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Characteristics of non-attendance in 1262 children visiting an orthopedic clinic in Israel

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Abstract:

Background and aims: Non-attendance at outpatient clinics is a problem facing every specialty of medicine, and is particularly important in orthopedics ambulatory clinics. We investigated the characteristics of non-attendance in children visiting an orthopedic clinic. **Material and Methods:** Non-attendance characteristics were observed for a period of one year in children visiting an ambulatory orthopedic clinic. The parameters extracted were: age, sex, treating orthopedist, waiting time, and timing of the appointment. Chi-square tests were used to analyze statistically significant differences of categorical variables. Logistic regression was used for multivariate analyses. **Results:** The study included 1262 first-time visits to the orthopedic clinic. The overall proportion of non-attendance was 27.7%. There was 29.8% non-attendance in females and 26.2% in males ($p>0.05$). Non-attendance was 27.9% in patients younger than 2 years, 33.8% in patients between 2 and 12 years, and 23.2% in patients above 12 years of age ($p=0.001$). The proportion of non-attendance was 24.1% when there was a short waiting time for an appointment (7 days or less) and 31.9% when the waiting time was more than 7 days ($p=0.002$). Non-attendance was 15.9% in rural Jewish, 25.8% in urban Jewish, and 32.6% in Bedouin patients ($p=0.002$). A multivariate logistic regression model demonstrated that the age of the patient, waiting time for an appointment, and ethnic origin of the patient were significantly associated with non-attendance. **Conclusion:** The factors that determine non-attendance in pediatric orthopedic patients are the age of the patient, waiting time for an appointment, and ethnic origin of the patient.

Keywords: non-Attendance, Orthopedic Clinic, Pediatric, Non-show

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Introduction

Non-attendance (failure to attend clinic appointments) is a widespread setback that medical administrators and clinicians must face. Non-attendance proportions range between 15% and 33% [1-17]. High non-attendance proportions disrupt clinical care and lead to a waste of medical resources. Non-attendance does not simply mean that patients do not show for their appointments, it also reflects the patients' conception of their illness and their attitude towards the health care system. In recent years, the problem of non-attendance has received increasing consideration, and many studies have evaluated the scope and factors that are associated with non-attendance. These factors include patient-related issues such as forgetfulness or attitudes (e.g., dissatisfaction with the health care system) and health provider factors such as the payer type or waiting time for an appointment [1-17].

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In contrast to the plethora of publications on non-attendance, a literature search revealed only two studies examining non-attendance in orthopedic clinics [15,18]. In a previous study conducted on children visiting an otolaryngology clinic, we demonstrated that attendance is influenced by the waiting time for an appointment and the timing of the appointment within the day [17]. In order to improve the management of orthopedic clinics, factors that determine non-attendance should be identified and addressed. In the current study, we decided to carry out a new study targeted to investigate the factors for non-attendance in children visiting an ambulatory orthopedic clinic.

Material and methods

The study was performed in Clalit Health Services, which is the largest managed care organization in Israel. In the southern district of Israel, Clalit Health Services serves a population of 470,000 enrollees. The orthopedic service in the district includes 15 active orthopedists working in 14 clinics. The central ambulatory clinic is located in Beer-Sheva.

Visits to the district central ambulatory clinic were obtained from a computer-generated listing of scheduled appointments from January 1 to December 31, 2003. The list contained the patient's age, sex, visit date and time, the date the appointment was made, waiting time for an appointment (defined as the time interval from the date the appointment was initiated to the date of the actual visit), name of town or settlement where the patient resides, and the treating orthopedist for all first-time appointments in the clinic. The distance of the patient's residence from the clinic was calculated using a geographic information system (AtlasCT, Atlas Cartographic Technologies Ltd.).

Statistics

Results of continuous variables are shown as means \pm SD. Results of categorical variables are described as frequencies. Chi-square tests were used to statistically analyze significant differences of categorical variables and Student's t-tests were used to compare age. P values less than 0.05 were considered statistically significant. Logistic regression was used for multivariate analyses. Variables associated with nonattendance in the univariate analysis ($p < 0.1$) were considered for inclusion in the multivariate analysis and were

retained in the model if their multivariate p value was less than 0.05. P values $\leq .05$ were considered statistically significant. The results of the logistic regression are presented as odds ratio with 95% confidence intervals.

Ethics

The study was exempt from submission to the local ethics committee as there were no identifiable data which was used in the study, after the initial data mining process was finished.

Results

A total of 1,262 first-time visits were included in the study during a 12-month period. There were 544 females (43.1%) and 718 male (56.9%) patients. The mean age was 10.6 years (2 months to 18 years). Mean waiting time was 9.2 (SD 7.0) days. Data regarding the ethnic origin of patients and their distance from the clinic are listed in Table 1.

Table 1. Non-attendance proportions in different subgroups among pediatric orthopedic patients (n=1262).

Subgroups	n (%)	Non-attendance (%)	p
All patients	1,262	350 (27.7%)	N/A
Sex			
Male	718 (56.9%)	188 (26.2%)	0.158
Female	544 (43.1%)	162 (29.8%)	
Age			
0–2	172 (13.6%)	48 (27.9%)	0.001
2.1–11	368 (37.1%)	158 (33.8%)	
12–18	622 (49.3%)	144 (23.2%)	
Origin			
Rural Jewish	82 (6.5%)	13 (15.9%)	0.002
Urban Jewish	705 (55.9%)	182 (25.8%)	
Bedouin	475 (37.6%)	155 (32.6%)	
Waiting time			
≤ 7 days	675 (53.5%)	163 (24.1%)	0.002
> 7 days	587 (46.5%)	187 (31.9%)	
Distance from the clinic			
0–19 km	719 (57.4%)	204 (28.4%)	0.769
20–39 km	392 (31.3%)	107 (27.3%)	
40+ km	141 (11.3%)	36 (25.5%)	

The overall proportion of non-attendance was 27.7%. The non-attendance proportion was similar in

females and males [Table 1], and was higher in patients 2 to 12 years ($p = 0.001$; Table 1, Figure 1).

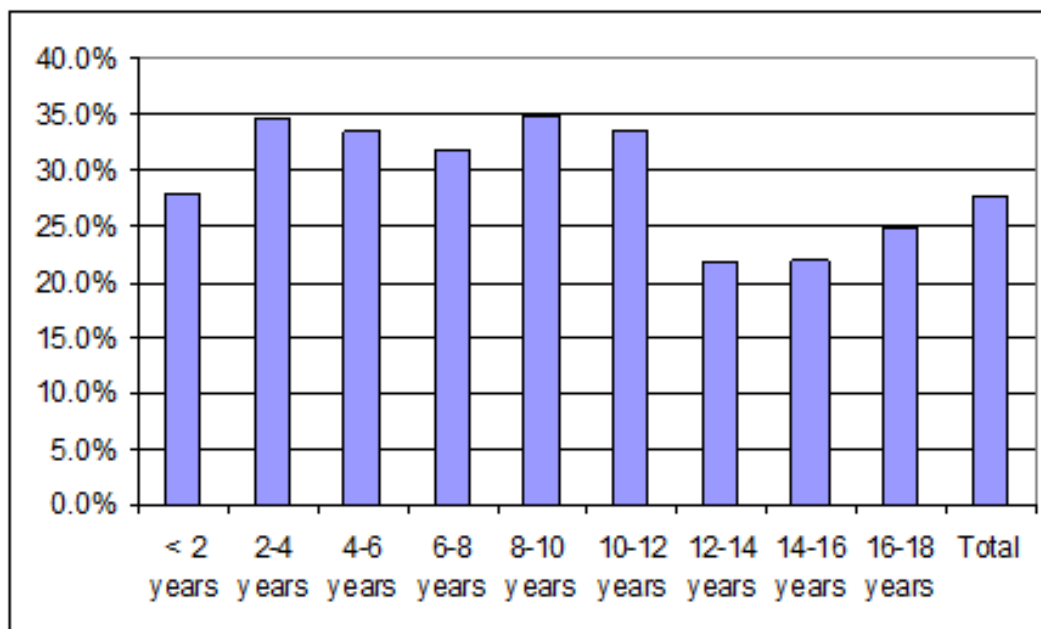


Figure 1. Non-attendance proportions in pediatric orthopedic patients according to patient age (n=1262)

The proportion of non-attendance was higher with a waiting time over 1 week ($p = 0.002$; Table 1, Figure 2). Non-attendance proportion was lowest in rural

Jewish patients, intermediate in urban Jewish patients, and highest among Bedouin patients ($p = 0.002$; Table 1).

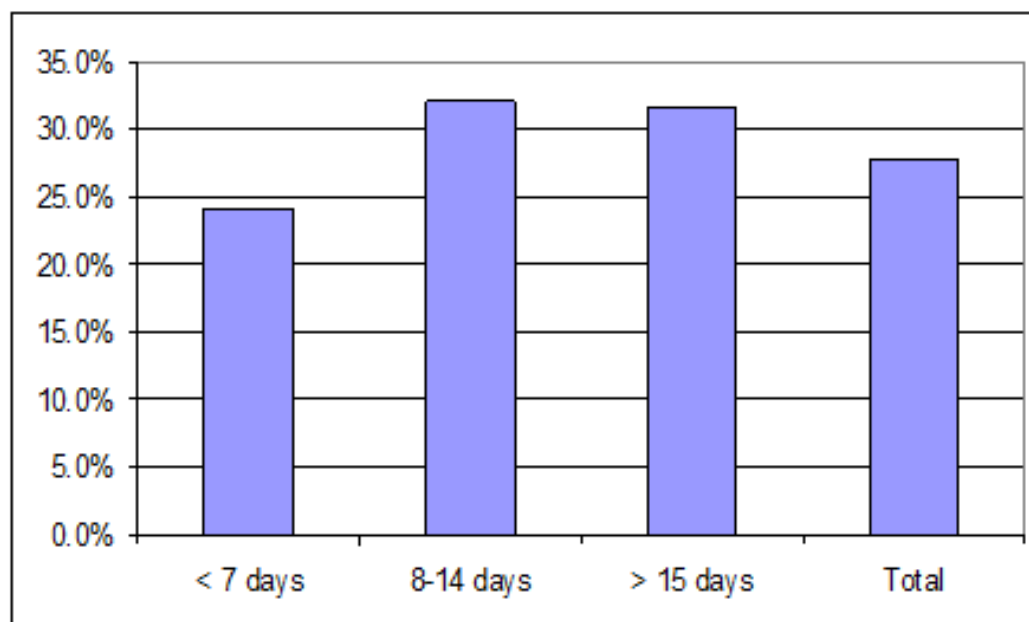


Figure 2. Non-attendance proportions in pediatric orthopedic patients according to waiting time for an appointment (n=1262)

Non-attendance was unrelated to the distance from the clinic [Table 1], the treating orthopedists ($p = 0.784$), the month of the year ($p = 0.617$), the day of the week ($p = 0.660$) or the hour of the day ($p = 0.545$).

A multivariate logistic regression model demonstrated that the age of the patient, waiting time for an appointment, and ethnic origin were significantly associated with non-attendance [Table 2].

Table 2. Logistic regression model for factors associated with non-attendance in pediatric orthopedic patients (N=1262).

Variable	OR	95% confidence interval	p
Urban Jewish (vs. Rural Jewish)	1.93	1.03–3.60	0.038
Bedouin (vs. Rural Jewish)	2.68	1.43–5.03	0.002
Waiting time >7 days (vs. ≤ 7 days)	1.51	1.17–1.95	0.001
2–12 years old (vs. <2 years and >12 years)"	1.54	1.19–1.99	0.001

Discussion

In the present study, the mean non-attendance proportion observed was 27.7%; this is keeping with other published data [2,4-5,8,10,15,19-25]. Nonattendance was more common among Bedouins, urban Jewish patients, those waiting more than one week for their appointment, and patients aged 2–12 years.

Failure of patients to show for scheduled appointments is a setback that affects all medical professions. Non-attendance disrupts routine medical care and is associated with a waste of the limited medical resources and prolongation of waiting times for appointments. High proportions of non-attendance misuse individual and institutional resources. Most clinic expenses are fixed, whereas costs that vary with patient attendance are few and have less impact on overall expenses [1-2,15,26-32].

Surprisingly, only two studies previously addressed the issue of non-attendance in orthopedics [15,18]. A study by Chung et al. focused on patient-related factors for non-attendance¹⁵. It was observed that patients who did not attend the clinic expressed most dissatisfaction with the waiting time, the quality of consultation, and the facilities in the waiting area.

The patients included in the present study were charged 25 NIS (approximately \$5 US) per calendar quarter, which was only charged when the patient actually attended the clinic. This could potentially increase the rate of nonattendance, because patients failing to attend the clinic did not risk losing any money.

In our previous study we observed that the waiting time for an appointment and the hour of the appointment within the day was key factors for non-attendance in pediatric otolaryngology clinics [17]. In the current study we investigated factors that determine non-attendance in children visiting an ambulatory orthopedic clinic. It was observed that non-attendance was associated with the age of the patients, waiting time for an appointment, and the Ethnic origin of the patients.

The waiting time for an appointment is an important factor, as was observed in previous studies [26,31-32]. The longer the waiting times for appointments, the greater the non-attendance proportion. From a review of our data it was apparent that a vicious cycle was at play. A long waiting list for an orthopedist appointment resulted in unreasonable scheduling (too long a wait) or patients declining to schedule. To circumvent not being scheduled or the long wait, patients presented to the clinic as walk-ins. As a norm, 'urgent' patients were seen by an orthopedist without prior triage. These patients were largely responsible for disruption of scheduled appointments. Most patients who were admitted urgently failed to cancel their future appointments, resulting in increased non-attendance proportions. This became a preferred method for some patients to seek medical attention (rather than prior scheduling). Due to the high proportion of unscheduled visits, appointment time slots were reserved in advance for walk-in cases. This resulted in fewer available slots for scheduled visits, resulting in a longer waiting list.

The fate of patients failing to attend the clinic goes beyond the scope of this study. Patients looking for an alternative could either set an appointment at a large tertiary hospital, with longer waiting times, set an appointment with a private othopedist (a potentially cost-prohibitive action), or wait for self-resolution of symptoms.

A possible approach to the problem of non-attendance is to apply appropriate proportions of corrective overbooking. Overbooking can be planned for a specific clinic on the basis of non-attendance proportions but could be counterproductive. When patients are scheduled by this mode of overbooking and an unexpectedly high attendance proportion occurs, significant pressure is put on both patients and staff. In this setup, appointment times are not met, and the quality of service decreases, which may be just enough to tip the balance towards patient non-attendance for the next scheduled appointment.

A notable observation in our study was that non-attendance occurred more frequently in Bedouin children compared to Jewish children. The Bedouin population in the Negev comprises about 150,000 people. The Bedouins are an ethnic, religious, and cultural minority with various socio-economic problems. The religion of the Bedouins is Islam and the spoken language is Arabic. Usually only the men speak Hebrew. Approximately 80% of the population lives in urban settlements, the other 20% live in rural settlements. Unemployment rates are high and many families live on social security income. The Bedouins are a population in transition from a nomadic to a more settled and urban form of life. The transition from a traditional to a western lifestyle, characterized by changes in dietary habits and a reduction in physical activity, is associated with considerable changes in morbidity patterns such as an increase in diabetes prevalence [17]. The medical services offered by the health authorities are not fully used due to due to geographic scattering as well as language, cultural, and economic difficulties. We hypothesize that geographic as well as social barriers were responsible for the increased non-attendance proportions in Bedouins.

In conclusion, in the current study we observed that the age of the patients, waiting time for an appointment, and the origin of the patients were associated with non-attendance in children attending

an orthopedic clinic. Completely eliminating non-attendance at orthopedic outpatient clinics is impractical, but this study has given us practical information and allows us to develop strategies to reduce non-attendance in the future.

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