

Utilisation Of Clinical Session Among Postgraduate Dental Students In Universiti Malaya

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ABSTRACT

The aim of this study is to evaluate utilisation of clinical session among postgraduate dental students. A retrospective study was conducted among six postgraduate students' cohort 2016/2020 of Master in Clinical Dentistry (Restorative Dentistry in Conservative Dentistry) in Faculty of Dentistry, Universiti Malaya. Data were retrieved from clinical attendance logbook involving their second year until the end of third year and were recorded accordingly based on number of students, total number of patients, type of treatment and utilisation of clinical session (fully utilised, semi-utilised and non-utilised). Overall, only 14% of them called more than two patients (fully utilised) within two years of postgraduate programme and most of the students fully utilised their clinical session during third year of their study (semester 5 and 6). It is showed that, more students fully utilised morning sessions (223 sessions) more than the afternoon sessions (56 sessions). Comparing Endodontics and Prosthodontics sessions, the percentages of students planned to call for more than one patient is almost similar, 13% and 16% respectively. It is recommended that the existing standard be revised to one patient being seen for each clinical session based on the 14% compliance level to the current standard.

Keywords: utilisation, clinical session, dental postgraduate, patient

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I. INTRODUCTION

Postgraduate programme (PG) for conservative dentistry in Universiti Malaya (UM) encompasses the disciplines of operative dentistry, endodontics, and fixed prosthodontics. This four-year programme is aim to ensure students gain the appropriate knowledge, attitudes, communication skills and understanding of scientific and clinical principles and higher clinical skills to enable them to provide comprehensive oral rehabilitation in an integrated clinical, academic and research environment. As for the assessment, students are required to achieve a pre-determined clinical requirement in order to sit for the final professional exam. Hence, the clinical requirement is not only as a prerequisite tool to sit for exam, but will prepare the students to become versatile and competent future specialists.

A comprehensive environment for dental education should help students develop their interpersonal, clinical, non-clinical competencies. These abilities must be supported by the integration of knowledge from dental courses by professional and ethical values and by cognitive and psychomotor skills (1). An example of the competencies for the fourth-year clinical course in Conservative Dentistry at The University of Hong Kong is the students should able to select and use satisfactorily, appropriate materials for all clinical and laboratory stages of procedures for operative dentistry, including endodontics and single crowns (2). Once basic competency has been achieved, dental graduates must take the continuum to higher levels of competency, through continuing education and postgraduate dental programmes (3).

In 2019, Malaysia Qualification Agency (MQA) have published guidelines entitled Programme Standard for Dental Specialties. However, there was no Conservative Dentistry specialty mentioned in the guidelines as the guidelines intended for new doctorate programme (4). Hence, students' performance with each patient and each procedure is evaluated by the supervising instructor, resulting in a "daily grade" (5). In order to complete the requirements, improving postgraduate students' competency and for educators to have fair assessment, it is crucial for students to ensure that they are utilising all clinical session effectively.

Currently, there is no written standard or consensus regarding the optimum number of patients to be seen in each clinical session for postgraduate students despite the program being delivered for the past 20 years. Nevertheless, for the study purposes, the Restorative Dentistry Head of Department has agreed that the

Conservative postgraduate students should see at least two patients in each clinical session. This is then set as the standard for this study in order to observe the capability of the students to bring more than one patient.

Therefore, the purpose of the study is to evaluate the utilisation of clinical session among Conservative postgraduate students in Faculty of Dentistry of Universiti Malaya. The specific objectives are to determine the percentage of fully utilised clinical session among the PG Cons students (cohort 2016-2020) and to identify most treatment provided to the patients during the clinical session. The rationale of the study is to have baseline data on clinical utilisation among postgraduate students and to improve the curriculum and clinical system for future reference and improvement.

II. MATERIALS AND METHODS

This is a retrospective study of 2016/2020 Master in Clinical Dentistry (Restorative Dentistry in Conservative Dentistry) postgraduate cohort in Faculty of Dentistry, UM. All data for 6 students from this cohort group were collected and analysed quantitatively. Data were collected from the clinical attendance logbook starting from the first day clinical session started until the end of year 3. The data extracted were as follows:

1. Date and time of clinical session
2. Type of clinical session
3. Students' name
4. Patients' name
5. Patients' treatment plan for that clinical session.

Firstly, clinical attendance logbook sheets were divided according to semester; semester 3, semester 4 (Year 2) and semester 5, semester 6 (Year 3) following Conservative Department, Faculty in Dentistry, UM academic time table. Total number of clinical sessions for each semester and students were counted. For every session, total number of patient/s planned to be seen were counted by semester and by students. Total sessions were further divided according to time of clinical session, either morning or afternoon session and type of clinic; Endodontics or Prosthodontics Clinic. For each and every clinical session, planned treatment/s for patient/s were grouped as below (Table 1).

Table 1 Type of Treatment

Prosthodontic			
Fixed		Removable	
F1	<ul style="list-style-type: none"> • General Examination & Diagnosis (E&D) • Prosthodontic E&D • Occlusal analysis with/without prosthesis design • Facebow record • Primary impression 	R1	<ul style="list-style-type: none"> • Rest and seat preparation • Secondary impression
F2	<ul style="list-style-type: none"> • Tooth preparation • Sectioning of fixed prosthesis • Restorability assessment • Temporary crown/bridge 	R2	<ul style="list-style-type: none"> • Bite registration • Maxillomandibular relation (MMR) record
F3	Secondary / definitive impression	R3	Try in denture
F4	Try in / and issue fixed or prosthesis appliance <ul style="list-style-type: none"> • Crown • Bridge • Dahl / Splint • Night guard 	R4	Issue denture
F5	Indirect restoration (preparation / cementation) <ul style="list-style-type: none"> • Veneer • Inlay • Onlay 	R5	Repair denture
F6	Operative work <ul style="list-style-type: none"> • Direct restoration • Crown build up • Direct composite veneer 	RR	Review denture
F7			

	Post and core <ul style="list-style-type: none"> • Preparation • Cementation • Build up 		
FR	Review fixed prosthesis		
Endodontic			
E1	<ul style="list-style-type: none"> • Endodontic E&D • Pre endo treatment eg: build up, placement of molar / copper band 		
E2	<ul style="list-style-type: none"> • Cavity access • Canal negotiation • Canal patency • Canal scouting • Working length establishment 		
E3	Cleaning and shaping (C&S)		
E4	Obturation		
E5	Retreatment cases <ul style="list-style-type: none"> • Removal of post / retrieval of fractured instrument • Removal of GP • Repair of perforation 		
E6	Bleaching <ul style="list-style-type: none"> • Internal • External 		
ER	Review endo		
Others			
I	Implant <ul style="list-style-type: none"> • Planning • Surgery • Impression • Issue 		
O	Other treatment <ul style="list-style-type: none"> • Periodontic treatment including deep scaling, root planning and gingivectomy / gingivoplasty • Extraction / suture removal • Emergency treatment Eg : Pulpectomy <ul style="list-style-type: none"> • On call cases 		

The collected data were tabulated and descriptive analysis was carried out using SPSS version 23 software (SPSS Inc., Chicago, IL, USA). For the report purposes, utilisation of clinical session definition was defined and explained as below:

- Fully utilised means the student was seeing two or more patients in the clinical session.
- Semi utilised means the student was seeing one patient in the clinical session.
- Non utilised means the student did not see any patient in the clinical session.

III. RESULTS

Overview of the Total Clinical Session Utilisation within Two Years.

There were six students from the latest cohort (2016/2020) involved in this clinical audit. They were labelled as S1 (Student 1) up to S6 (Student 6) and their clinical sessions utilisation were individually evaluated. The overall utilisation of clinical sessions from this clinical audit are shown in Figure1 which only 14% of the students fully utilised their clinical session. The vast majority of the students called only one patient in a session (semi-utilised) within these two years. Table 2 divides the total number of clinical sessions utilised by each of the student for two years of their clinical practice.

Percentage (%) of Total Clinical Session Utilisation

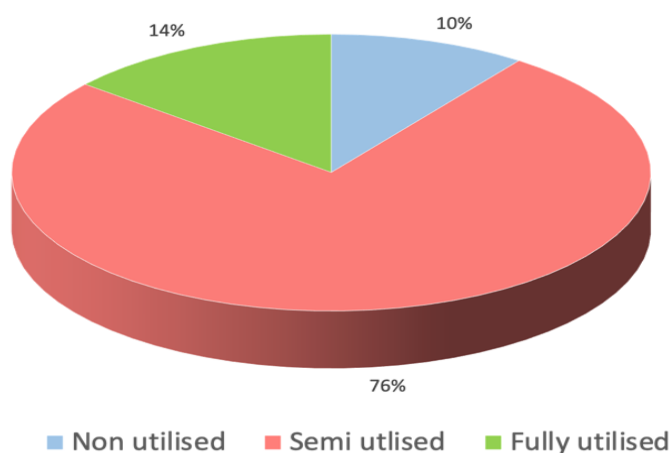


Fig. 1 The percentage (%) of total clinical session utilisation within two years of post-graduate programme.

Table 2 The utilisation of clinical session among the students within two years of their post-graduate course.

Student	Number of Clinical Session		
	NonUtilised	SemiUtilised	FullyUtilised
S1	13	262	57
S2	12	268	52
S3	7	282	43
S4	52	241	39
S5	45	221	66
S6	69	241	22

The Clinical Session Utilisation Among Students by Semester

Table 3 illustrates the number of clinical sessions utilization for all the semesters; Semester 3 and 4 (Year 2) and Semester 5 and 6 (Year 3). It was found that, most of the students struggled even to bring one patient into their clinical session during Semester 3, with a total of 83 non-utilised sessions. However, the number of utilised sessions showed an increasing trend towards Semester 6. Notably, Student 6 seemed to have the lowest number of fully-utilised clinical sessions for every semester. A total of 1992 clinical sessions were calculated for all six students. Every student was allocated equal clinical sessions.

Table 3 Total number of clinical sessions among students by semester.

	S1	S2	S3	S4	S5	S6	Total
Non-Utilised							
Sem. 3	7	1	4	17	26	28	83
Sem. 4	0	2	1	13	9	11	36
Sem. 5	5	2	2	9	4	9	31
Sem. 6	1	7	0	13	6	21	48
Semi-Utilised							
Sem. 3	66	71	69	55	44	46	351
Sem. 4	67	66	66	56	51	61	367
Sem. 5	78	78	83	75	74	82	470
Sem. 6	51	53	64	55	52	52	327
Fully-Utilised							
Sem. 3	2	3	2	3	5	1	16
Sem. 4	7	6	7	5	14	2	41
Sem. 5	20	23	18	19	25	12	117
Sem. 6	28	20	16	12	22	7	105

TOTAL	332	332	332	332	332	332	1992
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Other Findings

Morning vs Afternoon Session

Morning sessions were found to be higher in numbers (194 sessions) when compared to the afternoon sessions (138 sessions). It also showed that the students fully utilized their morning sessions (233) more than the afternoon sessions (56). A similar increasing trend of fully-utilised clinical session was proved by the increasing mean number of patients planned in a clinical session as in Table 4. The mean score is 1.2 (more than one patient) for both Semester 5 and 6.

Table 4 The mean score, highest number of patients and distribution of AM and PM session.

Semester	Mean	Highest Number of Patients	AM/PM	AM/PM (fully utilised)
3	0.85	2	46/29	7/9
4	1	3	47/27	37/4
5	1.2	3	56/46	92/25
6	1.2	4	45/36	97/18
Total			194/138	233/56

Endodontic vs Prosthodontic Session

As mentioned previously, the clinical sessions are divided into Endodontics (E) and Prosthodontics (P) sessions. However, after calculating the total slots provided, the difference is only 32, with more Prosthodontics than Endodontics sessions. Interestingly, only 8.90% (Year 2) and 11.30% (Year 3) of total Prosthodontics clinical sessions spent for removable partial denture cases (Table 5).

Although the total number of Prosthodontics sessions are slightly higher (182) when compared to Endodontics session (150), the percentages of students with fully-utilised clinical sessions are almost similar, 13% and 16% respectively. Based on the findings, Table 6 summarised the combination type of treatment commonly delivered to patients if the students planned to call more than one patient during the same clinical session which is F1 (examination and diagnosis).

Table 5 Percentage of clinical session utilised for RPD cases

YEAR 2			
% for Removable procedure	$\frac{R}{(F+R)} \times 100$	$\frac{45}{504} \times 100$	= 8.90%
YEAR 3			
% for Removable procedure	$\frac{R}{(F+R)} \times 100$	$\frac{93}{823} \times 100$	= 11.30%

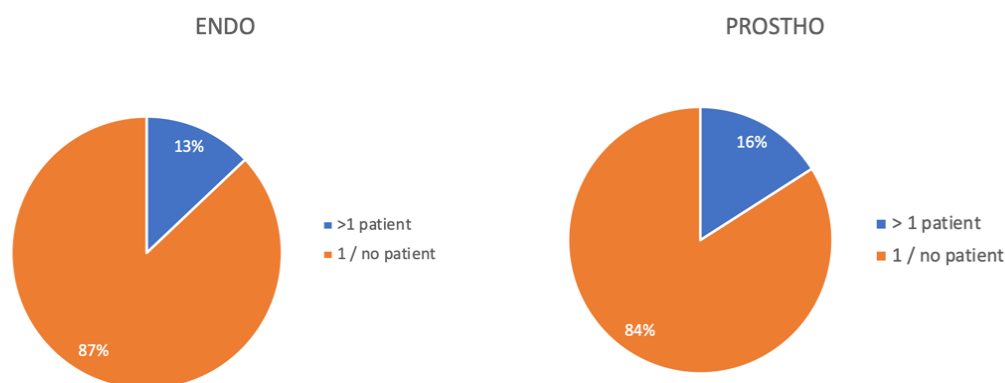


Fig. 2 The percentage of endodontic and prosthodontic clinical session planned for more than one patient.

Table 6 The type of treatment combination for sessions with more than one patient in Endodontic and Prosthodontic clinical sessions.

Number of patients Semester	2	3	4
Sem 3	F1+F1 / E1+E1	NIL	NIL

Sem 4	F1+F4 / E1+E2	F3+F3+F1	NIL
Sem 5	F1+F1 / E2+E3	R4+F1+FR	NIL
Sem 6	F1+F1 / E2+E3	F3+F4+F1	F1+F1+F1+O

IV. Discussion

In this study, the standard was set that the Conservative postgraduate students should see at least two patients in each clinical session. The key findings showed that only 14% of the students were able to meet the standard for both Year 2 and Year 3 clinical sessions of the same cohort. The low compliance rate most probably resulted from suboptimal planning by the students or overly high expectation set by the Department in setting up the standard. To solve this, Tiberius et al. in 2002 suggested assigning group of students to lecturers to help guide them regarding the clinical flow and protocols (6).

There was a 13% increase of fully-utilised clinical session from Year 2 to Year 3. This increment is likely due to the students becoming more comfortable with setting up their own clinical sessions to help improve their knowledge and skills. The students' performance was also more satisfactory in dental and clinical courses, compared to basic and non-clinical courses ($p < 0.001$) (7). The trend is expected to increase progressively once they enter Year 4 since there will be many requirements and clinical cases that needed to be completed.

In the United States of America, Turkey, New Zealand and Brazil, the reduction in the number of student clinics has been found to affect them in terms of completing required competency examinations (8),(9). Based on the percentage in Figure 1, it shows that, for every ten clinical sessions, there must be one session which has not been utilised (10%). This considered as high percentage and precaution must be taken to avoid any problem in completing the requirements including increasing the man power because during the clinical session, the students will work faster, more efficient, at the same time to achieve the standard earlier and better result in future since they have enough personnel to help and guide them.

The provision for self-reflection in addition to an achievement in clinical services is made possible by a well-structured student record of clinical performance, such as a log book (10). The accountability of writing proper planning or type of treatment for the patients in this logbook were solely dependent on the students. Based on the result, Student 6 was found not utilising the most clinical sessions from Semester 3 until Semester 6. This was likely due to the student being unprepared to call patients for appointment, not completing the lab works or due to the patient cancelling the appointment for certain reasons.

From the result, the mean number of patients brought for a clinical session was 1.2 and this was only after the students were in Year 3 (Semester 5 and 6). While the highest number of patients seen in a clinical session (4 patients) was noted in Semester 6. This indicated that most of the students are aware about the importance of treating more than one patient in a clinical session. One probable variable is duration or year of the students in this programme that contributed to the ability of the student to get accustomed to the clinic flow, system, and communication with the patients. In addition to having solid technical knowledge and the capacity to analyze and solve issues, dental practitioners in this discipline must be able to interact effectively with their patients (11),(12).

Although the number of morning slots were almost equal to the afternoon slots, majority of the students brought more than two patients in the morning session. This can be due to longer operating hours in the morning session; 9.00 a.m. to 12.30 p.m. when compared to afternoon slot, which is about two and half hour per session. One-hour difference between these two slots, may affect students' confidence and optimistic level in completing their clinical work within the stipulated time.

We identified several limitations from our study. Since this study is only based on students' documentation in the logbook, incomplete or not updated data may affect data interpretation. There was also non-standardized writing in the logbook that pose a challenge for the data interpretation. The data was also non-uniform where the greatest number of non-utilized clinics were mainly from Student 4,5 and 6 with 83.83% wasted sessions.

This pilot study investigated the utilization of clinical sessions among the students from the same cohort. From the results obtained, the students generally were not able to achieve the standard of bringing at least two patients for a clinical session. However, this single study is not able to determine the students' competency level. Therefore, this study should be done every two years. This will allow comparison between cohorts and may be useful in determining the new standard. From this study, we suggest that the standard be revised to one patient per clinical session in Year 3 (second semester) and Year 4.

V. Conclusion

It is recommended that the existing standard be revised to one patient for each clinical session especially for Year 2 and Year 3 students, based on the 14% compliance level to the current standard due to several factors like operator skills and man power.

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Declaration Of Interest

The authors confirm no conflict of interest. The authors are responsible for the content of this article.

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