Original Article

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The Effects of Delivery Room Admission Time on the Labor Process, Neonatal Outcomes, and Women's Traumatic Birth Perceptions: A Comparative Study

Doğumhaneye Kabul Zamanlamasının Doğum Süreci, Yenidoğan Sonuçları ve Kadınların Travmatik Doğum Algısı Üzerine Etkisi: Karşılaştırmalı Bir Çalışma

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ABSTRACT

Objective: This study aimed to investigate the effects of the timing of admission to the delivery room on the labor process, neonatal outcomes, and women's perception of traumatic birth.

Methods: A cross-sectional, comparative study was conducted at a public hospital in southeastern Türkiye between December 2024 and May 2025. A total of 250 pregnant women were divided into two groups based on cervical dilatation at admission: latent phase (n=125) and active phase (n=125).

Results: In the study, obstetric interventions such as bladder catheterisation, oxygen support, episiotomy and continuous fetal monitoring were significantly more common in the latent phase group. However, amniotomy was significantly more frequent in the active phase group. While overall neonatal outcomes showed no significant difference (p>0.05), the 5th-minute Apgar scores and early breastfeeding initiation (within 30 minutes) were significantly higher in the active phase group (p<0.05). Traumatic birth perception scores were notably higher in the latent phase group (p<0.001).

Conclusion: Admission during the latent phase is associated with increased obstetric interventions, with the exception of amniotomy, and higher traumatic birth perception.

Keywords: Admission to delivery room, midwifery, newborn, obstetric interventions, trauma

ÖZ

Amaç: Bu çalışma, doğumhaneye kabul zamanlamasının doğum süreci, yenidoğan sonuçları ve kadınların travmatik doğum algısı üzerindeki etkilerini araştırmayı amaçlamıştır.

Yöntemler: Çalışma, Aralık 2024-Mayıs 2025 tarihleri arasında Türkiye'nin güneydoğusunda yer alan bir kamu hastanesinde kesitsel ve karşılaştırmalı olarak yürütülmüştür. Gruplar servikal dilatasyon seviyelerine göre belirlenmiştir. Çalışmada, doğumhaneye kabul zamanına göre latent fazda (n=125) ve aktif fazda (n=125) olmak üzere iki gruba ayrılmış 250 gebeden oluşmuştur.

Bulgular: Çalışmada, mesane kateterizasyonu, oksijen desteği, epizyotomi ve sürekli fetal izleme gibi obstetrik müdahaleler, latent faz grubunda anlamlı olarak daha sık görüldü. Ancak, amniyotomi aktif faz grubunda anlamlı olarak daha sık görüldü. Yenidoğan sonuçları açısından gruplar arasında genel olarak anlamlı bir fark bulunmamakla birlikte (p>0,05), 5. dakika Apgar skorunun ve doğumdan sonraki ilk 30 dakika içinde emzirmeye başlama oranının aktif faz grubunda istatistiksel olarak anlamlı düzeyde daha yüksek olduğu saptanmıştır (p<0,05). Ayrıca, travmatik doğum algısı puanları latent faz grubunda, aktif faz grubuna kıyasla anlamlı düzeyde daha yüksek bulunmuştur (p<0,001).

Sonuç: Bu bulgular, doğumhaneye latent fazda kabul edilen kadınlarda amniyotomi dışındaki obstetrik müdahalelerin daha fazla uygulandığını ve bunun travmatik doğum algısını artırabileceğini göstermektedir.

Anahtar Kelimeler: Doğumhaneye kabul, ebelik, obstetrik girişimler, travma, yenidoğan

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Introduction

Labor is a physiological process in which cervical changes occur with regular uterine contractions and the fetus and its appendages are expelled from the uterus (1). Labor usually begins in the home environment, but women may be indecisive about determining the appropriate hospital admission time (2). The World Health Organization (WHO) recommends that women be admitted to the hospital when they reach the active labor phase after careful evaluation (3). However, in clinical practice, although admission to the delivery room is usually based on obstetric criteria, admission criteria are not clearly defined in many health institutions (4).

The labor process is generally examined in the literature in two phases: latent (early) and active (late). This biphasic classification is primarily based on cervical dilation dynamics, where the latent phase is characterized by gradual cervical effacement and slow dilation, whereas the active phase corresponds to an accelerated pattern of cervical change, a threshold that contemporary guidelines increasingly recognize at approximately 6 cm dilation rather than the historically accepted 4-5 cm benchmark (5,6). Admitting to the hospital in the early phase of labor may lead to a prolonged labor, more obstetric interventions, and an increase in cesarean section rates (7,8). Interventions performed in the latent phase mostly result in a diagnosis of dystocia; fetal distress comes to the fore in the active phase (9). Unnecessary obstetric interventions not only disrupt the natural physiological process of birth but can also negatively affect both maternal and neonatal outcomes (10). The WHO recommends that birth should be supported in its physiological flow as much as possible, and interventions should be applied only when medically necessary (3). However, the modern birth process often considers birth as a risky process and promotes early and routine interventions.

Childbirth is an important life experience for women that has not only physiological but also deep psychological effects. Factors such as inadequate support, prolonged labor, interventional practices, severe pain, and loss of control can cause childbirth to turn into a traumatic experience (11). The traumatic birth perception can result from various factors such as lack of health professional support, emergency cesarean section, interventional birth practices, intense labor pain, some routine obstetric interventions (electronic fetal monitoring, oxytocin infusion, fundal pressure, episiotomy, movement and feeding restriction), fear of childbirth, loss of control, prolonged labor, history of psychiatric illness, and high stress level (11,12). In the literature, it has been shown that the traumatic birth perception is significantly associated with weakening of mother-infant bonding, increased risk of postpartum depression, and increased likelihood of adverse maternal-fetal outcomes (2,13).

Studies that evaluate the holistic effects of delivery room admission time on the delivery process, neonatal outcomes, and traumatic birth perceptions are quite limited. Therefore, this study aims to comprehensively evaluate the effects of delivery room admission time on the delivery process, neonatal health, and women's traumatic birth perceptions.

Methods

Research Design, Location, and Time

This study was conducted with a comparative and cross-sectional design, and was conducted between December 2024 and May 2025 at the maternity ward of a public hospital in the southeast of Türkiye, with pregnant women who were admitted for vaginal delivery and met the pre-determined inclusion criteria.

Population/Sample of the Study

Sample size was calculated using the G*Power 3.1.7.4 program [Faul et al. (14)]. Based on an effect size of 0.30, a significance level of 0.05, and a statistical power of 90%, the minimum required sample size was determined as 107 participants for each group. Considering the possibility of data loss, the total sample size was increased to 250 participants. This sample size is consistent with previous studies investigating the effects of hospital admission timing on labor and neonatal outcomes (7), supporting the methodological adequacy of the present study.

Participants were recruited using a consecutive sampling method among eligible women admitted to the delivery unit during the study period. However, group allocation was not randomized; instead, participants were classified according to cervical dilatation at admission, in accordance with the clinical protocol applied in the study hospital and national obstetric guidelines (latent phase: ≤4 cm; active phase: ≥5 cm) (15).

Inclusion criteria were: being 18 years of age or older, having a singleton pregnancy, and being admitted to the delivery unit during the first stage of labor.

Data Collection

Before starting the study, the Ethics Committee decision was obtained from the University of Health Sciences Türkiye, Gaziantep City Hospital Non-Interventional Clinical Research Ethics Committee (decision no: 79/2024, date: 20.11.2024). In the first stage, the data were collected by interviewing the pregnant women who were admitted to the hospital for delivery one-on-one in their rooms and filling out the "personal information form". This interview was conducted face-to-face and lasted 10-15 minutes on average. During the labor, the "labor follow-up form" was used to record the observations and interventions related to the labor process, and the "neonatal follow-up form

and Apgar form" were used to evaluate the health status of the newborn after birth. In the last stage of the study, the "traumatic birth perception scale (TBPS)" developed by Yalnız et al. (16) was applied to assess the level of perception of labor as a traumatic experience by the puerperal women 24 hours after birth. While the internal consistency coefficient (Cronbach's alpha) reported in the original study of the scale was 0.89, the Cronbach's alpha value of the scale in this study was calculated as 0.912. Informed consent was obtained from all participants after providing them with detailed information about the purpose, procedures, and confidentiality of the study, in accordance with the Declaration of Helsinki.

Statistical Analysis

Statistical analysis of the data obtained in this study was performed using SPSS Statistics 30 software. First of all, normality distributions of variables were evaluated with Kolmogorov-Smirnov and Shapiro-Wilk tests. Similarities between variables were evaluated with the chi-square test, and differences between groups were evaluated with the Mann-Whitney U test. The findings were interpreted following the determined significance level ($p<0.05$).

Results

Table 1 presents the distribution of sociodemographic and obstetric characteristics of women by groups. It was determined that the groups were homogeneous in terms of age (p=0.108), gestational week (p=0.502), and delivery type (p=1.000). It was determined that the distribution of women in the groups was homogeneous in terms of educational level (p=0.796), employment (p=0.640), and income level (p=0.095). Statistically significant differences were found between the groups in terms of the number of live births (p<0.001), the number of living children (p<0.001), the number of pregnancies (p=0.001), pregnancy history (p<0.001), and receiving antenatal care (p=0.002).

Table 2 shows that there were significant differences between the groups in terms of cervical dilatation, fetal head level, amniotomy, continuous fetal monitoring, bladder catheterization, oxygen support, episiotomy, and manual removal of the placenta. No significant difference was observed regarding the need for neonatal intensive care. However, the 5th-minute Apgar score (p=0.015) and the time to first breastfeeding (p<0.001) differed significantly between the groups.

Table 3 presents the comparison of women's traumatic birth perception scores by groups. A statistically significant difference was found between the latent phase group [M=57, interquartile range (IQR)=50-63] and the active phase group (M=43, IQR=37-51) in terms of the mean scores of the TBPS (p<0.001). According to these results, the traumatic birth perception scores of women in the latent phase group were significantly higher than those of women in the active phase group.

Discussion

The study evaluated the effects of the timing of admission to the delivery room on the labor process, neonatal outcomes, and traumatic birth perceptions. The findings showed that the majority of women who were admitted to the delivery room in the active phase had previous birth experience, had a planned pregnancy, and received regular antenatal care. This suggests that birth experience improves women's ability to recognize signs of labor and manage the timing of admission to the hospital. Indeed, it

Table 1. Comparison of the sociodemographic and obstetric characteristics according to groups

Variables	Latent phase group n=125	Active phase group n=125	Total	Test & p-values
	M (IQR)	M (IQR)	M (IQR)	
Age	24 (21-27)	26 (22-27)	24 (21-27)	Z=1.607 p=0.108
Gestational week	39 (38-39)	38 (38-39)	39 (38-39)	Z=-0.672 p=0.502
Number of live births	0 (0-1)	1 (0-2)	1 (0-2)	**Z=3.895 p<0.001**
Number of living children	0 (0-1)	1 (0-2)	1 (0-2)	**Z=3.922 p<0.001**
Educational level				
Lower than high school	48 (38.4)	51 (40.8)	99 (39.6)	x^2=0.067
High school or higher	77 (61.6)	74 (59.2)	151 (60.4)	p=0.796
Employment				
Employed	24 (19.2)	28 (22.4)	52 (20.8)	x^2=0.219
Unemployed	101 (80.8)	97 (77.6)	198 (79.2)	p=0.640
Income level				
Low	66 (52.8)	80 (64.0)	146 (58.4)	x^2=2.783
Moderate/high	59 (47.2)	45 (36.0)	104 (41.6)	p=0.095
Number of pregnancies				
1	71 (56.8)	43 (34.4)	114 (45.6)	**x^2=11.755**
≥2	54 (43.2)	82 (65.6)	136 (54.4)	**p=0.001**
Pregnancy history				
Planned	92 (73.6)	116 (92.8)	208 (83.2)	**x^2=15.139**
Unplanned	33 (26.4)	9 (7.2)	42 (16.8)	**p<0.001**
Receiving antenatal care				
Present	87 (69.6)	108 (86.4)	195 (78.0)	**x^2=9.324**
Absent	38 (30.4)	17 (13.6)	55 (22.0)	**p=0.002**
Delivery type				
Caesarean	6 (4.8)	5 (4.0)	11 (4.4)	x^2=0.000
Vaginal	119 (95.2)	120 (96.0)	239 (95.6)	p=1.000

M (IQR): Median (25th and 75th percentiles), IQR: Interquartile range, n: Number, %: Percentage, Z: Mann-Whitney U test standardized Z test value, x^2: Chi-square test

Table 2. Comparison of the birth process and neonatal characteristics according to groups

Variables	Latent phase group n=125	Active phase group n=125	Total	Test & p-values
	M (IQR)	M (IQR)	M (IQR)	
Cervical dilatation (cm)	2 (1-3)	6 (5-8)	4 (2-6)	**Z=13.803 p<0.001**
Reasons for coming to the delivery room				
Presence of contraction	95 (76.0)	91 (72.8)	186 (74.4)	x^2=5.354 p=0.069
Rupture of membranes	17 (13.6)	28 (22.4)	45 (18.0)	
Contraction + membrane rupture	13 (10.4)	6 (4.8)	19 (7.6)	
Level of the fetal head				
-3	71 (56.8)	19 (15.2)	90 (36.0)	**x^2=77.336 p<0.001**
-2	47 (37.6)	41 (32.8)	88 (35.2)	
-1 or 0	7 (5.6)	61 (48.8)	68 (27.2)	
+1 or +2	0 (0.0)	4 (3.2)	4 (1.6)	
Amniotomy				
Present	35 (28.0)	70 (56.0)	105 (42.0)	**x^2=18.982 p<0.001**
Absent	90 (72.0)	55 (44.0)	145 (58.0)	
Continuous fetal monitoring				
Present	20 (16.0)	9 (7.2)	29 (11.6)	**x^2=3.901 p=0.048**
Absent	105 (84.0)	116 (92.8)	221 (88.4)	
Bladder catheterization				
Present	124 (99.2)	87 (69.6)	211 (84.4)	**x^2=39.373**
Absent	1 (0.8)	38 (30.4)	39 (15.6)	p<0.001
Oxygen support in labor				
Present	44 (35.2)	10 (8.0)	54 (21.6)	**x^2=25.723**
Absent	81 (64.8)	115 (92.0)	196 (78.4)	p<0.001
Episiotomy				
Present	80 (64.0)	48 (38.4)	128 (51.2)	**x^2=15.385**
Absent	45 (36.0)	77 (61.6)	122 (48.8)	**p<0.001**
Manual removal of the placenta				
Present	22 (17.6)	6 (4.8)	28 (11.2)	**x^2=9.049**
Absent	103 (82.4)	119 (95.2)	222 (88.8)	**p=0.003**
5th-minute Apgar	10 (9-10)	10 (10-10)	10 (10-10)	**Z=2.427 p=0.015**
Neonatal intensive care requirement				
Present	5 (4.0)	2 (1.6)	7 (2.8)	-
Absent	120 (96.0)	123 (98.4)	243 (97.2)	p=0.446*
First breastfeeding time				
No breastfeeding	5 (4.0)	1 (0.8)	6 (2.4)	**x^2=18.700 p<0.001**
In first 30 minutes	54 (43.2)	87 (69.6)	141 (56.4)	
Between 30-60 minutes	62 (49.6)	34 (27.2)	96 (38.4)	
After 60 minutes	4 (3.2)	3 (2.4)	7 (2.8)	

M (IQR): Median (25th and 75th percentiles), IQR: Interquartile range, n: Number, %: Percentage, Z: Mann-Whitney U test standardized Z test value, x^2: Chi-square test, *: Fisher's exact test, NA: Not analyzed

is stated in the literature that women who will have their first birth tend to admit to the hospital in the early stages of labor (2,13). It is stated that women who attend regular pregnancy check-ups are more conscious about which stage of labor they should admit at (17,18).

When obstetric interventions were evaluated, women admitted to the delivery room during the latent phase were exposed to more interventions such as bladder catheterization, oxygen support, continuous fetal monitoring, episiotomy, and manual removal of the placenta. These findings suggest that initiating labor management before the onset of the active phase may increase the likelihood of medical interventions during childbirth. Similar results have been reported in the literature, indicating that admission during the latent phase is associated with higher rates of obstetric interventions and a greater likelihood of medicalized labor management (19-21). However, in the present study, amniotomy was performed more frequently in the active phase group. This finding may be explained by the clinical practice of performing amniotomy after the active phase of labor has been established in order to accelerate labor progress (3,22). Consistent with our results, Karakoç et al. (22) also reported that the rate of amniotomy was higher among women admitted during the active phase of labor. The authors suggested that amniotomy is often applied during the later stages of labor to facilitate cervical dilation and shorten the duration of the second stage. Therefore, allowing labor to progress physiologically until the active phase may contribute to reducing unnecessary

Table 3. Comparison of the women's traumatic birth perception scores by groups

Scale	Latent phase group n=125		Active phase group n=125				
TBPS	M (IQR)	MR	M (IQR)	MR	U	Z	p
	57 (50-63)	166.65	43 (37-51)	84.35	**2668.50**	**-9.002**	**p<0.001**

MR: Mean rank, M (IQR): Median (25th and 75th percentiles), IQR: Interquartile range, Z: Mann Whitney U test standardized Z test value, TBPS: Traumatic birth perception scale

obstetric interventions while supporting a more natural birth process.

In terms of neonatal outcomes, it was found that babies in the active phase group had higher 5th-minute Apgar scores and shorter breastfeeding initiation times. This finding might be a result of the shorter delivery time with admission in the active phase, less physical and psychological wear on the mother, and less intervention. However, some studies have reported that the time of admission to the delivery room does not have a significant effect on Apgar scores (2,7). It is thought that these differences may be due to differences in sample structures and birth protocols. The earlier initiation of breastfeeding by women in the active phase group after birth is a positive situation in terms of both colostrum intake and mother-baby bonding (20,23). It is stated in the literature that early breastfeeding is affected by many factors such as the duration of labor, type of delivery, interventions applied, birth environment, and complications (18,24). Interventions and prolongation of labor may cause fatigue in the mother and newborn and delay the breastfeeding period (25).

Since birth is not only a physiological but also a psychological process, one of the most striking findings of the study is the perception of traumatic birth. The traumatic birth perception scores of women admitted to the delivery room in the latent phase were found to be significantly higher compared to the active phase group. This result shows that women who were admitted to the hospital in the early phase of labor perceive the process as a more negative experience due to being exposed to more interventions, the duration of labor being prolonged, and losing the sense of control. It was also stated in the literature that factors such as loss of control, severe pain, excessive interventions, and insufficient social support increase traumatic birth perceptions (26-28). A traumatic birth experience is a significant factor affecting women's psychological well-being not only during childbirth but also in the postnatal period. Research shows that the perception of a traumatic birth is significantly associated with postnatal depression, anxiety disorders, postnatal post-traumatic stress disorder and mother-infant bonding problems (3,29-31). In particular, the feeling of emotional detachment that develops after trauma can reduce the mother's capacity to provide care and negatively affect the baby's development. Therefore, preventing traumatic experiences during the birth process is critical not only in the short term but also in terms of long-term psychosocial outcomes (3). In this context, managing the birth process following the principles of woman-centered, respectful, and individualized care strengthens the role of midwifery care in both supporting physiological birth and preventing traumatic experiences.

Study Limitations

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted in a single public hospital in southeastern Türkiye, which may limit the generalizability of the findings to other regions or healthcare settings. Second, the cross-sectional and observational design of the study did not allow causal inference between the timing of admission to the delivery room and the outcomes observed. Additionally, the use of self-report-based measures, such as the TBPS, may introduce recall or response bias, as these were administered within the first 24 hours postpartum. Moreover, the study did not evaluate long-term maternal or neonatal outcomes, limiting the ability to assess the broader impact of delivery room admission timing on health and well-being. Another important limitation was the disproportionate number of multiparous women in the active phase group. Since multiparity is associated with shorter labour duration and potentially more positive birth experiences, this difference may have influenced participants' traumatic birth perception scores. Future research should aim to control for parity when comparing birth experiences. Finally, the criterion used to define the active phase of labour represents a methodological limitation. Although recent international guidelines increasingly define the onset of the active phase at approximately 6 cm cervical dilatation, this study used a ≥5 cm threshold according to the clinical protocol applied in the study hospital during the data collection period. Therefore, this methodological difference should be considered when interpreting the findings and comparing the results with studies that use the 6 cm criterion to define the onset of active labour.

Conclusion

The study revealed the effects of the timing of admission to the delivery room on the delivery process, neonatal health, and traumatic birth perceptions. It was determined that women who were admitted in the active phase had better neonatal outcomes, a shorter time to breastfeed, and lower traumatic birth perceptions. In contrast, those

who were admitted in the latent phase had more obstetric interventions and higher traumatic birth perceptions. The findings emphasize the importance of admission to the delivery room in the active phase and women-centered care. It was also stated that raising awareness of the correct timing of admission through antenatal training could provide positive effects.

Ethics

Ethics Committee Approval: Ethics Committee Decision was obtained from the University of Health Sciences Türkiye, Gaziantep City Hospital Non-Interventional Clinical Research Ethics Committee (decision no: 79/2024, date: 20.11.2024).

Informed Consent: Informed consent was obtained from all participants after providing them with detailed information about the purpose, procedures, and confidentiality of the study, in accordance with the Declaration of Helsinki.

Footnotes

Authorship Contributions

Surgical and Medical Practices: H.G.Ö., A.F., Concept: H.G.Ö., A.F., Design: H.G.Ö., A.F., Data Collection or Processing: H.G.Ö., A.F., Analysis or Interpretation: H.G.Ö., A.F., Literature Search: H.G.Ö., A.F., Writing: H.G.Ö.

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