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Clinical characteristics and factors associated with hospitalization in gynecology and obstetrics consultations in a tertiary emergency department

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ABSTRACT

Aims: Gynecology and obstetrics (GYN/OB) related presentations constitute a significant portion of the emergency department (ED) workload. This study aimed to determine the presentation characteristics, diagnosis distribution, and factors associated with hospitalization in cases requiring GYN/OB consultation in the ED of a university hospital.

Methods: In this single-center, retrospective, descriptive study, cases evaluated in the ED between January 1, 2020, and October 30, 2025, for which a GYN/OB consultation was requested were examined. Only the first record was used for repeated visits by the same patient. Data were obtained from the hospital information management system (HIMS); outcomes were coded as discharge=0, admission=1. Variables associated with admission were evaluated using a multivariate logistic regression model.

Results: A total of 6037 cases were analyzed [median age 28 (24-34)]. 95.5% of visits were outpatient, 4.5% were via emergency medical services (EMS); 50.9% of cases presented during the evening shift. Annual visits increased from 2020 to 2023 and decreased from 2024 to 2025. Fifty-eight-point eight percent of cases resulted in admission; of these admissions, 50% were to the delivery room, 27% to the ward, and 23% were surgical admissions. The most common diagnosis was labor pain (45.3%), followed by abnormal uterine bleeding (9.1%) and abdominal pain (8%). There was a significant association between diagnosis and admission ($p<0.001$). In multivariate analysis, obstetric class (aOR=1.84; 95% CI 1.63-2.08) and presentation via EMS (aOR=1.43; 95% CI 1.11-1.85) were independently associated with admission.

Conclusion: Most presentations requiring GYN/OB consultation are obstetric in nature, with labor being the most common reason for presentation. Obstetric clinical class and presentation via EMS were associated with higher likelihood of hospital admission, suggesting potential predictors of hospitalization in this population; however, the overall predictive performance of the model was limited. The findings are important for rationalizing obstetric workflow in EDs and supporting human resource planning with local data.

Keywords: Emergency department, gynecology and obstetrics, consultation, hospitalization, predictors of admission, obstetric emergencies, health service utilization

INTRODUCTION

Emergency departments (EDs) are a critical component of the healthcare system in the diagnosis and management of gynecology and obstetrics (GYN/OB) emergencies. Pregnancy-related problems in women of reproductive age constitute a significant proportion of emergency visits; the fact that pregnancy-related complications are among the common reasons for visits in women aged 15-64 years highlights this burden.[1] A large-scale study conducted in Ontario reported that approximately 40% of women visited the ED at least once during pregnancy or within 42 days postpartum, with visits concentrated in the first trimester and threatened early pregnancy loss being the most common reason for presentation.[2]

The literature indicades that a considerable proportion of obstetric emergency visits consist of conditions that can be managed in outpatient settings, whereas the proportion of cases requiring true emergency intervention is relatively lower.[3,4] OB/GYN emergencies encompass a broad clinical spectrum, including preeclampsia/eclampsia, ectopic pregnancy, threatened preterm labor, and postpartum hemorrhage in obstetrics; as well as ovarian torsion, acute pelvic inflammatory disease, and severe abnormal uterine bleeding in gynecology.[3] These presentations most commonly involve abdominal or groin pain and vaginal bleeding.[3,6] A long-term population study reported that the most common diagnosis in pregnant women was threatened miscarriage

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7-8%;[7] while data from Turkiye, indicate that groin pain and abnormal uterine bleeding are among the leading causes of gynecological consultation, with ectopic pregnancy frequently requiring emergency surgical intervention.[8] Although emergency medical services (EMS) admissions are less common, regional usage rates vary widely and are associated with more severe presentations.[9,10]

Admission rates are important indicators of service effectiveness. In obstetrics, conditions such as ectopic pregnancy and severe bleeding, and in gynecology, ovarian torsion and ruptured cysts, may necessitate hospitalization and/or emergency surgical intervention.[5,8] Higher admission rates have been reported in pregnant patients.[3] In addition, although overall ED visits decreased during the pandemic, a relative increase in admission rates for more severe conditions has been reported.[11,12] In Turkiye, while large-scale, long-term, single-center data remain limited, existing studies suggest similar trends and indicate that some ED visits may be related to follow-up or limited access to prenatal care services.[3,13]

Despite the high volume of GYN/OB related ED presentations, there is limited long-term, large-sample data evaluating consultation characteristics and factors associated with hospitalization in Turkiye. Therefore, this study aimed to determine the clinical characteristics, diagnosis distribution, and factors associated with hospitalization among patients requiring GYN/OB consultation in a tertiary emergency department, in order to provide a basis for optimizing consultation workflows and resource planning using local data.

METHODS

Ethical Approval

The study was initiated with the approval of the Balıkesir University Faculty of Medicine Dean's Office Health Researches Ethics Committee (Date: 02.12.2025, Decision No: 2025/8-11). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki. Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Study Design

This study is a single-center, retrospective, observational, and descriptive study conducted in the ED of a university hospital. GYN/OB emergency evaluation is not conducted through a separate unit within the ED; rather, it is performed by requesting a GYN/OB consultation in the ED and having the patient evaluated by a GYN/OB physician. GYN/OB consultations are available 24 hours a day.

The study was designed and reported in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines.

Study Period, Population, and Sample

Data covered the period from January 1, 2020, to October 30, 2025. The study population consists of all cases evaluated in the ED during this period for which a GYN/OB consultation was requested.

Inclusion and Exclusion Criteria

The inclusion criterion for the study was that a GYN/OB consultation was requested at the time of presentation to the ED; no additional clinical or demographic inclusion criteria were applied. Repeat visits were defined as records matched with the same patient ID (HIMS patient ID); only the first visit was used in the analysis. Records with missing data for key variables (age, mode of presentation, shift, clinical class, and primary diagnosis) or outcome were excluded from the study. Only records with complete data for predefined variables were included in the final analysis. Due to the retrospective nature of the database, the exact number and classification of excluded records (e.g., repeated visits versus missing data) could not be fully determined; therefore, a detailed flowchart of case selection was not constructed.

Data Source and Variable Definitions

All data were retrospectively obtained from the hospital information management system (HIMS) records. The primary diagnosis was recorded using ICD-10 codes, reflecting the final discharge diagnosis in the HIMS. Diagnoses were reported by frequency; the top 10 most common diagnoses were also presented, with the remaining diagnoses grouped under the heading other.

Emergency discharge outcomes are recorded in the HIMS as discharge, admission, and treatment refusal. For analytical comparisons and logistic regression analyses, the outcome was treated as binary and recoded as discharge=0 and admission=1. The admission outcome includes the subcategories of delivery room, ward, and surgical admissions. Surgical admission refers to cases admitted directly to the operating room following an ED evaluation with an indication for surgical/operative intervention (obstetric or gynecological surgical interventions). Treatment-refusal cases were included in the discharge group for binary outcome analyses. Limitations of this approach that could affect the results are noted in the limitations section.

Only variables consistently available in the HIMS database (age, mode of presentation, shift, clinical class, primary diagnosis, and outcome) were included in the analysis. Detailed diagnostic methods, delivery subtype (e.g., vaginal delivery or cesarean section), maternal and neonatal outcomes, and procedure-specific surgical details were not consistently available in structured form in the database and were therefore not included in the analysis.

Statistical Analysis

Data analyses were performed using IBM SPSS Statistics. Categorical variables were reported as counts and percentages, while continuous variables were reported as median [IQR] or appropriate summary statistics according to their distribution characteristics.

For comparisons between the discharged and admitted groups, the pearson Chi-square test (Fisher's exact test when appropriate) was used for categorical variables, and the Mann-Whitney U or student T test was used for continuous variables, depending on the distributional assumptions. Normal distribution was assessed using the Shapiro-Wilk test and graphical methods. Effect size/strength of association was

reported as odds ratio (OR) and 95% confidence interval in appropriate analyses.

The relationship between diagnosis and hospitalization status was assessed using the Chi-square test; the magnitude of the relationship was reported using Cramér's V. To show which cells in the diagnosis-outcome table contributed to the total relationship, adjusted residual values were examined, and cells with |adjusted residual >2 were interpreted as "higher/lower than expected."

A binary logistic regression model was established to evaluate the association between the independent variables and admission. The model was established with complete-case data. Variables predicted to be clinically and operationally associated with admission (age, mode of presentation, shift, and clinical class) were included in the multivariate model. Age was included in the model as a continuous variable. Results were presented as the B coefficient, adjusted OR [Exp(B)], 95% confidence interval, and p-value; reference categories were specified for categorical variables. The overall significance of the model was assessed using the Omnibus test, and its fit was evaluated using the Hosmer-Lemeshow test. Explanatory power was reported using Nagelkerke R^2, and discriminatory power was reported using the area under the ROC curve (AUC). The level of statistical significance was set at $p<0.05$.

RESULTS

A total of 6037 cases were analyzed. The age distribution of the cases, the age range was 18-92 years, with the majority in the 25-29 age group (29%), followed by the 20-24 (22.8%) and 30-34 (20.4%) age groups. The vast majority of cases were citizens of the Republic of Turkiye (n=5978, 99.0%); immigrant cases accounted for n=59 (1.0%). Of the applications, n=5764 (95.5%) were made in person, while n=273 (4.5%) were made via EMS (Table 1).

Table 1. Baseline demographic and presentation characteristics of patients requiring OB/GYN consultation in the emergency department

Variables		n	%
Age	<20	307	5.1
	20-24	1378	22.8
	25-29	1751	29.0
	30-34	1229	20.4
	35-39	720	11.9
	40	652	10.8
Nationality	Republic of Turkiye	5978	99.0
	Immigrant	59	1.0
Mode of arrival	Outpatient	5764	95.5
	EMS	273	4.5
Total		6037	100

OB/GYN: Obstetrics and gynecology, EMS: Emergency medical services

Figure shows that the total number of applications increased over the years between 2020 and 2023, reaching its highest level in 2023. Figure also shows changes in admissions and discharges over the years, with 2025 data covering the first ten months of the year.

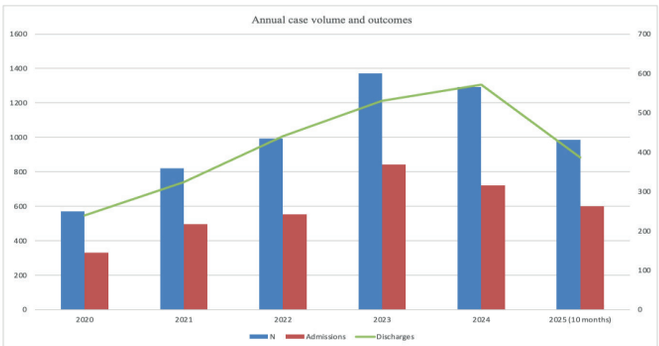

Figure. Distribution of total cases and outcomes by year

Table 2 presents a comparative analysis according to discharge and admission groups. No significant differences were found between the groups in terms of age (p=0.234), age group distribution (p=0.244), nationality (p=1.000), and shift (p=0.941). In terms of presentation, EMS calls were marginally associated with admission (crude OR=1.29; 95% CI 1.00-1.66; p=0.050). The admission rate was higher in obstetric cases than in gynecological cases (62.1% vs, 47.9%; crude OR=1.78; 95% CI 1.59-1.99).

Table 3 presents the multivariate logistic regression analysis; the obstetric group was independently associated with admission (adjusted OR=1.84; 95% CI 1.63-2.08; p<0.001). Presenting with EMS increased the likelihood of admission (adjusted OR=1.431; 95% CI 1.107-1.850; p=0.006). The effect of age was not statistically significant (B=0.005; adjusted OR=1.005; 95% CI 0.999-1.010; p=0.107). The overall effect for the shift variable was not significant (df=2; p=0.940); when daytime was used as a reference, evening (B=0.022; adjusted OR=1.022; 95% CI 0.879-1.188; p=0.777) and night shift (B=0.024; adjusted OR=1.024; 95% CI 0.894-1.173; p=0.733) did not show a significant difference in the probability of hospitalization. The model was generally significant (Omnibus test p<0.001), the Hosmer-Lemeshow test showed no significant misfit (p=0.336); the model's explanatory power was low (Nagelkerke R^2=0.022) and its discriminatory power was limited (AUC=0.567; 95% CI 0.552-0.582).

Table 4 shows that the most common primary diagnosis was labor pains (n=2734, 45.3%). This was followed by abnormal uterine bleeding (n=551, 9.1%) and abdominal pain (n=483, 8.0%). The top 10 most common diagnoses accounted for 82.1% of the cases, while the remaining diagnoses were grouped under the heading other (n=1085, 17.9%). Admission rates varied according to diagnosis, and the overall admission rate was 58.8% (n=3547/6037). Among the top 10 diagnoses, the highest admission rate was seen in cases of threatened miscarriage (n=81/113, 71.7%). Admission rates were 64.8% for abnormal uterine bleeding (n=357/551), 64.2% for ectopic pregnancy (n=86/134), and 63.8% for pelvic pain (n=104/163), while it was lower in urinary tract infection cases (n=127/238, 53.4%). The admission rate in the "other diagnoses" group was found to be 57.1% (n=620/1085). The distribution of visits throughout the day showed a marked concentration in the evening shift (n=3073, 50.9%); this was followed by the day shift (n=1753, 29.0%) and night shift (n=1211, 20.1%). A statistically significant but weak association was found between diagnosis and admission status (Pearson $\chi^2(30)=66.559$, p<0.001;

Table 2. Demographic and clinical characteristics of cases according to discharge and admission status

Variable	All cases (n=6037) n (%)	Discharged (n=2490) n (%)	Admission (n=3547) n (%)	p	Crude OR (95% CI)
Age [median (IQR)]	28 (24-34)	28 (24-34)	28 (24-34)	0.234	
Age groups				0.244	
<20	307 (5.1)	131 (5.3)	176 (5.0)		
20-24	1378 (22.8)	595 (23.9)	783 (22.1)		
25-29	1751 (29.0)	706 (28.4)	1045 (29.5)		
30-34	1229 (20.4)	477 (19.2)	752 (21.2)		
35-39	720 (11.9)	304 (12.2)	416 (11.7)		
≥40	652 (10.8)	277 (11.1)	375 (10.6)		
Nationality				1.000	
Republic of Turkiye	5978 (99.0)	2466 (99.0)	3512 (99.0)		
Migrant	59 (1.0)	24 (1.0)	35 (1.0)		
Mode of arrival				0.050	
Outpatient	5764 (95.5)	2393 (95.1)	3371 (95.0)		Reference
EMS	273 (4.5)	97 (3.9)	176 (5.0)		1.29 (1.00-1.66)
Shift				0.941	
Day (08:00-15:59)	1753 (29.0)	728 (29.2)	1025 (28.9)		
Evening (16:00-23:59)	3073 (50.9)	1261 (50.6)	1812 (51.1)		
Night (00:00-07:59)	1211 (20.1)	501 (20.1)	710 (20.0)		
Clinical class				<0.001	
Gynecological	1416 (23.5)	738 (29.6)	678 (19.1)		Reference
Obstetric	4.621 (76.5)	1.752 (70.4)	2.869 (80.9.		1.78 (1.59-1.99)

OR: Odds ratio, CI: Confidence interval, IQR: Interquartile range, EMS: Emergency medical services
Data are presented as n (%) or median [IQR]. The age variable was compared between the two groups using the Mann-Whitney U test, and categorical variables were compared using the Pearson χ^2 test; p<0.05 was considered significant

Table 3. Multivariate logistic regression analysis of factors associated with hospital admission

Variable	B	Adjusted OR	95% CI	p
Age	0.005	1.01	0.99-1.01	0.107
Mode of arrival				
Outpatient	-	Reference	-	-
EMS	0.358	1.43	1.11-1.85	0.006
Shift				
Day (08:00-15:59)	-	Reference	-	-
Evening (16:00-23:59)	0.022	1.02	0.88-1.19	0.777
Night (00:00-07:59)	0.024	1.02	0.89-1.17	0.733
Clinical class				
Gynecological	-	Reference	-	-
Obstetric	0.610	1.84	1.63-2.08	<0.001

OR: Odds ratio, CI: Confidence interval, EMS: Emergency medical services

Table 4. Most common primary diagnoses and admission rates (n=6037)

Diagnosis (top 10)	n (%)	Admission n (%)	p (overall)
Labor pains	2734 (45.3)	1589 (58.1)	
Abnormal uterine bleeding	551 (9.1)	357 (64.8)	
Abdominal pain	483 (8.0)	274 (56.7)	
Urinary tract infection	238 (3.9)	127 (53.4)	
Ovarian pathology	225 (3.7)	130 (57.8)	
Abortion	165 (2.7)	97 (58.8)	<0.001
Pelvic pain	163 (2.7)	104 (63.8)	
Hyperemesis gravidarum	146 (2.4)	82 (56.2)	
Ectopic pregnancy	134 (2.2)	86 (64.2)	
Threatened miscarriage	113 (1.9)	81 (71.7)	
Other diagnoses	1085 (17.9)	620 (57.1)	
Total	6037 (100)	3547 (58.8)	-

Data are presented as n (%). "Admission" includes admissions to the ward, delivery room, or operating room. The p-value refers to the evaluation of the relationship between diagnosis and hospital admission using Pearson's chi-square test ($\chi^2(30)=66.559$, p<0.001; Cramér's V=0.105)

Cramér's V=0.105). Cell-based analysis showed that the number of admissions was higher than expected in cases of abnormal uterine bleeding and threatened miscarriage (adjusted residual >2).

Table 5 shows that 58.8% of cases resulted in admission (n=3547). In the distribution of admission locations, the highest admission rate was observed in the delivery room at 50%.

Table 5. Distribution of hospital admission locations among admitted patients

Admission location	n	%
Ward	957	27.0
Delivery room	1773	50.0
Operating room	817	23.0
Total	3547	100.0

DISCUSSION

This study provides comprehensive, long-term data on emergency department visits requiring GYN/OB consultation and identifies key factors associated with hospital admission. It has been reported that visits to obstetric EDs have remained high in recent years and may show an increasing trend in some healthcare systems.[3,14] Multicenter cohort studies have reported that approximately 25-50% of pregnant women visit the ED at least once during their pregnancy.[15,16] Our study, which evaluated 6,037 cases between 2020 and 2025, showed that the use of obstetric emergency services is common at our center; obstetric cases constituted the majority of visits. The most common reason for presentation being "labor pains" is consistent with data indicating that a significant proportion of emergency presentations in the late stages of pregnancy are related to labor. This finding suggests that a substantial proportion of ED utilization in late pregnancy may be driven by physiological labor processes rather than pathological conditions, which may also contribute to the high admission rates observed.

Previous studies have shown that threatened miscarriage and other early pregnancy complications play a significant role in early pregnancy.[3,16] Although threatened miscarriage ranked relatively low among the top 10 diagnoses in our study, the high hospitalization rate among those presenting with this diagnosis is noteworthy. This discrepancy may indicate a more cautious clinical approach in the management of early pregnancy complications in our center. The literature reports that a significant proportion of threatened miscarriage cases can be managed with outpatient follow-up;[15,17] this difference should be considered as possibly related to the application of a more cautious admission threshold and/or local care processes in cases presenting with early pregnancy bleeding at our center.

In our gynecological ED, the most common diagnoses were abnormal uterine bleeding, pelvic pain, and pathologies related to ovarian cysts. This distribution is consistent with data reporting that a significant proportion of gynecological emergencies present with vaginal bleeding and lower abdominal pain[8] These findings support the notion that symptom-driven presentations, particularly pain and bleeding, remain the primary triggers for ED utilization in gynecological cases. In this context, it can be said that the profile of obstetric emergency presentations changes depending on the gestational age and clinical condition; conditions such as active labor, threatened miscarriage, ectopic pregnancy, abnormal uterine bleeding, and pelvic pain account for a significant proportion of presentations. Although a statistically significant association was observed between diagnosis and hospital admission, the strength of this relationship was weak, suggesting that diagnosis alone may not be a strong determinant of admission decisions and that other clinical and system-level factors likely play a more prominent role.

Although there was a decrease in obstetric emergency visits during the pandemic, it has been reported that the limited number of pregnant patients who visited the ED may have presented with more serious conditions.[18] Our data also show a temporary decline in 2020, followed by an increase in the subsequent period. This finding indicates that GYN/OB emergency demand may fluctuate during seasonal factors and crises such as pandemics but, the need for care persists in the long term. Therefore, it is important that ED planning be flexible during potential crisis periods and that the sustainability of critical obstetric care be maintained.

The fact that the vast majority of visits were outpatient is consistent with the literature.[16,19] In our study, the vast majority of cases presented as outpatients, with only a small proportion arriving via EMS; this distribution is similar to data reported from different regions.[10] It has been reported that patients arriving by ambulance are more likely to have more severe clinical presentations.[10,20] In our study, the increased likelihood of hospitalization associated with EMS use in the multivariate analysis is consistent with this general trend. This relationship may be explained by the fact that ambulance use is mostly triggered in situations requiring more urgent evaluation. However, it has been reported that appropriate and timely transfer in obstetric emergencies may be effective in reducing maternal mortality rates.[21] This may be explained by the low explanatory and discriminative performance of the model, suggesting that additional clinical and system-level variables may be required to better predict hospital admission in this patient population.

The time of presentation may influence patient management; some studies have reported higher observation/admission rates for nighttime presentations.[8] Although our study showed a marked concentration of presentations in the evening hours, no significant relationship was found between shift and admission. This finding suggests that admission decisions in our center are driven more by clinical factors than by temporal variations. The 24-hour continuity of the GYN/OB consultation structure (and access to the delivery room/operating room) may have reduced the shift effect.

It has been reported that the organization of obstetric emergency care may vary between institutions and that this may be reflected in referral patterns.[22] A multicenter study conducted in the US reported that the rate of antepartum emergency referrals may be lower in centers with a separate obstetric triage unit and higher in centers providing traditional ED-based care.[14] Although our center does not have a separate obstetric triage unit, a rapid assessment flow is effectively provided due to the 24/7 consultation-based operation. In our study, the fact that approximately half of the admitted patients were managed in the delivery room and that a significant proportion of cases presenting with labor pains were admitted for delivery is the main factor increasing the overall admission rate. This finding should be interpreted in the context of the organizational structure of our center. In the absence of a dedicated obstetric triage or assessment unit, patients presenting with normal labor are also evaluated within the emergency department and included in the consultation process. Indeed, the literature reports lower admission rates in obstetric emergency presentations overall, with studies showing limited admission rates in early pregnancy complications.[16,23] Therefore, the relatively high admission rate in our study should be interpreted

considering methodological/organizational differences, such as the inclusion of active labor cases in emergency presentations. This distinction is critical, as the inclusion of physiological labor cases may result in an overestimation of both emergency department burden and hospital admission rates. Furthermore, diagnosis-specific admission rates may be related not only to medical necessity but also to institutional approaches and system factors; management differences between centers may exist even within the same healthcare system.[14] Consequently, the generalizability of these findings may be limited in settings where separate obstetric triage systems are in place.

The high number of deferrable visits to EDs is considered a significant problem in terms of efficient use of resources.[24] Increased anxiety levels and changes in symptom perception during pregnancy may increase the tendency to seek care for non-urgent complaints.[7,15] The literature indicates that a significant proportion of emergency visits by pregnant women could be managed in outpatient settings,[15] and this situation may have negative effects on service outcomes such as ED crowding and waiting times.[24] Although this possibility cannot be directly measured due to the study design, our findings suggest that the distribution of diagnoses and admission patterns may highlight, on the one hand, the burden of cases requiring active delivery and emergency surgery and, on the other hand, areas for improvement in strengthening alternative care pathways (e.g., outpatient/follow-up channels) in a specific patient subgroup.

Limitations

This study is single-center and retrospective in design; since the data are based on final discharge diagnoses using the HIMS/ICD-10 system, differences in diagnosis coding and the possibility of misclassification cannot be completely ruled out. As the study population is limited to patients "requiring a GYN/OB consultation," selection bias related to the decision to request a consultation may be present. Variables such as clinical severity, triage level, maternal-fetal outcomes, and readmission are limited in routine records, so "urgency" and "appropriate referral" assessments could not be made directly. Furthermore, including only the first visit in the analysis for readmissions may underestimate the burden of conditions with a tendency to recur, such as early pregnancy bleeding. Including treatment refusal cases in the discharge group in binary outcome analyses may theoretically lead to limited bias in the outcome classification; however, as the number of these cases is low (n=21), its effect on the results is expected to be limited. In addition, due to limitations in the retrospective database structure, the exact classification of excluded records (e.g., repeated visits or missing data) could not be determined, which may limit the transparency of the patient selection process. Finally, the partial period data for 2025 may limit the interpretation of inter-year comparisons.

CONCLUSION

This single-center analysis demonstrates that emergency presentations requiring GYN/OB consultation have a high volume; obstetric cases are predominant, and labor and early pregnancy bleeding patterns are prominent in presentations. Presentation via EMS was associated with an increased likelihood of hospital admission, whereas shift timing did not significantly influence admission decisions, suggesting that clinical factors may play a more central role than temporal factors in patient management. These findings highlight that high admission rates in such settings may be largely driven by physiological processes such as active labor rather than solely by pathological conditions. From a practical perspective, incorporating structured triage systems, optimizing EMS referral pathways, and separating the management of active labor from other GYN/OB emergencies may help inform emergency department workflow planning and resource allocation

ETHICAL DECLARATIONS

Ethics Committee Approval

This study was approved by the Balıkesir University Faculty of Medicine Dean's Office Health Researches Ethics Committee (Date: 02.12.2025, Decision No: 2025/8-11).

Informed Consent

As this was a retrospective study, formal written informed consent was not required and was therefore not obtained.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

Financial Disclosure

The authors received no financial support for the conduct or publication of this research.

Author Contributions

Concept: GT; Design: GT, EE; Control: GT; Resources: GT, SK, EE; Materials: GT, SK, EE; Data Collection and/or Processing: GT, SK, EE; Analysis and/or Interpretation: GT, EE; Literature Review: GT, SK, EE; Writing the Article: GT, EE; Critical Review: GT.

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