

## What is keeping appointments?

Yoriko Matsuoka, Kakuhiro Fukai

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**Abstract** : Missed appointments, no-shows, and treatment discontinuation can affect patients' health worse reducing clinical efficiency, and cause to increase risk factors of recurrence. This article aims to clarify causes and solutions for patients' appointment failures, based on the previous studies. As a result, the most common reason for missed appointment is "patients' forgetfulness" in various healthcare facilities of both medical and dental settings. Here we try to consider what keeping scheduled appointments is.

**Key words** : missed appointments, no-shows, treatment discontinuation, forgetfulness

### 1. Introduction

Some patients repeatedly cancel their appointments or discontinue their treatments at a certain point such as improvement of chief complaint and symptoms. This can be seen, in spite of some diseases need to be treated or incomplete treatments from professionals' viewpoint. In medical as well as dental settings, missed appointments and no-shows, or treatment discontinuation will be adverse clinical outcome at many healthcare facilities, and cause to affect patients' health or to increase risk factors of recurrence. Especially in

dentistry, treatment discontinuation would largely determine the clinical outcome and its prognosis. This is because, in many cases, patients need to receive regular dental treatment for a relevant long term.

Since 1960s, in mainly medical fields, the past studies have suggested causes and solutions for missed appointments<sup>1-7)</sup>. The current studies suggest the importance of shared decision making as well<sup>8-9)</sup>. As relevant expressions of non-adherence with scheduled appointments, the following terms were used: failed appointments, broken appointments, appointment breaking, missed appointments, cancelled appointments, unkept appointments, non-attendance in titles of the previous studies. This article tries to clarify causes and solutions for missed appointment, based on the previous literatures in both dental and medical settings.

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#### 【著者連絡先】

〒341-0003 埼玉県三郷市彦成3-86  
深井歯科医院・深井保健科学研究所  
松岡順子  
TEL&FAX : 048-957-3315  
E-mail : yorikom@wg8.so-net.ne.jp

## 2. Determinants of Missed Appointments

In 1979, Oppenheim GL., et al. showed the determinants as to appointment failures were classified into four factors: process, patient, provider, and environment in medical fields<sup>1)</sup>. The process includes the administrative elements: scheduling, office waiting time, and adjusting appointment interval. Patient factors mean communication problems: misunderstanding or forgetfulness for appointment date and time, preparing babysitters, language or cultural differences. Providers involve factors urging patients to keep their appointments continuously. Environment affecting appointment failures includes weather, time of day, and parking. Meanwhile, Deyo RA., et al. in 1980, classified mainly eight groups as for the determinants of appointment keeping behavior, modified Haynes' classification<sup>2)</sup>. That is, the features are following points: patient, provider, disease or reasons for appointment, therapeutic regimen, patient-therapist interaction, access, facility or administrative process, and environment.

Among elements of the determinants for appointment failures, it is significantly related between age and missed appointments in a variety of settings<sup>1-2, 4)</sup>. Younger adults correlates with higher rates of missed appointments, compared with older ones. Especially, patients aged 45 or older generally have lower rates of missed appointments<sup>10-11)</sup>. Gates and Colborn reported that patients aged 15 to 34 had missed appointments over twice as high as those of 35 years or older<sup>10)</sup>. Patients who have broken appointments tend to repeat this behavior in the future<sup>1-4)</sup>. Indeed, Goldman L., et al. found that patients who had kept over 90% of previous appointments kept 85% of future appointments. While those who had kept less than 60% of past appointments kept only 62% of future ones<sup>12)</sup>.

## 3. Reasons for Missed Appointments

In case of chronic illnesses such as hypertension and diabetes mellitus, patients require lifelong self-management collaborating with health professionals through long-term prescription refill, dietary or exercise therapy. Regular attendance or checkup is needed as for rehabilitation of coronary, dialysis, dental caries or periodontal prevention, maintenance after treatments as well. Whereas some people are limited time schedule to visit health professionals. For instance, there is a case of a salesperson with irregular working time or of a carpenter with working time controlling weather. From patients' viewpoint, their lifestyles represented occupational types is one of the barriers to attend dental and medical clinics.

In previous studies of medical field (Table1), the main reasons for appointment failure are personal ones such as forgetting and misunderstanding to attend from the results: 33% in dermatology outpatient clinics in the hospital (1992), 30% in a gastroenterology outpatient clinic (2002), over 40% in general practice (2005), and 32.9% in family practice clinic with various chronic illnesses (2006)13-16). Especially, several studies suggest that it is significantly correlated between increasing missing rates caused by patients' forgetting and longer appointment scheduling intervals<sup>1, 3, 6-7)</sup>. Another reason is concerning personal or family: being too ill to attend, feeling better, relating to work, inpatient in another hospital, family commitment, and sudden bereavement<sup>13-16)</sup>. The others are administrative errors such as wrong dates written on appointment cards. It is more likely to miss appointments in case of patients with four or more multiple chronic illnesses and diabetic patients with poor metabolic control<sup>16-18)</sup>. Besides, Gunter-Hunt G., et al. examined the relationship between missed appointments and patient satisfaction for arthritis treatments. They suggested that

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Table 1 Reasons and Solutions for Missed Appointments

Fields	Aim	Measures	Author(s)	Year	Type of Disease(s)
Medical	reasons for missed appointments		Verbov J.	1992	dermatology
			Murdock A., et al.	2002	gastroenterology
			Lawlor DA., et al.	2005	general practice
			Zailinawati AH., et al.	2006	family practice with chronic illnesses
Dental			Trenouth MJ., et al.	1991	orthodontic
			Herrick J., et al.	1994	periodontal disease
			Richardson A.	1998	orthodontic
Medical	solution for missed appointments	telephone or mailed reminders	Grover S., et al.	1983	medical hospital
		automated telephone reminder system	Shoffner J., et al.	2007	psychiatric
Dental		simple modification	Parikh A., et al.	2010	academic outpatient
		automated appointment confirmation system	Patel P., et al.	2000	general practice
	discontinuation factors for treatment and patient behavior	Almog DM., et al.	2003	general and periatric	
			Murray AM., et al.	1989	orthodontic

patient satisfaction was significantly related to patient's perception of benefits obtaining from clinical outcome, though patient satisfaction and appointment keeping behavior was not significantly correlated<sup>19</sup>.

From 1980s in dentistry, researches for appointment keeping adherence have been reported concerning mainly orthodontic and periodontal treatments<sup>20-23</sup>. The success of orthodontic treatment depends on the regular adjustment of appliances and retention for a long period. Besides, regular dental attendance and checkups are required for periodontal treatments, maintenance of post treatments, or prevention of oral diseases. A type of orthodontic appliances tends to affect attending discontinuation more often, especially in case of patients wearing headgear during a retention period or only removable appliances in active treatment<sup>20</sup>. One of the reasons in this case is reflected that if patients want to stop treatment, it is easier to do so when they wear removable appliances

compared with fixed ones. The most common reason for orthodontic patients failing to keep appointments is forgetfulness, similar to medical cases. The others are illness, other commitments, transportation troubles<sup>21-22</sup>. 53.5% of patients missing to attend have thought that they are nearing the final stage of treatment<sup>21</sup>. This result suggests patients' misunderstanding for the ongoing treatment at present.

In case of periodontal treatments, the results concerning reasons for failing appointments show that forgetfulness (51.4%) is the most common reason, similar tendency with medical ones. The others continue 19.1% of administrative errors, 14.7% of illness, and 12.8% of problems getting off work<sup>23</sup>.

### 4. Solutions for Missed Appointments

Either in a medical or dental setting, one of the effective ways to improve appointment-keeping is telephone and mailed reminders to aware patient's appointment at least one to three weeks

in advance<sup>1-5, 24-25</sup>). Through an Automated Appointment Confirmation System using computer, the effective results show the reduction of broken appointment rates declining from 23.67% to 19.77% in general dentistry or from 29.42% to 25.25% in pediatric dentistry<sup>26</sup>). Similarly, an automated telephone appointment reminder system is significantly more effective to improve appointment-keeping in medical settings<sup>27</sup>). It is, however, hard for some patients to understand and operate practice computer appointment systems<sup>28</sup>). This result suggests that it is necessary to develop simple and easy ways to use for everyone, taking every possible measure. Besides, in dentistry, even simple modification of recall and appointment cards would obtain the effective results to improve keeping appointments<sup>24</sup>). This is, for instance, to rewrite recall letter and appointment card with a short message about reasons of recall necessities and urging patients to keep appointments and asking them to cancel in advance if unable to visit.

### 5. Conclusion

The background of patients' forgetting for missed appointments may contain some elements such as individual value of teeth and treatments or preference, though forgetfulness is reported as the most frequent reason according to the abundant previous literatures. As a future topic, healthcare providers would need to know several hidden reasons behind patients' behaviors of forgetting scheduled appointments with some scales.

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