

The Prevalence of labial adhesion in girls aged 6–72 months: A Cross-sectional study from a community Pediatric Clinic

Kız çocuklarında 6–72 ay arasında labial adezyon prevalansı: Bir Pediatri Kliniğinden kesitsel çalışma

 M. Buğra Han Acar¹

 Barlas Efe Yılmaz²
 Özden Gökdemir⁴

 Sariye Elif Özyazıcı Özkan³

¹ IUE Faculty of Medicine, Department of Family Medicine, Assistant Prof. Dr., Balçova, İzmir / {ORCID:0000-0002-5193-6533 }

² İzmir University of Economics, Faculty of Medicine, Dr., Balçova, İzmir. {ORCID:0009-0006-0253-2002}

³ Ankara Etlik City Hospital, Department of Neonatology, Ped. Spec. Dr., Ankara / {ORCID:0000-0002-3801-522X}

⁴ IUE Faculty of Medicine, Department of Family Medicine, Assoc. Prof., Balçova, İzmir / {ORCID:0000-0002-0542-5767}

Corresponding author:

Dr. Özden Gökdemir

E-mail: gokdemirozden@gmail.com

Receiving Date: 16/08/2025

Accept Date: 15/03/2026

Publication date: 29/06/2026

Ethics approval: The study protocol was approved by the Non-Interventional Clinical Research Ethics Committee of İzmir University of Economics Faculty of Medicine (Approval No: E-97429853-050.04-2023-1123).

Citation code: Acar MBH, Özkan SEÖ, Gökdemir Ö. The Prevalence of labial adhesion in girls aged 6–72 months: A Cross-sectional study from a Community Pediatric Clinic. Jour Turk Fam Phy 2026; 17(2): 76-83 doi: 10.15511/tjtfp.26.00276

This article is published online with Open Access and distributed under the terms of the Creative Commons Attribution NonCommercial License 4.0 (CC BY-NC 4.0).

Özet

Amaç: Rutin pediatrik izlem ziyaretlerine katılan 6–72 ay arasındaki kız çocuklarında labial adezyon prevalansını belirlemek ve ilişkili klinik özellikleri tanımlamaktır.

Yöntem: Bu çalışma, 2021–2024 yılları arasında İzmir’in Güzelbahçe ilçesindeki özel bir pediatri kliniğinde izlenen 6–72 ay arasındaki 500 kız çocuğunu kapsayan retrospektif bir araştırmadır. Hastaların yaşı, labial adezyon varlığı ve tipi, atopik cilt hastalığı, pişik (diaper dermatiti), idrar yolu enfeksiyonu (İYE) öyküsü, tuvalet eğitimi durumu, aile öyküsü, yaşanan yer ve anne eğitim düzeyi retrospektif olarak incelenmiştir. Değişkenler, ortalamanın standart sapma eklenip çıkarılması yoluyla ayarlanması esasına göre ele alınmıştır. Grup karşılaştırmaları kategorik değişkenler için Welch t-testi, Pearson ki-kare testi veya Fisher’in kesin testi kullanılarak yapılmıştır.

Bulgular: 500 kız çocuğunun 22’sinde labial adezyon saptanmış olup prevalans %4,4 olarak bulunmuştur. On dokuz olguda (%3,8) parsiyel adezyon, üç olguda (%0,6) ise tam adezyon mevcuttu. Adezyon grubunda ortalama yaş $36,7 \pm 15,2$ ay iken, adezyon olmayan grupta $38,7 \pm 16,5$ aydı ($p = 0,554$). Atopik cilt hastalığı, pişik, İYE öyküsü ve tuvalet eğitimi durumu açısından gruplar arasında anlamlı fark saptanmamıştır (tüm $p > 0,05$). Labial adezyonu olan kız çocuklarının %54,5’inin hâlâ bez kullandığı, %81,8’inin kentsel bölgede yaşadığı ve %63,7’sinin annelerinin lise eğitim düzeyine sahip olduğu görülmüştür.

Sonuç: Bu kohortta rutin pediatrik izleme katılan kız çocuklarının %4,4’ünde labial adezyon tespit edilmiştir. Olguların çoğunluğu parsiyeldir ve semptomlardan ziyade rutin muayene sırasında fark edilmiştir. Bu bulgular, sağlam çocuk izlemlerinde genital muayenenin özenle yapılması gerektiğini desteklemekte olup, hangi klinik faktörlerin labial adezyonla bağımsız ilişkili olduğunu netleştirmek için daha büyük çaplı çok merkezli çalışmalara ihtiyaç olduğunu düşündürmektedir.

Anahtar Kelimeler: Labial adezyon, labial sineşi, prepubertal kız çocukları, prevalans, genital muayene, sağlam çocuk izlemi

Summary

Objective: To determine the prevalence of labial adhesion in girls aged 6–72 months who attended routine pediatric follow-up visits and to describe associated clinical features.

Methods: This is a retrospective study which included 500 girls aged 6–72 months who were followed at a private pediatric clinic in Güzelbahçe, İzmir, between 2021 and 2024. Retrospective review was done for age, presence and type of labial adhesion, atopic skin disease, diaper dermatitis, urinary tract infection (UTI) history, toilet training status, family history, place of residence, and maternal education. Variables were accounted by adjusting the mean by adding or subtracting the standard deviation. Group comparisons were performed using Welch’s t test, Pearson’s chi-square test, or Fisher’s exact test for categorical variables..

Results: Labial adhesion was identified in 22 of 500 girls, giving a prevalence of 4.4%. Nineteen cases (3.8%) were partial adhesions and three (0.6%) were complete adhesions. The mean age was 36.7 ± 15.2 months in the adhesion group and 38.7 ± 16.5 months in the non-adhesion group ($p = 0.554$). Histories of atopic skin disease, diaper dermatitis, UTI, and toilet training status did not differ significantly between groups (all $p > 0.05$). Among girls with labial adhesion, 54.5% were still using diapers, 81.8% lived in urban areas, and 63.7% had mothers with high school educational levels.

Conclusion: Labial adhesion was detected in 4.4% of girls attending routine pediatric visits in this cohort. Most cases were partial and were recognized during routine examination rather than because of symptoms. These findings support careful genital examination during well-child visits and suggest that larger multicenter studies are needed to clarify which clinical factors are independently associated with labial adhesion.

Keywords: labial adhesion, labial synechiae, prepubertal girls, prevalence, genital examination, well-child visit

Introduction

Labial adhesion, also called labial synechiae or labial agglutination, is the partial or complete fusion of the labia minora in the midline. It is usually seen in prepubertal girls, especially during the hypoestrogenic years, and is often linked to local irritation or inflammation of the vulvar mucosa. (1,2,3)

Many children are asymptomatic, and the condition may be found incidentally during a routine physical examination. When symptoms are present, they may include urinary dribbling, dysuria, local discomfort, vulvar irritation, recurring urinary tract symptoms. (1,2,4) Because many cases are mild and painless, the diagnosis may be delayed when genital examination is omitted during routine visits. (1,5)

Published reports suggest that labial adhesion is not rare in early childhood, but prevalence estimates vary depending on the clinical setting and the population studied. (2,4,6) Most of the available literature comes from referral-based series or treatment-focused studies rather than general pediatric follow-up populations. (4,6,7,8) For that reason, data from routine child health settings remain useful.

The aim of this study was to determine the prevalence of labial adhesion in girls aged 6–72 months who attended routine pediatric visits at a

community clinic and to describe associated clinical characteristics, including age, skin history, UTI history, and toilet training status.

Methods

Study design and setting

All the patient related information, required for the study, was gathered at a private pediatric clinic in Güzelbahçe, İzmir, Türkiye. Medical records from January 2021 to December 2024 were reviewed.

Participants

The study included girls aged 6–72 months who attended at least one routine well-child visit their respected documented external genital examination. Patients with a history of genital surgery, major congenital or genetic syndromes, or incomplete records were excluded.

Data collection

Local electronic medical recording system was used to extract the following data variables: age (months), labial adhesion status, type of adhesion (partial or complete), history of atopic skin disease, history of diaper dermatitis, history of UTI, toilet training status (diapered, recently toilet trained, fully toilet trained), family history of labial adhesion, place of residence (urban or rural), and maternal education level. All data were anonymized before analysis.

Ethics

The study protocol was approved by the Non-Interventional Clinical Research Ethics Committee of İzmir University of Economics Faculty of Medicine (Approval No. E-97429853-050.04-

2023-1123). The study was conducted in accordance with the Declaration of Helsinki.

Statistical analysis

Statistical analysis was performed with IBM SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, NY, USA). Mean values were adjusted by adding or subtracting the standard deviation, and Number and percentage values were used as categorical variables. Comparisons between girls with and without labial adhesion were performed using Welch's t test for age and Pearson's chi-square test or Fisher's exact test. A p value being smaller than 0.05 was considered meaningful.

Results

500 girls were included in total. The mean age of the overall cohort was 38.6 ± 16.4 months (range, 6–72 months). Labial adhesion was identified in 22 girls, corresponding to a prevalence of 4.4%. Nineteen of these cases were partial adhesions and three were complete adhesions (Table 1).

Table 1. General characteristics of the study population

Variable	Value
Total participants	500
Age, mean $\pm$ SD (months)	38.6 ± 16.4
Age range (months)	6–72
Labial adhesion, n (%)	22 (4.4)
Partial adhesion, n (%)	19 (3.8)
Complete adhesion, n (%)	3 (0.6)

When the group was divided according to labial adhesion status, the mean age did not differ significantly between groups (36.7 ± 15.2 months vs 38.7 ± 16.5 months, $p = 0.554$). Likewise, no significant between-group differences were found for history of atopic skin disease, diaper dermatitis, UTI, or toilet training status (Table 2).

Table 2. Clinical characteristics according to labial adhesion status

Variable	Labial adhesion (n = 22)	No labial adhesion (n = 478)	P value
Age, mean $\pm$ SD (months)	36.7 ± 15.2	38.7 ± 16.5	0.554
Atopic skin disease, n (%)	7 (31.8)	119 (24.9)	0.631
Diaper dermatitis, n (%)	7 (31.8)	147 (30.8)	1.000
UTI history, n (%)	2 (9.1)	82 (17.2)	0.485
Toilet training status, n (%)			0.591
Diapered	12 (54.5)	224 (46.9)	
Recently toilet trained	4 (18.2)	72 (15.1)	
Fully toilet trained	6 (27.3)	182 (38.1)	

Welch's t test was used for age, and chi-square or Fisher's exact test was used for categorical variables.

Among the 22 girls with labial adhesion, 12 (54.5%) were still using diapers, 4 (18.2%) had recently started toilet training, and 6 (27.3%) were fully toilet trained. Eighteen girls (81.8%) lived in urban areas and four (18.2%) in rural areas. No positive family history was documented; family

history was recorded as unknown in three cases (13.6%). Regarding maternal education, 10 mothers (45.5%) had completed high school, 7 (31.8%) middle school, 4 (18.2%) university, and 1 (4.5%) primary school.

Discussion

In this clinic-based cohort of girls aged 6–72 months, the prevalence of labial adhesion was 4.4%. This finding supports the view that labial adhesion is a relatively common condition in early childhood and is often identified outside specialty referral settings.^(2,4,6) Most cases in our study were partial adhesions, which likely reflects detection during routine examinations before progression to denser or more extensive fusion.

Statistically significant differences were not found between girls with and without labial adhesion in terms of age, atopic skin disease, diaper dermatitis, UTI history, or toilet training status. These negative findings should be interpreted carefully. The number of affected girls was small, which limited statistical power. Even so, the descriptive pattern in the adhesion group is clinically meaningful: more than half of affected girls were still using diapers, and histories of local skin irritation were common. This is consistent with the accepted pathophysiologic model in which a hypoestrogenic vulva becomes vulnerable to adhesion when repeated irritation or inflammation is present.^(1,2,9)

Our results differ from referral-based urology series in which urinary symptoms and recurrent UTI are prominent.⁽⁷⁾ That difference is not unexpected. Studies performed in specialty clinics often include children who were referred because of symptoms, whereas our cohort was drawn from routine follow-up visits and therefore included many asymptomatic children. In that setting, labial adhesion may be recognized before urinary symptoms become clinically important.

One of the most important findings of this study is practical rather than statistical. Labial adhesion was detected during routine pediatric assessment in a general outpatient setting. This supports the recommendation that genital examination should remain a standard part of the physical examination in young girls, particularly during the diaper years and early toilet training period.⁽¹⁰⁾ Recognition at this stage may reduce unnecessary anxiety, avoid delayed diagnosis, and allow simple counseling regarding hygiene and follow-up.^(11,12,13)

Although this study is based on records from a single private pediatric clinic and therefore the findings should not be generalized as population estimates for all children the topic holds importance not only for pediatricians and gynecologists but also for family physicians. Given the limited number of adhesion cases, it was not possible to identify the underlying root causes with certainty. This study, also, relied on routinely

recorded clinical variables and lacked direct measures of hygiene practices, severity scores for skin disease, and longitudinal outcomes such as recurrence or treatment response. Despite the aforementioned limitations, this study captures routine pediatric care a setting that is less commonly represented in the literature. This is particularly valuable for pediatric evaluation and follow-up in daily family medicine practice, given the discipline's emphasis on comprehensiveness and preventive care.^(14,15)

Conclusion

Labial adhesion was present in 4.4% of girls aged 6–72 months attending routine pediatric visits in this cohort. Most cases were partial and were identified during routine examination rather than because of urinary symptoms. Although no clinical factor showed a statistically significant association with labial adhesion, the descriptive findings support continued attention to local irritation, diaper use, and careful genital inspection during well-child visits. Larger multicenter studies are needed to define independent risk factors more clearly.

Clinical Implications and Recommendations

1. Routine genital examinations in pediatric visits: Asymptomatic labial adhesions can lead to future complications. Genital evaluations should be routinely included in well-child visits for girls aged 0–6 years.
2. Parental counseling on diaper hygiene:

Prolonged perineal moisture and irritation in diapered children increase adhesion risk. Caregivers should receive guidance on proper hygiene and diaper changing frequency.

3. Close monitoring of at risk children: Children with a history of atopic dermatitis or frequent diaper rash should undergo periodic genital exams as part of standard care.
4. Sensitive approach to toilet training: Earlier transition out of diapers may reduce adhesion risk. Toilet training should be developmentally appropriate and non traumatizing.
5. Widespread training for health personnel: Primary care providers should receive standardized training in genital examination techniques and labial adhesion management.
6. Screening of asymptomatic but at risk children: Children without overt symptoms but presenting with risk factors should not be overlooked. Screening protocols should include subclinical profiles for early intervention.

Ethics approval: The study protocol was approved by the Non-Interventional Clinical Research Ethics Committee of İzmir University of Economics Faculty of Medicine (Approval No: E-97429853-050.04-2023-1123).

Conflict of Interest: The authors report no actual or potential conflicts of interest.

Funding Information: No external or intramural funding was received

Author contribution

Buğrahan Acar: Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Data Curation, Writing – Original Draft, Visualization, Writing Review & Editing;

Barlas Efe Yılmaz: Methodology, Formal analysis, Investigation Validation, Resources, Writing – Review & Editing;

Sare Elif Özyazıcı Özkan: Methodology, Validation, Investigation, Resources, Writing – Review & Editing;

Özden Gokdemir: Validation, Investigation, Resources, Writing – Review & Editing, Supervision.

Citation code: Acar MBH, Özkan SEÖ, Gökdemir Ö. The Prevalence of labial adhesion in girls aged 6–72 months: A Cross-sectional study from a Community Pediatric Clinic. Jour Turk Fam Phy 2026; 17(2): 76-83 doi:10.15511/tjtfp.26.00276

References:

1. Bacon JL, Romano ME. & Quint EH. Clinical recommendation: Labial adhesions. *J Pediatr Adolesc Gynecol* 2015;28:405–9.
2. Rubinstein A, Rahman G, Risso P. & Ocampo D. Labial adhesions: Experience in a children's hospital. *Arch Argent Pediatr* 2018;116: 65–8.
3. Gonzalez D, Anan S. & Mendez MD. Labial Adhesions. in NCBI Bookshelf. A service of the National Library of Medicine, National Institutes of Health, StatPearls. 2023;1–4.
4. Vilano SE. & Robbins CL. Common prepubertal vulvar conditions. *Curr Opin Obstet Gynecol* 2026;28:359–65.
5. Kazmi Z. & Zaidi SZ. Labial synechiae: a diagnostic comundrum. *J Pak Med Assoc* 2023;73:638–40.
6. Kim SW, Han JY, Han SJ, Kim H. & Ku SY. Effect of topical estrogen cream compared with observation in prepubertal girls with labial adhesions. *J Pediatr Urol* 2023;19(4):403.e1-403.e6.
7. Melek E, Kiliçbay F, Sarikaş NG. & Bayazit AK. Labial adhesion and urinary tract problems: The importance of genital examination. *J Pediatr Urol* 2016;12:111.e1-111.e5.
8. Murina F, Fochesato C. & Savasi VM. Treatment of prepubertal labial adhesions with topical Estriol + Testosterone: A case report. *Pediatr Rep* 2024; 16,:558–65.
9. Amm M. et al. Awareness about labia minora fusion among Lebanese pediatricians. *J Pediatr Neonatal Individ Med* 2019; 8:1–7.
10. Uysal M. Our approach to labial fusion during childhood: Eight years of experience in a single center. *Pediatr Pract Res* 2022;10:118–22.
11. Davis VJ. What the paediatrician should know about paediatric and adolescent gynecology: The perspective of a gynecologist. *Paediatr Child Health (Oxford)* 2003; 8:491–5.
12. Kerkeni Y, Thamri F. & Jouini R. Management of labial adhesion in a low-income country. *Turkish Arch Pediatr* 2023;58:339–40.
13. O'Keefe RJ, Compton SD, Dendrinis ML. & Rosen MW. Management variation in pediatric labial adhesions: A retrospective cohort study. *J Pediatr* 2025;281:114529.
14. Özkul SA. et al. İstanbul'da Aile Sağlığı Merkezlerinde koruyucu adolesan sağlığı yaklaşımında kaçırılmış fırsatlar. *Turk Fam Phy.* 2015;6:18–29.
15. Seniwati T, Rustina Y, Nurhaeni N. & Wanda D. Patient and family-centered care for children: A concept analysis. *Belitung Nurs J* 2023;9:17–24.