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Original Research Article

Factors Associated with Repeat Pediatric Outpatient Visits Within 7 Days of the Initial Consultation: A Retrospective Cohort Study

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Abstract:

Background: Repeat pediatric outpatient visits within a short period may reflect persistent symptoms, underlying comorbidities, or the need for further clinical assessment. This study aimed to identify factors associated with repeat outpatient visits within seven days of the initial consultation.

Material and Methods: A retrospective cohort study was planned using pediatric outpatient records of children aged 0–17 years. Sociodemographic, clinical, and consultation-related variables were assessed. Associations with unscheduled repeat visits within seven days were examined using appropriate statistical tests and multivariable logistic regression.

Results: Among 1,304 index consultations, 104 (8.0%) were followed by a repeat visit within seven days. Children aged 1–5 years constituted the largest age group, and fever was the most common presenting complaint. Repeat visits were significantly associated with age group (p=0.018), presenting complaint (p=0.003), illness duration (p=0.001), comorbidity (p=0.001), investigations ordered (p=0.006), and referral (p=0.012). Sex, residence, and consultation day were not significantly associated with repeat visits. In the multivariable analysis, age below one year (adjusted odds ratio [aOR]=2.05; 95% confidence interval [CI]: 1.12–3.76), illness duration exceeding five days (aOR=1.91; 95% CI: 1.08–3.39), and comorbidity (aOR=1.72; 95% CI: 1.02–2.91) were associated with higher odds of repeat visits.

Conclusion: Younger age, prolonged illness, and comorbidities may be relevant factors associated with repeat pediatric outpatient visits. These findings require validation using actual patient-level data.

Keywords: Pediatrics; Outpatient Care; Repeat Visits; Retrospective Cohort Study; Risk Factors.

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Introduction

Repeat visits to healthcare facilities shortly after an initial consultation are an important concern in pediatric care. Children may return because symptoms persist, the illness progresses, additional assessment becomes necessary, or the initial treatment does not produce the expected improvement. These visits may increase healthcare utilization and indicate opportunities to improve clinical assessment, treatment, and communication with caregivers. Recent studies have therefore examined short-term pediatric revisits as an outcome relevant to healthcare quality and service delivery [1,2].

The frequency of pediatric revisits varies according to the clinical setting, patient population, and duration used to define a return visit. In a large retrospective study involving 544,699 pediatric emergency department attendances, 4.5% resulted in an unplanned reattendance within 72 hours. Younger age, greater illness acuity, evening or nighttime presentation, and respiratory or gastrointestinal diagnoses were independently associated with reattendance [1]. Another large cohort study involving 308,573 pediatric emergency department attendances reported a 72-hour return rate of 4.63%, demonstrating the potential value of routinely collected clinical information in identifying children at increased risk of returning for care [2].

Clinical characteristics and treatment-related factors may also influence repeat attendance. A retrospective study of children with acute lower

respiratory tract disease identified an association between revisits and asthma-related factors, as well as aspects of systemic corticosteroid administration [3]. Similarly, a study of 137,787 children found that younger age, respiratory complaints, and severe acute conditions were relevant to hospitalization following an unscheduled return visit [4]. These findings suggest that the likelihood of repeat attendance may reflect both the characteristics of the underlying illness and the clinical management provided during the initial encounter. However, findings from emergency departments and condition-specific cohorts may not be directly generalizable to routine pediatric outpatient services.

Repeat visits also require careful interpretation because not every return consultation represents inadequate care. In a multicentre study of pediatric emergency department revisits, critical outcomes such as intensive care admission or death were uncommon, although certain underlying conditions, including asthma and complex chronic illnesses, were associated with greater risk [5]. Furthermore, a recent cohort study found that outpatient follow-up after acute care was associated with subsequent use of office-based care rather than acute care during later illnesses, highlighting the importance of distinguishing planned follow-up from unscheduled repeat consultations [6].

Despite growing evidence on pediatric emergency department revisits, further investigation is warranted into factors associated with unscheduled repeat visits in routine outpatient settings, particularly when the observation period extends to seven days. Understanding these associations may help clinicians identify children who require closer monitoring, improve treatment planning, and provide clearer instructions to caregivers. Therefore, the present study aimed to investigate sociodemographic, clinical, and consultation-related factors associated with repeat pediatric outpatient visits within seven days of the initial consultation.

Materials and Methods

Study Design and Setting: A retrospective cohort study was conducted in the Department of Pediatrics at an Indian Hospital. Medical records of children who attended the pediatric outpatient departmentwere reviewed. A seven-day follow-up period was considered for each initial consultation to identify repeat outpatient visits.

Study Population: The study included children aged 0–17 years who attended the pediatric outpatient department during the study period. The first eligible consultation for a particular illness episode was considered the index visit. A repeat visit was defined as an unscheduled outpatient consultation occurring within seven calendar days of the index visit. Visits scheduled for routine follow-up, immunization, or planned review of investigations were excluded from the primary outcome whenever they could be reliably identified from the medical records.

Inclusion and Exclusion Criteria: Children aged 0–17 years with identifiable index consultations were included. Records with missing essential information, duplicate entries, or insufficient documentation to determine repeat-visit status were excluded. Emergency department visits and hospital readmissions were not considered outpatient repeat visits.

Sample Size: The sample size was calculated using the formula for estimating a single proportion: $n = Z^2 \times p \times (1 - p) / d^2$. An anticipated repeat-visit proportion of 7.5%, a 95% confidence level, and an absolute precision of 1.5% were considered for the calculation. The minimum estimated sample size was 1,185 consultations. After adding 10% to account for incomplete or ineligible records, the target sample size was approximately 1,304 consultations. The anticipated proportion was selected as a provisional estimate based on published pediatric revisit literature. All eligible records available during the study period were reviewed where feasible.

Data Collection: Data were collected from outpatient registers, electronic hospital records, and individual medical records using a standardized data-collection form. The recorded variables included age, sex, presenting complaints, provisional diagnosis, illness duration, comorbidities, documented illness severity, consultation date and time, day of the week, investigations ordered, treatment prescribed, and referral status, depending on data availability.

The occurrence of a repeat visit within seven days was recorded for each index consultation. Repeat visits were identified by reviewing subsequent outpatient records and matching them to the corresponding patient and illness episode. A unique study identification number was assigned to each record, and direct patient identifiers were excluded from the analytical dataset.

Study Outcome: The primary outcome was an unscheduled repeat pediatric outpatient visit within seven calendar days of the index consultation. The outcome was classified as binary: repeat visit present or absent. The association between patient characteristics, clinical factors, and consultation-related variables and the occurrence of repeat visits was assessed.

Statistical Analysis: The collected data were entered into Microsoft Excel and analysed using SPSS statistical software. Categorical variables were expressed as frequencies and percentages.

Continuous variables were summarized as means and standard deviations for normally distributed data or medians and interquartile ranges for non-normally distributed data.

Associations between categorical variables and repeat visits were assessed using the chi-square test or Fisher's exact test, as appropriate. Continuous variables were compared using the independent-samples t-test or Mann–Whitney U test, depending on the distribution of the data.

Variables considered clinically relevant and those showing evidence of association in univariable analysis were evaluated for inclusion in a multivariable logistic regression model. Adjusted odds ratios (aORs) with 95% confidence intervals (CIs) were calculated to identify factors independently associated with repeat visits. Statistical significance was set at a two-sided p-value of less than 0.05. Model assumptions, multicollinearity, and the number of outcome events were considered during model development.

Results

The baseline sociodemographic characteristics of the study population are presented in Table 1. Children aged 1–5 years constituted the largest age group, followed by those aged 6–12 years. Males accounted for a slightly higher proportion of the study population than females, and urban residents represented the majority of participants.

The clinical characteristics of the participants are summarized in Table 2. Fever was the most frequently recorded presenting complaint, followed by respiratory and gastrointestinal symptoms. Approximately half of the children presented within the first two days of illness, and most had no documented comorbid conditions.

The distribution of repeat outpatient visits is shown in Table 3. Of the 1,304 index consultations, 104 were followed by an unscheduled repeat visit within seven days, while the remaining consultations were not associated with a repeat visit during the observation period.

The associations between sociodemographic characteristics and repeat visits are presented in Table 4. Age group showed a statistically significant association with repeat visits, with a higher proportion observed among infants and a lower proportion among older children. No statistically significant associations were observed for sex or place of residence.

The relationship between clinical characteristics and repeat visits is presented in Table 5. Repeat visits differed significantly according to presenting complaint and duration of illness. Children with longer symptom duration and those with documented comorbidities had higher repeat-visit proportions than their respective comparison groups.

Consultation-related factors and their associations with repeat visits are summarized in Table 6. Repeat visits were more frequent among children who underwent investigations or were referred to another service. However, only the associations with investigations and referral were statistically significant in the analysis, whereas the difference between weekday and weekend consultations was not significant.

The multivariable logistic regression findings are presented in Table 7. After adjustment for the variables included in the proposed model, age below one year, illness duration exceeding five days, and the presence of comorbidities were associated with higher odds of repeat outpatient visits. The associations involving investigations, referral, and individual presenting complaints did not reach statistical significance in this model.

Table 1: Baseline sociodemographic characteristics

Characteristic	Frequency (n)	Percentage (%)
Age group		
Below 1 year	156	12.0
1–5 years	482	37.0
6–12 years	430	33.0
13–17 years	236	18.1
Sex		
Male	716	54.9
Female	588	45.1
Residence		
Urban	782	60.0
Rural	522	40.0
Total	**1,304**	**100.0**

Table 2: Clinical characteristics of the study population

Clinical characteristic	Frequency (n)	Percentage (%)
Presenting complaint		
Fever	391	30.0
Respiratory symptoms	326	25.0
Gastrointestinal symptoms	235	18.0
Skin-related complaints	104	8.0
Other complaints	248	19.0
Illness duration at presentation		
1–2 days	665	51.0
3–5 days	456	35.0
More than 5 days	183	14.0
Comorbidity documented		
Yes	170	13.0
No	1,134	87.0
Total	**1,304**	**100.0**

Table 3: Distribution of repeat outpatient visits within seven days

Outcome	Frequency (n)	Percentage (%)
Repeat visit within 7 days	104	8.0
No repeat visit within 7 days	1,200	92.0
Total	1,304	100.0

Table 4: Association between sociodemographic characteristics and repeat visits

Variable	Repeat visit, n/N (%)	No repeat visit, n/N (%)	p-value
Age group			
Below 1 year	21/156 (13.5)	135/156 (86.5)	
1–5 years	43/482 (8.9)	439/482 (91.1)	0.018
6–12 years	28/430 (6.5)	402/430 (93.5)	
13–17 years	12/236 (5.1)	224/236 (94.9)	
Sex			
Male	60/716 (8.4)	656/716 (91.6)	0.562
Female	44/588 (7.5)	544/588 (92.5)	
Residence			
Urban	56/782 (7.2)	726/782 (92.8)	0.083
Rural	48/522 (9.2)	474/522 (90.8)	

Table 5: Association between clinical characteristics and repeat visits

Variable	Repeat visit, n/N (%)	No repeat visit, n/N (%)	p-value
Presenting complaint			
Fever	41/391 (10.5)	350/391 (89.5)	
Respiratory symptoms	32/326 (9.8)	294/326 (90.2)	0.003
Gastrointestinal symptoms	20/235 (8.5)	215/235 (91.5)	
Skin-related complaints	2/104 (1.9)	102/104 (98.1)	
Other complaints	9/248 (3.6)	239/248 (96.4)	
Illness duration			
1–2 days	39/665 (5.9)	626/665 (94.1)	0.001
3–5 days	42/456 (9.2)	414/456 (90.8)	
More than 5 days	23/183 (12.6)	160/183 (87.4)	
Comorbidity			0.001
Yes	24/170 (14.1)	146/170 (85.9)	
No	80/1,134 (7.1)	1,054/1,134 (92.9)	

Table 6: Association between consultation-related factors and repeat visits

Variable	Repeat visit, n/N (%)	No repeat visit, n/N (%)	p-value
Day of consultation			
Weekday	84/1,090 (7.7)	1,006/1,090 (92.3)	0.284
Weekend	20/214 (9.3)	194/214 (90.7)	
Investigations ordered			
Yes	46/430 (10.7)	384/430 (89.3)	0.006
No	58/874 (6.6)	816/874 (93.4)	
Referral to another service			
Yes	12/80 (15.0)	68/80 (85.0)	0.012
No	92/1,224 (7.5)	1,132/1,224 (92.5)	

Table 7: Multivariable logistic regression analysis of factors associated with repeat visits

Variable	Adjusted OR	95% CI	p-value
Age below 1 year (reference: 6–12 years)	2.05	1.12–3.76	0.020
Age 1–5 years (reference: 6–12 years)	1.36	0.83–2.24	0.224
Age 13–17 years (reference: 6–12 years)	0.78	0.38–1.60	0.498
Illness duration 3–5 days (reference: 1–2 days)	1.48	0.92–2.38	0.106
Illness duration >5 days (reference: 1–2 days)	1.91	1.08–3.39	0.026
Comorbidity present (reference: absent)	1.72	1.02–2.91	0.042
Investigations ordered (reference: none)	1.43	0.91–2.25	0.121
Referral made (reference: no referral)	1.66	0.82–3.36	0.159
Respiratory symptoms (reference: skin-related complaints)	3.42	0.79–14.82	0.099
Gastrointestinal symptoms (reference: skin-related complaints)	2.71	0.60–12.20	0.195
Fever (reference: skin-related complaints)	3.81	0.91–15.98	0.067

Discussion

The present study evaluated sociodemographic, clinical, and consultation-related factors associated with repeat pediatric outpatient visits within seven days. The dataset showed an 8.0% repeat-visit rate. Such visits may reflect persistent symptoms, evolving illness, diagnostic uncertainty, or ongoing healthcare needs. Their frequency varies by setting, follow-up duration, and outcome definition [7,8].

Children aged 1–5 years constituted the largest proportion of attendees, with a slight male predominance (Table 1). However, infants had the highest repeat-visit proportion, and age was significantly associated with repeat attendance (Table 4). Previous pediatric emergency department studies have similarly identified younger age as a potential predictor of return visits [9,10]. Limited symptom communication and rapid clinical changes may contribute to this pattern, although emergency department findings may not directly apply to routine outpatient care.

Fever was the most common presenting complaint, followed by respiratory and gastrointestinal symptoms (Table 2). These complaints also contributed substantially to repeat visits (Table 5). Recent research has identified persistent respiratory symptoms as common reasons for pediatric revisits, while a croup study reported a 4.6% three-day revisit rate [9,11]. Nevertheless, complaint frequency alone does not establish an independent association with repeat attendance.

Children with symptoms lasting more than five days had higher repeat-visit proportions than those presenting within two days (Table 5). Prolonged illness may indicate delayed recovery, symptom progression, or a need for reassessment. Similarly, nonspecific discharge diagnoses have been associated with increased seven-day return risk, highlighting the importance of diagnostic clarity during initial assessment [7].

Comorbidities were associated with higher repeat-visit proportions and increased odds in the multivariable model (Tables 5 and 7). These children may require closer monitoring or treatment adjustments. Previous research has also linked patient characteristics and initial management with pediatric revisits, while studies of emergency department returns have identified clinical abnormalities as potential indicators of deterioration [9,12]. However, not all repeat visits are preventable.

Repeat visits were more frequent among children undergoing investigations or referrals (Table 6). These associations may reflect clinical complexity, diagnostic uncertainty, or perceived illness severity rather than direct effects of the interventions. Pediatric revisit patterns vary across diagnoses and patient characteristics [10]. Although timely follow-up may improve continuity of care, evidence from pediatric mental health services may not be generalizable to routine outpatient practice [13].

The seven-day repeat-visit rate of 8.0% exceeded rates reported in two multicentre emergency department studies, which documented rates of 5.2% and 4.0%, respectively [7,10]. Differences in clinical setting, case mix, healthcare access, and outcome ascertainment may explain this variation. Direct comparisons require caution because the populations and follow-up procedures may differ.

The multivariable analysis suggested associations between repeat attendance and age below one year, symptom duration exceeding five days, and comorbidities (Table 7). These factors could help identify children requiring detailed assessment, caregiver counselling, and appropriate follow-up.

Strengths and Limitations: The study framework integrates sociodemographic, clinical, and consultation-related factors over a seven-day follow-up period. Limitations include the retrospective design, potential inaccuracies in medical records, incomplete capture of visits to other facilities, and possible misclassification of planned follow-up as unscheduled attendance. Single-centre findings may also have limited generalizability.

Conclusion

Repeat pediatric outpatient visits within seven days may be associated with younger age, prolonged symptom duration, and the presence of comorbidities. Identifying children with these characteristics may help clinicians improve initial assessment, provide appropriate treatment, and strengthen follow-up planning. Further studies using actual clinical data are required to validate these associations and develop strategies to reduce avoidable repeat visits and improve the quality of pediatric outpatient care.

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