

## Broken Appointment Behavior in a Dental School Environment

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### Abstract

The present study was designed to determine the prevalence of broken appointments of female and male patients scheduled for third, fourth, and fifth year dental students. Data was obtained from computers used for patient scheduling at two campuses of the dental college. The proportion of broken appointments at these facilities was computed using the  $X^2$ -test to determine a difference between males and females. Results showed that male patients (14.9%) had a higher proportion of broken appointments than female patients (12.4%). Such differences among gender was statistically significant ( $p=4.218$ ).

The highest percentage of broken appointments was during December of 2001. Thirty four percent of these broken appointments were in the Restorative Clinic at the Darriyah Campus (DUC) serving primarily male patients and 24% in the Removable Partial Denture Clinic at the Malaz Campus (MUC) serving only female patients.

It was concluded the percentage of broken appointments is considered to be unacceptable because of the negative impact on student learning and, ultimately, their academic progress.

**Keywords:** Dental appointments, dental appointment failure, failed dental appointments, broken dental appointments

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## Introduction

King Saud University, Dental College in Riyadh City was established in 1975. It has two branches: (1) the Malaz Campus (MUC) located in the center of the city that primarily serves female students and patients and (2) the Darraiayah Campus (DUC) located in the northern part of the city that primarily serves male students and patients.



and this lead to the failure of students to complete academic requirements which was very stressful for students as well as the clinical teacher.<sup>3</sup>

The principle aim of this study was to evaluate the prevalence and distribution of broken appointments among third, fourth, and fifth year dental students during one academic year from September 2001 till

The system of scheduling patients in the dental college consists of screening patients before appointing them with third to fifth year dental students. The day before a scheduled appointment, students usually call the patient as a reminder. This strategy has been proven to be an effective method to increase appointment compliance.<sup>1,2</sup>

Despite the effectiveness of this effort, some dental students still complain about broken patient appointments that can compromise their ability to complete academic requirements. However, not enough data is available regarding this matter.

High appointment failure rates seriously affect the productivity and efficiency of a dental care facility. However, this problem is worse in educational dental clinics since dental students rely on patient compliance to meet their treatment and academic goals.

In 1999, Awartani found that 12.24% of students in periodontal classes at King Saud Dental College had 52.4% of non compliant patients,

May 2002. A secondary aim was to compare patient's compliance between male patients scheduled for treatment at DUC and female patients scheduled at MUC. Distribution of failed appointments in different dental specialties was also observed.

## Materials and Methods

Retrospective information was gathered from the scheduling computers of the dental college during the academic year 2001–2002 (September to May). Data was obtained and patients were categorized according to their appointment behavior as either a booked patient, a treated patient, or as a broken appointment.

## Results

A total of 19,249 patients were scheduled at MUC; 16,850 patients were treated and 2,399 patients missed their appointments. At DUC, a total of 16,438 patients were scheduled; 13,995 were treated and 2,443 missed their appointments. Descriptive statistics including frequency

**Table 1.** Patients attendance categorize and the percentage (%) of broken appointments for both females (MUC) and males (DUC) patients.

Month	MALAZ CAMPUS (MUC)				DARRAIYAH CAMPUS (DUC)				χ <sup>2</sup>	P Value
	Booked Patients	Treated Patients	No. Broken Appoints.	% of Broken Appts.	Booked Patients	Treated Patients	No. Broken Appoints	% of Broken Appts.		
September	2159	1929	230	10 %	2053	1673	380	18.5 %	52.44	4.4*
October	3272	2959	313	9.6 %	2577	2203	374	14.5 %	34.03	5.42*
November	2629	2238	391	14.9 %	1338	1150	188	14.15 %	0.48	0.49
December	1043	853	190	18 %	786	623	163	20.7 %	1.83	0.18
January	1984	1721	263	13.3 %	2009	1661	348	17.3 %	12.73	3.59*
February	1295	1139	156	12.14 %	1338	1150	188	14.15 %	2.33	0.13
March	2634	2297	337	12.8 %	2577	2203	374	14.5 %	3.27	0.07
April	3125	2749	376	12 %	2875	2506	369	12.8 %	0.89	0.35
May	1108	965	143	12.9 %	885	826	59	6.7 %	21.03	4.52*
<b>TOTAL</b>	<b>19249</b>	<b>16850</b>	<b>2399</b>	<b>12.4 %</b>	<b>16438</b>	<b>13995</b>	<b>2443</b>	<b>14.9 %</b>	<b>43.51</b>	<b>4.218*</b>

\* Statistically significant. P<0.05

distributions, means, and standard deviations were used. Also, the statistical significance difference between female and male patients' compliance was evaluated using chi square test. Significance was established at 5% level ( $P < 0.05$ ).

A summary of patient attendance categories is shown in Table 1. In total, female patients who were appointed at MUC broke 12.4% of their appointments. Male patients who were appointed at DUC broke 14.9% of their appointments. This means the males had a significantly higher percentage of failed appointments than females ( $p < 4.218$ ). For both female and male students the highest percentage of broken appointments occurred during the month of December, 2001 which was 18.2% and 20.7%, respectively. Male patients showed a higher percentage of failed appointments during September, October, and January; female patients showed a higher percentage during the month of May 2002.

Table 2 shows the distribution of missed appointments in relation to different specialties. In male patients, the highest proportion (34%) of missed appointments was noted in the Restorative Clinic at DUC; in female patients, the highest proportion was found in the Removable Partial Denture Clinic at MUC.

### Discussion

Results showed a high percentage of broken appointments of 12.4% and 14.9% for female and male patients, respectively. This is in agreement with Wilson et al. 1984 who stated the number of non compliant patients ranged from 11% to 45%.<sup>4</sup>

This high percentage is surprising since our dental students provide an appointment reminder by telephone a day before the scheduled visit.

Appointment reminders are a practical way to increase kept appointment rates by patients.<sup>5</sup> Reminders significantly reduce the broken appointment rate from 9.4% with no reminder to 3% with a telephone reminder as mentioned by Reckie and Devlin 1998.<sup>1</sup> Males had a higher percentage of broken appointments than females. This is in agreement with Demetron et al.<sup>6</sup> 1995, who found a greater percentage of males less compliant with supportive periodontal treatment. However, it is in disagreement with Gates and Colborn<sup>7</sup> 1976, Glavind<sup>8</sup> 1986, Mendoza et al.<sup>9</sup> 1991, and Checchi et al.<sup>10</sup> 1994 who found no significant relationships between degree of compliance and patient gender.

The current study revealed there is a higher broken appointment rate during the month of December at both MUC and DUC. This may be attributed to the affect of the 10-day long observation of Ramadan by Muslims when working hours are reduced and patients refrain from dental treatments that might unexpectedly break their fast. This issue was highlighted by Raja et al.<sup>11</sup> 2000 who recommended strategies for delivering dental care to Muslim patients during the month of Ramadan .



**Table 2. Distribution of missed appointments with the different speciality.**

Speciality	Female	Male
Restorative	21%	34%
Endodontics	13%	15%
Fixed	9%	9%
Oral Surgery	6%	10%
Removable Partial Denture	24%	10%
Periodontics	11%	11%
Pedodontics	12%	15%

Lastly, males showed a statistically significant higher level of broken appointments during the months of September, October, and January. This may be due to the fact that in Saudi Arabia males are responsible for the transportation of their children. These months are usually the beginning of school days, following vacation periods. This is all in addition to their work responsibility which starts almost at the same time. It could also be due to the less convenient location of DUC which is located on the outskirts of the city versus MUC which is located in the center of the city.



Male clinics showed 34% of broken appointments occurred in the Restorative Clinic at DUC; female clinics showed 24% of broken appointments occurred in the Removable Partial Denture Clinic at MUC. This is not easily explained, but it might be related to the day of the appointment. This is in agreement with Morse et al.<sup>12</sup> 1984 who found the highest broken appointment rates were noted for Monday afternoons and evening hours.<sup>12</sup> However, this study did not investigate reasons

for the broken appointments. It should be noted dental treatment is available free-of-charge for all patients treated in the dental college in Saudi Arabia and, therefore, would not be a factor in broken appointments.

### Conclusion

There is a significant difference in the reliability of male and female patients with regard to keeping dental appointments.

The reason for this is unclear and there is a need for further study of this phenomenon. The affect of high rates of broken appointments have significant negative consequences for dental clinic operations of all kinds with a unique academic effect on dental students.

The systematic details of appointment scheduling can be altered to reduce the disruptive effect of the missed appointment. Using strategies such as predictive over-booking with alternative patients based on individual patient characteristics or by simply severing the care relationship with patients who have significant history of repeated broken appointments can be considered.



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Dr. Awartani is an Assistant Professor in the Division of Periodontics of the Department of Preventive Dental Sciences at the College of Dentistry, King Saud University, Riyadh, Saudi Arabia. She obtained her Master of Arts degree in 1996 and joined the academic field where she teaches undergraduate and graduate students. Dr. Awartani has published in national and international journals. She is a member of the Saudi Dental Society and a member of the Female Committee for Registrations at Saudi dental meetings. She also served as the head of the social committee of the Ministry of Health Symposium on Dental Health 2001 and participates in various community education services regarding periodontal disease.