyzed with the Mann Whitney U and Wilcoxon Signed Rank Test. The birth fear and birth pain point averages were compared with the Multivariate Variance Analysis according to the group, time and group*time interaction in repetitive measurements. In order to determine whether there are differences between the measurements within the groups, the

Friedman Analysis Method, which is the non-parametric of One-Factor Variance Analysis, was used in Bonferroni Corrected Repetitive Measurements. The Wilcoxon Analysis, which is the nonparametric of the Significance Test, was applied in order to determine from which measurement the difference stemmed. Since there are three comparisons in the analysis, the p value was divided by three and was determined as 0.05/3=0.016. The results were evaluated within confidence interval at 0.05 significance level (95%) (Akgül, 2005).

**Ethical Considerations**

The purpose of the study was explained verbally and in written manner to the pregnant women before attending the ECAL. Informed consent was obtained from the women before the study. This study was approved by the Institutional Review Board of the University (IRB approval no: 1558-GOA-2016/01-28).

**Limitations of the Research**

Receiving antenatal education is the right of every woman. For this reason, the study could not be conducted in the randomized-controlled design; the educational status of the women, who participated in the study was undergraduate and postgraduate, and therefore the study results were only generalized to this group; the data on the delivery action in the study were evaluated with the hospital records and the statements of the participating women have been determined as the limitations of the study.

**RESULTS**

All the women in the study and control group worked and their educational status were undergraduate or postgraduate. The average age of the participants in the study group was 30.06±2.37; two of the women were doctors, 13 were officers and 15 worked at private sector. The average age of the participants in the control group was 29.86±2.27. 12 of them were officers, and 18 of them worked in private sector. There were no differences between the groups definitive characteristics ($p>0.05$). The obstetric properties of the women, their delivery preferences and the results of their delivery are given in Table 2.

In the first interview, 23.3% of the women in the control group, and 33.3% of the women in the study group preferred non-epidural vaginal delivery. There were no significant differences between the women in the study and the control group in terms of delivery preferences, gestation weeks in the first interview, gestation weeks in which they delivered their babies, and in terms of the weights of their babies ($p>0.05$). In the second interview (28-36th Gestational Week) 63.3% of the women in the control group and 90.0% of the women in the

study group preferred non-epidural vaginal delivery. It was determined that the women in the study group preferred vaginal delivery more than the women in the control group. The Readiness for Delivery points average of the women who participated in "ECAL" (28-36. Gestational Week) was 12.60±1.71; and the average of the women in the control group was 21.90±3.39. The Birth Fear point average of the women who participated in the "ECAL" was 12.83±2.11 (28-36. Gestational Week); and the average of the women in the control group was 21.73±3.48. It was determined that the Birth Fear of the women who participated in the "ECAL" was less than the women in the control group ($p< 0.05$) (Table 3).

**Table 2.** Obstetric Characteristics and Birth Outcomes of Women

| **Characteristics of the Women** | **Study Group n=30** | | **Control Group n=30** | | **Test of the differences between the groups** |
|---|---|---|---|---|---|
| | **Number** | **%** | **Number** | **%** | |
| **The First Evaluation (24-32. Gestational Week) Delivery Type Preference** | | | | | |
| Non-Epidural vaginal delivery | 10 | 33.3 | 7 | 23.3 | |
| Epidural vaginal delivery | 20 | 66.7 | 23 | 76.7 | p=0.567* |
| **Second Evaluation (28-36. Gestational Week) Delivery Type Preference** | | | | | |
| Non-Epidural vaginal delivery | 27 | 90.0 | 19 | 63.3 | |
| Epidural vaginal delivery | 3 | 10.0 | 11 | 36.7 | p=0.015* |
| | **X±SD** | | **X±SD** | | |
| **Gestational Week at First Interview** | 28.43±2.45 | | 28.50±2.35 | | U=0.172 p=0.864** |
| **Delivery Gestational Week** | 39.00±1.28 | | 39.40±1.22 | | U=1.286 p=0.198** |
| **Birth Weight of the Baby (gr)** | 3.308±0.353 | | 3.189±0.284 | | t=1.437 p=0.156** |

* Since the expected number is below 5, the Fisher Correction $\chi^2$ was applied.
** p>0.05, U: Mann Whitney U Test, t: The T test

**Table 3.** Readiness for Delivery and Birth Fear Score Comparison of The Groups

| | **Birth Fear** | | | **Readiness for Delivery** | | |
|---|---|---|---|---|---|---|
| | **Study Group (n:30)** Mean SD | **Control Group (n:30)** Mean SD | **Test of the differences between the groups** | **Study Group (n:30)** Mean SD | **Control Group (n:30)** Mean SD | **Test of the differences between the groups** |
| **First Evaluation (24-32. Gestation Wk)** | 19.13 (3.37) | 19.70 (3.86) | U=0.149 p=0.882* | 21.30 (3.67) | 20.50 (3.78) | U=1.115 p=0.265* |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Second Evaluation (28-36. Gestation Wk)** | 12.83 (2.11) | 21.73 (3.48) | U=6.636 p=0.000** | 12.60 (1.71) | 21.90 (3.39) | U=6.677 p=0.000** |
| **Test of the differences between the groups** | z=4.733 p=0.000** | z=3.456 p=0.001** | | z=4.792 p=0.000** | z=3.436 p=0.001** | |

*p>0.05, **p < 0.05, U: Mann Whitney U Test, z: Wilcoxon Signed Rank Test for each subscale, lower scores indicate better Readiness for Delivery, and lower birth fear.

When the birth pain points averages of the groups were examined it was observed that there was a significant difference between the study and the control group in terms of latent phase (U=2.260, p= 0.024), and active phase (U=2.630, p=0.009) pain points averages; while there was no significant difference between the transition phase (U=1.611, p=0.107) pain points averages. When the birth fear points averages were examined it was determined that there were significant differences between the study and the control group latent (U=3.792, p=0.000), active (U=3.799, p=0.000) and transition phase (U=4.162, p=0.000) fear points averages (Table 4).

**Table 4.** Comparison of Birth Pain and Birth Fear Scores According to the Group and Duration

| | **Group** | | |
|---|---|---|---|
| **Outcomes** | **Study Group (n:30) Mean SD** | **Control Group (n:30) Mean SD** | **Man Whitney U test (p value)** |
| **Pain** | | | |
| Latent Phase | 4.23±1.86 | 5.86±2.82 | 0.024* |
| Active Phase | 6.76±1.47 | 8.00±2.01 | 0.009* |
| Transition Phase | 7.76±3.24 | 8.73±2.09 | 0.107 |
| **Friedman Test ($^{\&}X^2$)** | p=0.000* | p=0.001* | |
| **Fear** | | | |
| Latent Phase | 1.13±1.40 | 3.83±3.09 | 0.000* |
| Active Phase | 1.70±2.07 | 5.26±3.77 | 0.000* |
| Transition Phase | 1.20±1.54 | 5.23±3.91 | 0.000* |
| **Friedman Test ($^{\&}X^2$)** | p=0.199 | p=0.000* | |

**$^{\&}X^2$:** Friedman test (the nonparametric test of the variance analysis in repetitive measurements), *p < 0.05.

The cervical opening, the hospitalization duration, expulsion and total delivery durations of the participants were examined and it was determined that there were statistically significant differences among the three parameters except for the expulsion duration (p>0.05) between the study and the control group (p< 0.05). It was also determined that the satisfaction from the birth experience of the women who participated in the "ECAL" was higher than the women in the control group (Table 5).

**Table 5.** Group Comparison in Terms of Delivery Time, Cervical Dilation at Arrival and Satisfaction with Birth Experience

| | Study Group n:30 | Control Group n:30 | U | p |
|---|---|---|---|---|
| | X±SD | X±SD | | |
| Cervical dilatation at arrival (cm) | 4.46±1.54 | 2.50±1.16 | 4.566 | 0.000** |
| Time spent at hospital (H) | 6.23±3.73 | 12.16±5.45 | 4.562 | 0.000** |
| Duration of the Expulsion (Min) | 13.10±5.05 | 15.56±5.81 | 1.720 | 0.085* |
| Duration of the Total Delivery (H) | 11.73±5.55 | 15.70±5.63 | 2.639 | 0.008** |
| Satisfaction from the Birth Experience | 11.73±1.76 | 18.06±4.45 | 5.717 | 0.000* |

*p < 0.05, U: Mann Whitney U Test

## DISCUSSION

### The Effect of "ECAL" on Readiness for Delivery and Birth Fear in Antenatal Period

Although the gestational weeks of the women progressed who participated in the "ECAL", their readiness for delivery increased, and their birth fear decreased. This results shows that the "ECAL" was influential. This is an expected result for the women in the control group, because women, focus on; gestation in the first 3-month period, the baby in the second 3-month period, and the delivery in the third 3-month period. However, "ECAL" changed this process in the positive direction.

There are different results reported in the studies in the literature conducted previously about the effects of training on birth fear. Karabulut et al. (2015) conducted a prospective and semi-experimental study and determined no significant differences between the birth fear points of the primipara women after an education program that was run for 5 weeks in the 24-28th gestational week. Larsson et al. (2015) determined that the counseling provided before delivery was not influential in decreasing the fears (Larsson, Karlström, Rubertsson & Hildingsson, 2015).

On the other hand, there are some other studies reporting that the birth fear is less in women who participate in childbirth education class after the training (Byrne, Hauck, Fisher, Bayes & Schutze, 2014; Serçekuş & Mete, 2010). Subaşı et al. (2013) conducted a study and found that the prenatal training was influential in decreasing the negative thoughts about delivery and the birth fear (Subaşı et al., 2013). Serçekuş and Başkale (2016) conducted a study on nulliparous women who were in 26-28th gestation week and provided a training consisting of 16 hours given in 8 weeks, and determined that the birth fear was decreased.

The results of the study show that the "ECAL" is influential in decreasing the fears about the delivery and in increasing the readiness for delivery.

**The Effects of The ECAL on Birth Pain, Birth Fear, Duration of The Delivery, Satisfaction from The Birth Experience**

It was determined in the study that the latent and active phase pain points in the study group were lower than the control group. In a randomized-controlled study conducted in Iran (2009), the birth pain scores of 280 women were evaluated with VAS after antenatal training. It was determined that there were less pain scores in the study group than the control group (Taghavi, Hoseininasab & Ahmadian Heris, 2009). Uçar and Gölbaşı (2019) evaluated the pain perception scores of the women who participated in the training which was based on the cognitive behavioral techniques, and reported that the study group experienced less pain in the all phase of the delivery (Uçar & Gölbaşı, 2019). Firouzbakht et al. (2015) evaluated the birth pain and cervical dilatation 3-4 cm, 8-10 cm in the last phase of delivery. No significant differences were determined after the 8-week training in the latent phase and in the second phase of the delivery. The pain scores were found to be less in the study group in the transition phase (8-10 cm) (Firouzbakht et al., 2015). The results of Firouzbakht et al. (2015) support the results of our study. It is considered that the lack of significant differences in the transition phase in our study might consider from the characteristics of the pain in this phase. In addition, the power of the our study was found to be 0.36 according to VAS transition phase birth pain point averages, which shows that the sampling in the study is not adequate to evaluate the pain scores in the transition phase. The results might have been affected by these two reasons.

The fear point averages in latent, active and transition phases expressed by the women, who participate in “ECAL”, are lower than the control group. This result is an important indicator of the “ECAL” program in eliminating the birth fear. It is observed in the literature that the anxiety and fear concept are confused with each other in some studies. For example, in some studies, fear scale was used to evaluate anxiety levels. For this reason, the studies that evaluate both concepts were included in the discussion. It was reported in studies conducted on the anxiety/fear levels in delivery that the anxiety levels of the women who participate in childbirth education classes were lower and the birth fear scores were less, which is consistent with the findings of our study (Artieta-Pinedo et al., 2010; Buran & Aksu, 2022; Çankaya & Şimşek, 2020; Ferguson, Davis & Browne, 2013; Uçar & Gölbasi, 2019).

In our study, the total delivery duration, the cervical opening at arrival and the hospitalization durations were found less in the women in the study group. In a systematic review study, it was determined that there were decreases in the fake-birth symptoms and application to hospital levels in the women who received training (Ferguson et al., 2013). The

studies in the literature support the idea that the hospitalization should be cancelled until the active delivery action starts (Hatamleh Et al., 2019; Rotaa et al., 2018). Bebe et al. (2007) conducted a study and reported that there was a relation between the duration spent at home in the early periods of delivery and applying to hospital with more cervical dilatation (Beebe, Lee, Carrieri-Kohlman & Humphreys, 2007). Lawrence et al. (2009), Simkin and Bolding (2004), conducted studies and reported that the pregnant women, who were active during pregnancy, who walked and changed their positions in a frequent manner, felt less birth pain, needed less painkillers, had less caesarian rates, and the delivery durations were less. In our study, the pregnant women in the study group, who spent some of the labor process at home, had the opportunity of acting in a comfortable manner, and could listen to music as well as being in a quiet and peaceful environment. Since the women, who participated in the "ECAL", knew that symptoms of the start of the delivery, did not apply to hospitals with fake birth symptoms, the women spent time at home with their husbands.

Although there was no statistically significant difference in the expulsion times of the women in the study group compared to the control group, the finding is clinically significant. The study result showing that the second phase of the women who participated in the preparation for delivery class, was reduced 5 minutes in average, was not found to be statistically significant (Okumuş et al., 2002). In our study, the reduction in the expulsion duration of the women in 3 minutes may influence the perception of the pain and fetal oxygenation in a positive manner. The data on the expulsion duration were collected in the light of the statements of the women 48-72 hours after the delivery, and are among the limitations of the study.

In our study, the satisfaction from the birth experience scores was higher in study group. This result may depend on the less use of oxytocin, because exogen oxytocin increases uterus contractions and gives more tiredness and discomfort to the mother (Sayiner et al., 2021). Non-pharmacological studies ensure the comfort of the mother and also have positive effects on the delivery action (Chaillet et al., 2014; Simkin & Bolding, 2004). Improving the skills of coping with labor pain in pregnant women is associated with increased satisfaction with the birth experience. (Leap, Sandall, Buckland & Huber, 2010).

## CONCLUSION

In the light of the obtained results in our study, the use of "ECAL" is recommended as the readiness for delivery levels of the women, who participated in the study, increased; their

birth pain, birth fear and delivery durations decreased, and satisfaction from the birth experience increased with "ECAL". This study also highlighted the important roles that nurses and midwives can play as educators and supporters during pregnancy and labor. The Ministry of Health in Republic of Turkey has increased the institutionalization period of antenatal education programs. Nurses and midwives who work in Turkey may encounter pregnant women from many different cultures. In order to provide proper maternity care, health professionals need to provide culturally appropriate interventions for a healthy delivery. Because of these it is important to spread antenatal education program like ECAL.

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