

# Prevalence and reasons for missed dental appointments among patients treated by undergraduate dental students of Universiti Sains Islam Malaysia

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## Abstract

Missed dental appointments drastically affect treatment proficiency and productivity of dental care facility. This study aimed to determine the prevalence and reasons for missed dental appointments among patients treated by clinical dental students of Universiti Sains Islam Malaysia (USIM). A total of 202 folders from year 2018 to 2020 treated by year 3 to year 5 dental students were retrieved from a pool of patient's record files using simple random sampling methods. Information on missed appointments was recorded. Other patients' information was kept confidential. The percentage of missed dental appointments among patients under clinical dental students' care was 37.1% (95% CI=30.7, 44.0). The majority of patients who missed dental appointments were male (37.6%), adults (38.7%) and employee (40.2%) patients. The most reported reason for the missed dental appointment was due to personal matters (36%) and the least was forgetfulness (0.6%) and miscommunication (0.6%). In conclusion, missed dental appointment commonly occurs among patients and frequently it was due to personal matters. A proper explanation by the students before scheduling an appointment is crucial to avoid any future missed dental appointments.

**Keywords:** dental care, dental students, missed appointments, no-show, reminder system

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## Introduction

Dental healthcare services in the academic dental centre are provided by the dentist, dental specialist, and dental students under

close supervision. These services that are mostly utilised by patients are emergency treatment, preventive care or operative care (Jaafar *et al.*, 2018). The cost for patients being treated by dental students is usually

subsidised, whereas those being treated by dentists or specialists are charged at a normal rate. These subsidised treatments at the centre are the strategy to help fulfil the student's clinical requirements within their three years of clinical training (Serrano *et al.*, 2017).

Patients often turn to academic dental centre for subsidise dental services without compromising the quality of care provided by the practitioners (Balhaddad *et al.*, 2018). The quality of care includes dental capabilities and techniques, the manner during treatment, treatment procedures that could complete, the length of waiting time before treatment, and a complete and detailed explanation of the treatment plan (Lee *et al.*, 2013). Lack of competency demonstrated by clinical dental students in managing some of the clinical aspects and longer treatment time can affect patient satisfaction that leads to the frequent missed dental appointments made (Lee *et al.*, 2013; Machado *et al.*, 2015; Bukhari *et al.*, 2016).

In Malaysia, students are required to complete a structured clinical training before they are allowed to sit for a professional examination. These consist of minimum clinical experience (MCE) and expected clinical experience (ECE). The regulations were set to ensure that students are equipped with adequate skills in practising independent and safe dentistry. In a study, lack of exposure to certain clinical procedures was found to be associated with inadequate training and reduce confidence level (Ali *et al.*, 2017).

Missed dental appointments may cause loss of practical hours in clinical training and opportunity for students to provide oral care to other patients under their obligation. If a cancellation was made in less than 24 hours from the appointment time, it would be difficult for the student to contact another patient as a last-minute replacement. This will cause the affected student to require an extension to their clinical sessions to complete their clinical requirements (Awartani, 2003). The students claimed that many of the missed scheduled appointments by their patients had caused a loss of

valuable clinical sessions. Although a number of personal reminders had been sent, this problem is still recurring. However, there is limited evidence available for the faculty to determine and address the issues. Missed dental appointments can also adversely affect patients. Frequently missed dental appointments can cause incomplete dental treatment which can reduce the quality of care received by patients and delay the treatment needed (McQueenie *et al.*, 2019). Postponement in oral care provision can shift a mild form of disease to a severe form such as in case of carious lesions, gingival and periodontal diseases which eventually results in tooth loss.

The prevalence of missed dental appointments varied across studies between 9% to 40% (Awartani, 2003; Holtzman *et al.*, 2013; Albaloushi and Da'ar, 2015; Storrs *et al.*, 2016; Tandon *et al.*, 2016). The most common excuse for missed dental appointments among patients was forgetfulness, busy with other matters and not brought by a parent for regular dental care (Tandon *et al.*, 2016; Onyejaka *et al.*, 2018; Kirby and Harris, 2019; Penzias *et al.*, 2019). Factors that contributed to the missed dental appointments include age, gender and occupation status (Storrs *et al.*, 2016; West *et al.*, 2020). Thus, this study aims to determine the prevalence, reason, and treatment status of missed dental appointments among patients in the academic centre under clinical dental student's care. In addition, factors associated between sociodemographic profile and missed appointments were also assessed.

## Materials and Methods

This was a cross-sectional study conducted at Dental Polyclinic, Faculty of Dentistry, Universiti Sains Islam Malaysia (USIM). The study was approved by the Research Ethics Committee of USIM [Ref no: USIM/JKEP/2020-111]. Patients' folders were retrieved from a pool of patient's records by a simple random sampling method. The patient's folders were taken from year 2018 to 2020 treated by year 3 to year 5 dental students. Patients who

received dental treatment from outpatient clinics or specialist clinics were excluded.

In this study, we defined missed dental appointments as “a patient who does not turn up or absent without advanced notice or reschedule or cancel the appointment through call or any other methods within 24 hours”. The information of missed dental appointments was indicated from the patient’s records written by clinical dental students in the folder at least once. Additional information of missed dental appointments was also recorded including the frequency, reasons and status of the dental treatment. The status of treatment was recorded as ongoing, referred for specialist treatment, terminated or case completed.

The demographic information of patients in the folder i.e., age of first registration, sex and occupational status were documented. Age was further categorised as children (below 18 years old), adults (18 to 59 years old) and elderly (60 years and above). All the patients’ information documented for the study purposes were kept anonymous and confidential.

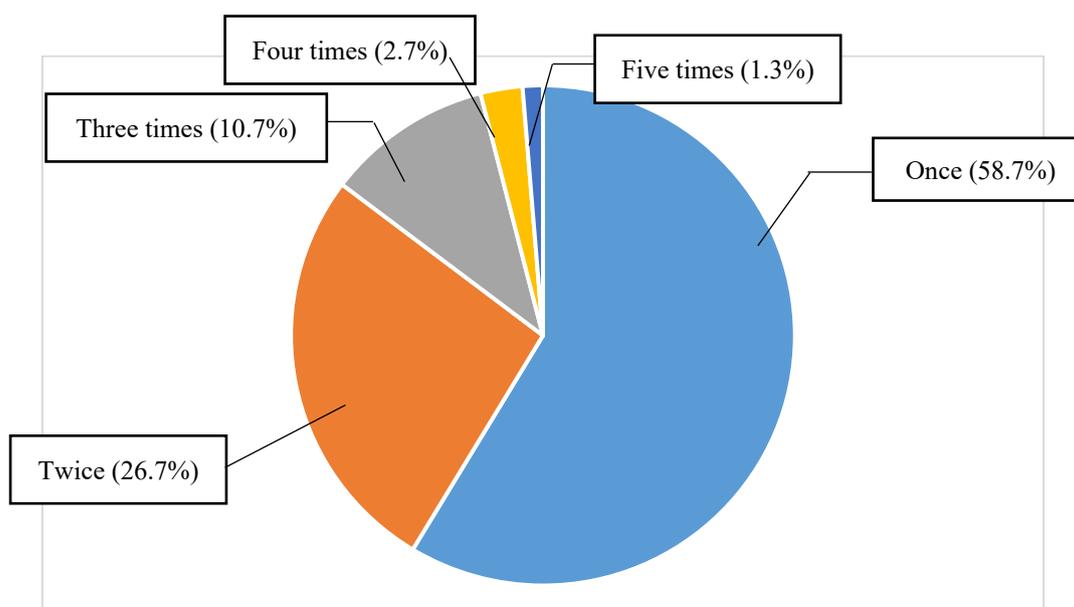
### Data analysis

Descriptive statistics (percentage and frequency) were assessed for different variables. Statistically significant difference was evaluated using the Pearson’s Chi-square test at 95% confidence ( $p < 0.05$ ). Data were analysed using IBM SPSS Program for Windows (version 26.0 SPSS Inc., Chicago, IL USA).

### Results

A total of 202 patients’ records were successfully retrieved. The mean age of the patient was 46.4 years old (SD= 17.81) ranging from 4 to 77 years old. The percentage of patients who missed dental appointments was 37.1% (95% CI=30.7, 44.0) with more than half of them missed dental appointments once (Figure 1).

The majority of missed dental appointment patients were among the adult age group (39.9%), male (37.6%) and employee (48.2%) patients as tabulated in Table 1. No significant association was found between the patient’s demographic profiles and missed dental appointments.



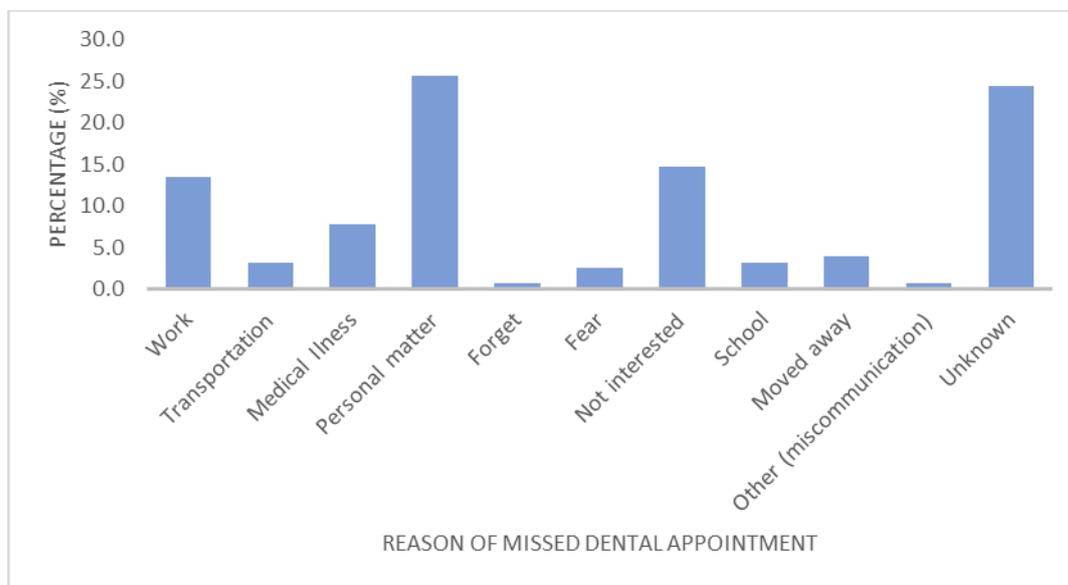
**Figure 1.** Frequency of missed dental appointments among patients

**Table 1.** Missed dental appointment according to the characteristic of patients

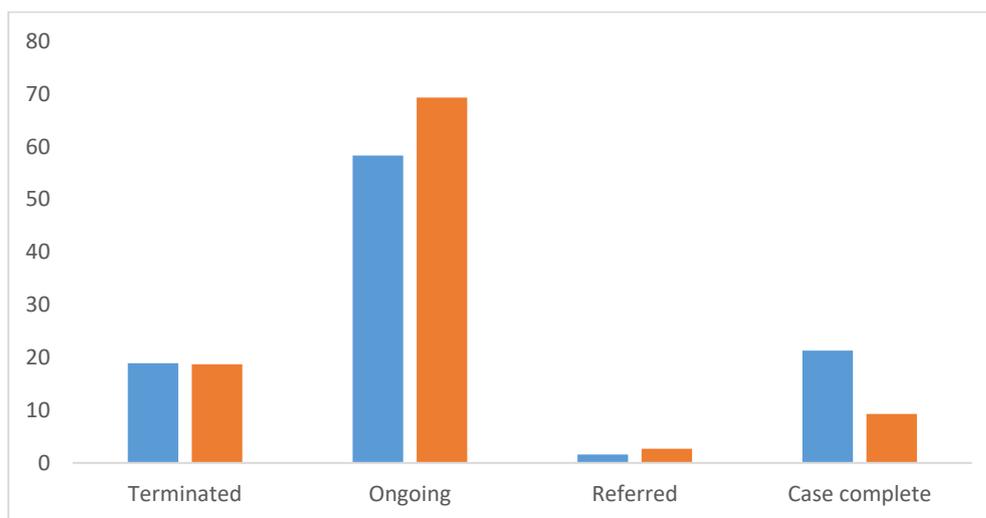
Characteristic	Came for appointment n (%)	Missed dental appointment n (%)	p-value
<b>Age</b>			
Children	8 (72.7)	3 (27.3)	0.478
Adult	83 (60.1)	55 (39.9)	
Elderly	36 (67.9)	17 (32.1)	
<b>Gender</b>			
Male	63 (62.4)	38 (37.6)	0.884
Female	64 (63.4)	37 (36.6)	
<b>Occupation</b>			
Unemployed	75 (65.2)	40 (34.8)	0.428
Employee	52 (59.8)	35 (40.2)	

Figure 2 shows the reason for patients' missed dental appointments in USIM dental students' polyclinic. A quarter of patients reported reasons for missed dental

appointments because of personal matters whereas forgetfulness (0.6%) and miscommunication (0.6%) were the least common reasons.



**Figure 2.** The reason for missed dental appointments among patients



**Figure 3.** Treatment status of patients attended to academic dental centre between missed and non-missed appointment (Blue=did not missed appointment; Orange=missed appointment)

## Discussion

A patient that attended our dental centre will undergo pre-assessment screening by a registered dentist in an outpatient clinic before being assigned to an undergraduate dental clinic or consultant assessment clinic. The waiting list will be stratified based on the complexity of the case. Suitable patients will be put on waiting list before being called by clinical students for further comprehensive dental examination in the respected clinic. After clinical examination and treatment plan agreed by patients, students are responsible to manage patients' appointments until case completion. Most of the time, patients' appointments will be scheduled through a text message or personal call. Students are encouraged to send a gentle reminder to ensure no last-minute cancellation. These reminders are for record purposes to avoid unreasonable termination. This method is proven to significantly improve the appointment rate and reduce the number of missed appointments (Penzias *et al.*, 2019). With proper appointment policies, reminders and patient's motivation, a missed appointment can be effectively controlled. Furthermore, it allows the affected student to arrange for a replacement for the clinical session. However, no data has been collected to establish this veracity.

This study showed that almost forty per cent of the patients treated by clinical dental students in this dental academic centre missed their dental appointment. The percentage of missed appointments in this study is slightly higher compared to other similar studies in another academic dental centre (Awartani, 2003; Storrs *et al.*, 2016). Less number of samples collected in this study could be the reason. Further research with a large number of samples is highly recommended.

Previous studies have shown that transportation, forgetfulness and miscommunication were the most common reasons for missed appointments among patients (Albarakati, 2009; Onyejaka *et al.*, 2018; AlSadhan, 2013). Surprisingly, the findings of this study showed the opposite results where these reasons were the least quoted reasons for missed appointments. This is most likely due to the dental care policy being practice in USIM which encourages that patients need to be reminded through call or text messages at least 24 hours before their scheduled appointment. Frequent communication through text messages and phone call help to reduce patient-dentist miscommunication problems (Storrs *et al.*, 2016). As USIM dental centre is located in the middle of the

city, the most frequent issue of transportation presented in previous studies is not an area of concern in this study as patients can easily reach the clinic by different modes of transportations. On the other hand, this study found that one-quarter of patients missed their dental appointments due to personal reasons however, no clear evidence has been shown and the exact cause needs further investigation. Moreover, a high percentage of unknown reasons for missed appointments should be evaluated carefully. This could be due to improper documentation of missed appointments by the dental student during their clinical sessions. Thus, it is important to emphasize on taking good clinical notes to avoid data records errors.

This study showed that a higher number of patients who missed their appointments were still undergoing treatment. According to a guideline provided by the dental centre, non-attending patients with more than three times will be put under consideration for termination. Therefore, it is important to discuss and inform patients regarding the cancellation policy to avoid more missed appointments in the future without any valid reason. This is to ensure the valuable clinical sessions are not wasted. It has been suggested that no-show rates are higher among patients who missed appointments in the previous three appointments (Tsai *et al.*, 2019). However, there were still some patients who missed more than three appointments being treated by USIM dental students. Major clinical procedures such as endodontic therapy or crown/bridge work that have been treated halfway could be the reason for patients' retainment. According to Storrs *et al.* (2016), after relief from acute symptoms of an initial endodontic session, the patient was less inclined to resume the treatment as they believed the treatment has completed. Thus, the treatment plan should be discussed to obtain full cooperation from patients. In the meantime, a supportive environment demonstrated by the oral healthcare personnel can help the patient to understand the importance of appointment-keeping behaviour to ensure frequent dental

clinic visits as planned (Horsley *et al.*, 2007; Sbaraini *et al.*, 2012).

The limitations in this study were data extraction was done using conventional method which involved retrieving patient's records using patient folder. Currently, the record keeping system were shifted gradually to electronic records; thus, there is a possibility of some data were excluded in this study. In addition, our study only focusses on the reason of missed appointment from the dental student's perspective only. Thus, for future research, it is suggested to include more variables to further understand the reason why missed appointment among patient occur.

## Conclusion

More than one-third of dental students' patients missed their dental appointments. A quarter of the patients who missed these appointments is due to personal matters. Patients who adhere to their scheduled dental appointment mostly complete their treatment under dental students. A proper explanation of the clinic policies and dental procedures to be taken by the students before scheduling an appointment is essential to avoid any missed dental appointments so that patients' treatment plans can be completed. The findings of this study could provide useful preliminary data for the university to further improved the record-keeping system among dental student and structure remainder system to reduce missed appointment rate.

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## Conflict of Interest

The authors declare that they have no financial or other conflicts of interest in relation to this research and its publication.

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