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RESEARCH ARTICLE / *ARAŞTIRMA MAKALESİ*

The Effect of Sociodemographic and Obstetric Characteristics of Pregnant Women on The Health of Newborn Babies: A Retrospective Study

Gebelerin Sosyodemografik ve Obstetrik Özelliklerinin Yenidoğan Sonuçlarına Etkisi: Retrospektif Bir Çalışma

Ebru Şahin[1], **Gizem Deniz Büyüksoy**[2]

[1]Ordu Üniversitesi, Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Ordu, Türkiye
[2]Kırşehir Ahi Evran Üniversitesi, Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Kırşehir, Türkiye

ORCID ID: E.Ş. 0000-0001-7798-0690, G.D.B. 0000-0003-2957-2451

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ABSTRACT

Objective: Birth history and obstetric characteristics of pregnant women are important factors which can determine the health of newborn babies. The aim of this study was to retrospectively examine the sociodemographic and obstetric characteristics of pregnant women and the health outcomes of newborns in deliveries performed in a hospital within a one year period.
Materials and Methods: This study is retrospective, descriptive and correlational . The target population consisted of pregnant women who were both followed up and delivered in a private hospital in a city center between 1st January and 31st December , 2022. Sample selection was not made in the study, which included 440 pregnant women who were followed up between the specified dates. The data were collected using the patient information form prepared by the researchers, patient files, and patient registration forms in the hospital. The data were then analyzed using a computer.
Results: The mean age was 29.47±4.64 years. All the pregnant women included in the study gave birth to live babies, and 53.9% of the babies were male. The mean birth weight was 3275.12±491.66 grams, and the mean height was 48.12±2.52 cm. The median Apgar score was 9 for the first minute of life. Age, pre-pregnancy weight, maternal weight at birth, reason for admission to hospital, delivery indications, number of abortions, number of multiple births and number of days in hospital were found to affect birth weight, height, head circumference and Apgar score in the first minute ($p<0.05$).
Conclusion: As the weight of the pregnant women increases, the weight, height and head circumference of the babies increase, and the Apgar score is lower in pregnant women with repeated cesarean section indications. It is recommended that women's health studies be planned both before and during pregnancy to improve neonatal growth and development indicators.

Keywords: newborn health, pregnancy, child health

ÖZ

Amaç: Gebelerin doğum öyküsü ve obstetrik özellikleri, yenidoğan sağlığını belirleyen önemli bir unsurdur. Bu araştırmanın amacı, bir hastanede son bir yıl içinde gerçekleştirilen doğumlarda gebelerin sosyodemografik ve obstetrik özellikleri ile yenidoğanların sağlık sonuçlarının retrospektif olarak incelenmesidir.
Gereç ve Yöntem: Araştırma, retrospektif tanımlayıcı ve ilişki arayıcı tiptedir. Araştırmanın evrenini, 01 Ocak-31 Aralık 2022 tarihleri arasında Ordu Özel Umut Hastanesi'nde hem izlemi hem de doğumu gerçekleşmiş gebeler oluşturmaktadır. Araştırmada örneklem seçimi yapılmamış olup belirtilen tarihler arasında takip edilmiş 440 gebe araştırmaya dahil edilmiştir. Araştırmanın verileri araştırmacılar tarafından hasta dosyalarından yararlanılarak hazırlanan hasta bilgi formu ile toplanmıştır. Veriler, hastanedeki hasta kayıt formları incelenerek toplanmıştır. Verilerin analizi bilgisayar ortamında analiz edilmiştir.
Bulgular: Araştırmaya katılan gebelerin yaş ortalaması 29.47±4.64'tür. Araştırmada gebelerin her biri birer tane bebek dünyaya getirmiş olup bebeklerin %53.9'u erkektir. Bebeklerin doğum ağırlığı ortalama 3275.12±491.66 gram, ortalama boy uzunluğu 48.12±2.52 cm'dir. Bebeklerin baş çevresi ortalaması 35.27±1.39 ve %99.1'inin 1. dakikada APGAR skoru 9'dur. Gebelerin yaşı, gebelik öncesi kilosu, doğumda kilosu, şikayeti, hikayesi, kürtaj sayısı, çoğul doğum sayısı ve hastanede yattığı gün sayısı ile doğum ağırlığı, boyu, baş çevresi ve APGAR skoru arasında istatistiksel olarak anlamlı fark vardır ($p<0.05$).
Sonuç: Araştırma sonuçlarına göre gebelerin kilosu arttıkça bebeklerin kilosu, boyu ve baş çevresi artmakta olup eski sezaryen olan gebelerde APGAR skoru daha düşüktür. Bu sonuçlar doğrultusunda; yenidoğan büyüme ve gelişme göstergelerini iyileştirmek için hem gebelik öncesi hem de gebelik sırasında kadın sağlığı çalışmalarının planlanması önerilir.

Anahtar Kelimeler: yenidoğan sağlığı, gebelik, çocuk sağlığı

Corresponding Author/Sorumlu Yazar: Ebru Şahin **E-mail:** ebrugabalci_@hotmail.com
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INTRODUCTION

Maternal health encompasses the well-being of women during pregnancy, labor, and after childbirth. Despite significant advances over the last two decades, maternal mortality still remains high, with 287,000 women developed pregnancy or childbirth complications in 2020. The primary causes of maternal mortality are hemorrhage, infection, high blood pressure, unsafe abortions, and deliveries. Maternal anemia, malaria infection, and heart disease also contribute indirectly to maternal mortality (1). The health status of women during pregnancy and after delivery, known as maternal health, significantly impacts neonatal health and overall outcomes. According to the World Health Organization, neonatal deaths account for nearly half of all under-five deaths, with one-third of newborns dying on the day of birth and almost three-fourths within the first week post-birth (2).

Maternal sociodemographic characteristics, diseases, and obstetric factors have a profound influence on neonatal health. Several studies conducted in different regions have revealed higher preeclampsia frequencies and lower Apgar scores in adolescent pregnant women compared to their adult counterparts (3). Additionally, younger pregnant women have shown higher rates of complications than their normal-aged counterparts in another study conducted in Düzce (4). A study in Hatay found that the risk of complications was higher in adolescent pregnancies due to anatomical and physiological immaturity (5). Moreover, adolescent pregnant women face risks of preterm delivery, intrauterine growth retardation, preeclampsia, anemia, fetal distress, low Apgar scores, and low birth weight, as reported in another study (6). A Central African study highlighted common poor perinatal outcomes, including fetal distress and the need for neonatal resuscitation, among adolescent pregnancies, with Apgar scores lower than 7 and frequent non-progressive deliveries (7). Additionally, maternal obesity has been emphasized as an important factor in increasing pregnancy complications and fetal-neonatal morbidity. Studies have shown that obese pregnant women experience gestational diabetes, hypertension, a higher frequency of cesarean sections due to cephalopelvic incompatibility or non-progressive labor, prolonged hospital stays, large babies, and an increased occurrence of maternal-fetal-neonatal adverse outcomes when compared to normal-weight pregnant women (8). In another study, preeclampsia emerged as one of the leading causes of maternal and perinatal morbidity and mortality, with approximately one in five pregnancies followed by eclampsia resulting in fetal loss, and a maternal mortality rate of 2.6% (9).

Health problems during or after delivery can stem from factors related to the mother or the baby. A retrospective hospital study found that the most common birth traumas included soft tissue damage, bone tissue damage, nerve tissue damage, intracranial hemorrhage, and intraabdominal organ damage. Maternal multiparity, diabetes, mode of delivery, gestational week, and birth weight were identified as factors related to birth trauma (10). Another study conducted in Bangladesh revealed the most common types of morbidity to be birth asphyxia, low birth weight, prematurity, and neonatal sepsis (11).

Evaluating the birth history, obstetric characteristics, and neonatal health outcomes of pregnant women plays a pivotal role in planning nursing interventions for women's health and designing public health studies for the protection and development of both maternal health during pregnancy and neonatal health. Accordingly, this study was designed to retrospectively examine the sociodemographic and obstetric profiles of pregnant women and the health outcomes of newborns from deliveries performed in a hospital during 2022 .

MATERIALS AND METHODS

Type of Research

The design of this study was retrospective, descriptive, and correlational in nature.

Study Population and Sample

The study's population comprised of pregnant women who received both follow-up care and delivery services at a private hospital in a city center from 1st January to 31st December 2022. The study did not involve sample selection, as all pregnant women (n=440) who underwent follow-up care within the specified timeframe were included in the research.

Data Collection Tools

The data for this study were gathered using a patient information form, meticulously prepared by the researchers, and by extracting relevant details from patient files. The questionnaire form included various aspects of sociodemographic characteristics pertaining to the pregnant women, including age, educational status, family type, employment status, spouse's occupation, and kinship status. Additionally, obstetric characteristics were probed, such as gravida, number of living children, number of miscarriages, abortions, stillbirths, and multiple births. Furthermore, essential information about the newborns was collected, including birth week, blood group, weight, height, head circumference, gender, and APGAR score.

Data Collection

The principal investigator undertook the data collection process by thoroughly examining patient record forms in the hospital's archive room. Several days a week, the investigator diligently reviewed patient files and completed a patient information form for each individual as part of the data collection procedure.

Data Evaluation

The data were analyzed using various statistical tests such as number, percentage, mean, median, and standard deviation, within a computerized environment. To assess statistical differences between variables, the study employed Mann-Whitney U, Wilcoxon t-test, Kruskal-Wallis, and Spearman correlation analysis, in addition to independent groups t-test, ANOVA analysis, Bonferroni correction, and Pearson correlation analysis. The adopted statistical significance level for the study was set at $p<0.05$.

Ethical Dimension

Before commencing the study, institutional permission was acquired from the hospital where the research took place, and ethical approval was obtained from Ordu University's ethics committee (Date: 28.04.2023, Number: 2023/122). As the analyzed data were extracted from patient records, and patient consent was obtained during hospitalization, no additional verbal or written consent was sought from the individuals included in the study sample.

FINDINGS

The study included pregnant women with a mean age of 29.47±4.64 years, and 53.9% of them were between 19-29 years old. Among the pregnant women, 34.1% had blood group 0 RH+. Additionally, 35.9% of the pregnant women held a bachelor's degree, while 33.4% were housewives. Notably, none of the pregnant women had a direct family relationship with their husbands, as indicated in Table 1.

Regarding pregnancy-related factors, the mean gravida was 1.82±0.97, and 44.6% of the pregnant women had been pregnant only once. Moreover, 58.2% of the pregnant women had no living children, 79.5% had never experienced a miscarriage, and 97% had never undergone an abortion. Furthermore, 1.8% of the pregnant women had a history of stillbirth, while 0.9% had a history of multiple births. The mean pre-pregnancy weight of the pregnant women was 66.5±14.1 kg, and 56.1% had a pre-pregnancy weight of between 37-65 kg. Concerning birth weight, the mean value for pregnant women was 81.0±14.1 kg, and 51.8% had a birth weight of between 51-79 kg. Regarding medical history, 14.5% of the pregnant women's mothers had type II diabetes mellitus, and 87% reported using medication during pregnancy. However, only 8.6% of the pregnant women reported smoking during pregnancy, with 78.9% of them smoking more than one cigarette daily. Notably, none of the pregnant women reported consuming alcohol. However, 98.4% reported consuming tea or coffee during pregnancy. The majority (99.5%) of pregnant women had received monthly examinations during pregnancy, and 83.4% had received two doses of the tetanus vaccine. The primary reason for hospital admission was pain for 93.9% of the pregnant women, and 33.7% underwent repeated caesarean section with the use of spinal anesthesia. The average duration of hospitalization was 1.15±0.40 days, and all pregnant women were discharged after receiving treatment, as indicated in Table 2.

In this study, each pregnant woman gave birth to one live baby, and 53.9% of the babies were male. The mean birth weight of the babies was 3275.12±491.66 grams, with 88.6% having a birth weight of between 2500-4000 grams. The mean height of

Table 1: Sociodemographic characteristics of pregnant women who participated in the study (n=440)

Characteristics	n	%
Age ($\bar{X}$±*ss*=29.47±4.64)		
Between 19-29	237	53.9
Between 30-44	203	46.1
Blood type		
A RH+	143	32.5
B RH+	62	14.1
O RH+	150	34.1
AB RH+	21	4.8
A RH-	30	6.8
B RH-	9	2.0
O RH-	19	4.3
AB RH-	6	1.4
Education level		
Primary school graduate	14	3.2
Secondary school graduate	39	8.9
High school graduate	155	35.2
Associate degree	68	15.5
Bachelor's degree	158	35.9
Graduate degree	6	1.4
Occupation		
Housewife	147	33.4
Worker	126	28.6
Civil servant	91	20.7
Shopkeeper	41	9.3
Unemployed	35	8.0
Kinship with spouse		
None	440	100.0

Table 2: Obstetric characteristics of pregnant women who participated in the study (n=440)

Characteristics	n	%
Gravida ($\bar{X}$±*ss*=1.82±0.97)		
1	196	44.6
2	158	35.9
3	63	14.3
4	16	3.6
5	3	0.7
6	3	0.7
7	1	0.2
Number of children alive ($\bar{X}$±*ss*=0.51±0.67)		
0	256	58.2
1	143	32.5
2	39	8.9
3	2	0.5
Number of miscarriages ($\bar{X}$±*ss*=0.26±0.61)		
0	350	79.5
1	72	16.4
2	13	3.0
3	4	0.9
6	1	0.2
Number of abortions ($\bar{X}$±*ss*=0.03±0.20)		
0	427	97.0
1	11	2.5
2	2	0.5
Number of stillbirths ($\bar{X}$±*ss*=0.01±0.13)		
0	432	98.2
1	8	1.8
Number of multiple births ($\bar{X}$±*ss*=0.009±0.09)		
0	436	99.1
1	4	0.9

Table 2: Continue

Characteristics	n	%
Pre-pregnancy weight ($\bar{X}\pm ss$=66.5±14.1)		
Between 37-65 kg	247	56.1
Between 66-121 kg	193	43.9
Weight at birth ($\bar{X}\pm ss$=81.0±14.1)		
Between 51-79 kg	228	51.8
Between 80-130 kg	212	48.2
Family history		
Maternal type II diabetes	64	14.5
No disease	376	85.5
Medications taken during pregnancy		
Yes	383	87.0
No.	57	13.0
Smoking during pregnancy		
Yes	38	8.6
No	402	91.4
Number of cigarettes smoked (n=38)		
One a day	5	13.1
More than once a day	30	78.9
One packet a day	3	8.0
Alcohol use during pregnancy		
Yes	0	0.0
No	440	100.0
Tea and coffee consumption during pregnancy		
Yes	433	98.4
No	7	1.6
Frequency of examination during pregnancy		
Once a week	2	0.5
Once a month	438	99.5
Administered tetanus vaccine dose		
1 dose	65	14.8
2 doses	367	83.4
3 doses	8	1.8
Reason for hospital admission		
Water breaking	27	6.1
Labor pain	413	93.9
Type of intervention		
C-section	440	100.0
Type of anaesthesia		
Spinal anaesthesia	440	100.0
Indication		
Head pelvis mismatch	126	28.6
Repeat caesarean section	148	33.7
Unspecified	166	37.7
Number of days in hospital ($\bar{X}\pm ss$=1.15±0.40)		
1	377	85.7
2	56	12.7
3	7	1.6
Result		
Discharged with treatment	440	100.0

the babies was 48.12±2.52 cm, and 40.9% of them measured 49-50 cm in length. Additionally, the mean head circumference of the babies was 35.27±1.39 cm, and 86.4% had a head circumference of 34-37 cm. The APGAR score of 99.1% of the babies in the first minute was 9, as presented in Table 3.

Table 3: Distribution of infant characteristics (n=440)

Characteristics	n	%
Sex		
Girl	203	46.1
Boy	237	53.9
Birth weight ($\bar{X}\pm ss$=3275.12±491.66)		
1400-2499 grams	22	5.0
2500-4000 grams	390	88.6
4001-4700 grams	28	6.4
Infant length ($\bar{X}\pm ss$=48.12±2.52)		
Between 38-48 cm	213	48.4
Between 49-50 cm	180	40.9
Between 51-53 cm	47	10.7
Infant head circumference ($\bar{X}\pm ss$=35.27±1.39)	253	57.5
33 cm and below	32	7.3
between 34-37 cm	380	86.4
between 38-40 cm	28	6.4
APGAR score in the first minute		
6	1	0.2
7	1	0.2
8	2	0.5
9	436	99.1

The study found a statistically significant difference between the age of the pregnant women and the head circumference of the babies ($p<0.05$). Babies born to pregnant women aged between 30-44 years had larger head circumferences. Additionally, there was a significant association between the pre-pregnancy weight of pregnant women and birth weight, height, and head circumference ($p<0.05$). Babies born to heavier pregnant women tended to have higher birth weights, and wider head circumferences, and they tended to be longer in length. Similarly, a significant relationship existed between birth weight, height, and head circumference ($p<0.05$). Babies with higher birth weights also had greater head circumference and were longer in length.

Moreover, the study found a statistically significant difference between the reason for hospital admission and birth weight, head circumference, and APGAR score in the first minute ($p<0.05$). Babies of pregnant women admitted due to labor pain had higher birth weights, larger head circumferences, and higher APGAR scores in the first minute compared to pregnant women whose water had broken. Additionally, a statistically significant difference was observed between the indication for pregnant women and birth weight, height, head circumference, and APGAR score at the first minute ($p<0.05$). Babies of pregnant women with head-pelvis incompatibility had higher birth weights and lengths and wider head circumferences, while those with repeated caesarean section indication had lower APGAR scores in the first minute compared to those without any indication or with head and pelvis discrepancy, as shown in

Table 4. Also, the study did not find any statistically significant difference between educational level, occupation, family history, drug use during pregnancy, smoking during pregnancy, number of cigarettes smoked, tea/coffee consumption during pregnancy, frequency of examination during pregnancy, tetanus vaccination dose administered, and newborn birth weight, length, head circumference, and APGAR score in the first minute (p>0.05).

The correlation analysis of the obstetric characteristics of pregnant women in relation to the characteristics of infants is presented in Table 5. The results reveal a statistically significant correlation between the number of abortions and birth weight, head circumference, and the APGAR score in the first minute (p<0.05). There is a very weak negative correlation between the number of abortions and birth weight and head circumference, along with a weak negative correlation with the APGAR score in the first minute. This suggests that as the number of abortions increases, there is a slight decrease in birth weight, head circumference, and the APGAR score in the first minute. Similarly, the study found a statistically significant relationship between the number of multiple births and birth weight, height, and head circumference (p<0.05). The correlations in this case are very weak and positive, indicating that as the number of multiple births among pregnant women increases, there is a slight increase in birth weight, height, and head circumference of the infants. Furthermore, there was a statistically significant relationship between the number of days that pregnant women were hospitalized and birth weight, height, and head circumference (p<0.05). The correlations are very weak and negative, suggesting that as the number of days of hospitalization increases, there is a slight decrease in birth weight, length, and head circumference of the infants.

DISCUSSION

This study retrospectively analyzed the sociodemographic and obstetric characteristics of pregnant women who gave birth in a hospital during the year 2022, along with the health outcomes of newborns.

Birth weight, which is the first weight measurement taken immediately after birth, is a crucial parameter for assessing

Table 4: The distribution of infant characteristics according to certain sociodemographic and obstetric characteristics of pregnant women (n=440)

Characteristics	Birth weight	Length	Head circumference	APGAR in the first minute
Age				
Between 19-29	t=-0.178	z=-0.571	z=-2.212	z=-0.153
Between 30-44*	p=0.859	p=0.568	**p=0.027**	p=0.878
Pre-pregnancy weight				
Between 37-65 kg	t=-4.946	z=-3.397	z=-5.168	z=-1.774
Between 66-121 kg*	**p=0.000**	**p=0.001**	**p=0.000**	p=0.076
Weight at birth				
Between 51-79 kg	t=-5.176	z=-2.318	z=-4.874	z=-0.929
Between 80-130 kg*	**p=0.000**	**p=0.020**	**p=0.000**	p=0.353
Reason for hospital admission				
Water breaking	t=-3.356	z=-1.866	z=-1.968	z=-5.754
Labor pain*	**p=0.001**	p=0.062	**p=0.049**	**p=0.000**
Indication				
Head pelvis mismatch[a]	F=26.814	KW=33.117	KW=32.487	KW=7.946
Repeat caesarean section[b]	**p=0.000**	**p=0.000**	**p=0.000**	**p=0.019**
Unspecified[c]	a>b,c	a>b,c	a>b,c	a,c>b

* The group from which the significance originates.
t: Independent groups t test, F=OneWay Anova, z=Mann Whitney U, KW=Kruskal Wallis

Table 5: Correlation analysis of obstetric characteristics of pregnant women and infant characteristics (n=440)

Characteristics	Birth weight	Length	Head circumference	APGAR in the first minute
Gravida	r=-0.042	ρ=-0.052	ρ=0.024	ρ=-0.089
Number of children alive	r=0.018	ρ=-0.035	ρ=0.106	ρ=-0.007
Number of miscarriages	r=-0.018	ρ=-0.003	ρ=-0.068	ρ=0.048
Number of abortions	r=-0.197*	ρ=-0.077	ρ=-0.116**	ρ=-0.273*
Number of stillbirths	r=0.031	ρ=0.034	ρ=0.019	ρ=0.013
Number of multiple births	r=0.140*	ρ=0.142*	ρ=0.099**	ρ=0.009
Number of days in hospital	r=-0.110**	ρ=-0.118**	ρ=-0.102**	ρ=-0.028

r: Pearson correlation analysis, ρ: Spearman correlation analysis, *p<0.01, **p<0.05

neonatal health. According to the World Health Organization, a birth weight of between 2500-4000 grams is considered normal for healthy newborns, while a birth weight below 2500 grams is classified as a low birth weight, and a birth weight above 4000 grams is categorized as a high birth weight (12). Existing literature highlights that both low and high birth weight can have significant implications for the neonatal health and future well-being of the infant (13,14). In this study, the majority of newborns fell within the normal birth weight range, but there were also cases of low and high birth weight. Notably, there was a statistically significant difference in birth weight relating to various factors, including the pre-pregnancy weight, weight at birth, reason for admission to the hospital, indication for birth, number of abortions, number of multiple births, and the duration of hospitalization ($p<0.05$). Newborns of pregnant women who were overweight before pregnancy and at birth, pregnant women admitted due to pain, pregnant women with head and pelvis incompatibility, those with multiple births, and women with fewer abortions and shorter hospitalization durations had higher birth weights. A retrospective study conducted in the United States of America revealed that low weight gain during pregnancy was associated with increased maternal and perinatal mortality rates, as well as unfavorable birth outcomes (15). The process of intrauterine growth and development is critical and vulnerable in the human life cycle, and birth weight serves as a reliable indicator of this process. It is an essential factor for assessing the newborn's potential for survival, growth, and long-term physical and psychosocial development (16). Another study in Poland found a significant relationship between neonatal birth weight and maternal body mass index before pregnancy and weight gain during pregnancy. It was reported that women who gained less weight during pregnancy had a higher likelihood of giving birth to a newborn with low birth weight compared to those who gained more weight (17).

The length of newborns is another critical parameter to consider for neonatal health, as it directly correlates with height throughout infancy and into adulthood (18). A normal length at birth is typically regarded as 49-50 centimeters (19). In our study, the mean length of the infants was measured to be 48.12±2.52 cm, with 40.9% of them falling within the range of 49-50 cm. Neonatal length can be influenced by various factors, including genetic, maternal nutrition, and environmental factors (18,20). In our study, we observed a statistically significant difference in length based on several factors, such as pre-pregnancy weight, weight at delivery, indication for birth, number of multiple births, and duration of hospitalization ($p<0.05$). Infants of pregnant women who had higher pre-pregnancy weight and birth weight, those with head and pelvis incompatibility, and those with a higher number of multiple births tended to be longer in length. Conversely, infants of women with more days of hospitalization were shorter. A retrospective study in Pakistan indicated that a higher mid-arm circumference of the mother, additional meal consumption during pregnancy, and a high hemoglobin level in the mother were predictors of infant length (21).

Neonatal head circumference measurement is another crucial parameter that warrants close monitoring for neonatal health, growth, and development. According to the International Centre for Disease Control, normal values for mean head circumference at birth typically fall within the range of approximately 34-37 cm (22). In our study, the mean head circumference of the infants was 35.27±1.39 cm, with 86.4% falling within the range of 34-37 cm. We identified a statistically significant difference in head circumference based on various factors, including maternal age, pre-pregnancy weight, weight at birth, indication for hospital admission, number of abortions, number of multiple births, and duration of hospitalization ($p<0.05$). Pregnant women between the ages of 30-44 years, those with higher pre-pregnancy and birth weights, those with complaints of pain, those with head and pelvis incompatibility, and those with a higher number of multiple births tended to have infants with larger head circumferences. Conversely, infants of women with a higher number of abortions and longer hospitalization durations had smaller head circumferences. Studies have shown that parental head circumference and birth weight can impact infant head circumference (23). Additionally, in a cohort study encompassing South Asian and African countries, factors affecting infant head circumference were identified as body weight, socioeconomic status, and maternal height (24). Our study aligns with the existing literature, emphasizing the significance of certain sociodemographic, obstetric characteristics, and genetic factors of the pregnant women in head circumference measurement.

Neonates can undergo a clinical evaluation using the Apgar score test immediately after birth, allowing for a quick and practical assessment of their physical status. This evaluation helps in determining the need for any additional medical or emergency care (25). In our study, 99.1% of the babies received an Apgar score of 9 in the first minute. However, we observed that the Apgar score was lower in pregnant women whose water had broken, those with indications for repeated caesarean section, and those with a history of more abortions ($p<0.05$). Consistent with previous research, advanced-age pregnant women and those with threatened miscarriage in the first trimester have been associated with lower Apgar scores (26,27). Other studies have identified factors such as gravidity, parity, haemoglobin level during pregnancy, prenatal haemorrhage, membrane status, delivery time, mode of delivery, type and indication of caesarean section to be linked with sudden low Apgar scores (28). In Ethiopia, fetal birth weight less than 2500 grams, time from skin incision to delivery, pregnancy-induced hypertension, antenatal haemorrhage, general anaesthesia, amniotic fluid with meconium, and emergency caesarean section were found to be associated with Apgar scores (29). Likewise, indications for cesarean section, type of anaesthesia, type of surgery, preterm delivery, preeclampsia, and anaemia were also found to be associated with low Apgar scores in another study (30). Our study aligns with the existing literature, as we also found that a higher Apgar score is expected in cases of healthy pregnancies and non-risk labors.

CONCLUSION AND RECOMMENDATIONS

Based on an analysis of patient files, the study revealed that the average age of pregnant women was below 30 years. The newborns had a mean birth weight exceeding 3000 grams, an average length of approximately 50 cm, and a head circumference of around 35 cm. Furthermore, the APGAR score in the first minute was high. Various factors related to pregnant women, such as their weight before pregnancy and at birth, reason for hospital admission, indications for birth, history of previous miscarriage, number of abortions, number of multiple births, and duration of hospitalization, had a notable impact on the growth and development of newborns. Notably, an increase in the weight of pregnant women correlated with higher birth weight, length , and head circumference of the babies. Additionally, pregnant women with indications for repeated caesarean sections tended to have lower APGAR scores in the first minute. Based on these study findings, it is advisable to plan women's health activities both before and during pregnancy in order to enhance neonatal growth and development indicators.

Ethics Committee Approval: This study was approved by the ethics committee of the Ordu University's ethics committee (Date: 28.04.2023, Number: 2023/122).

Informed Consent: Informed consent was not obtained as it was a retrospective study.

Peer Review: Externally peer-reviewed.

Author Contributions: Conception/Design of Study- E.Ş.; Data Acquisition- E.Ş.; Data Analysis/Interpretation- G.D.B.; Drafting Manuscript- E.Ş., G.D.B.; Critical Revision of Manuscript- E.Ş., G.D.B.; Final Approval and Accountability- E.Ş., G.D.B.

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