

Original Article

How the COVID-19 pandemic affected clinical exposure of final year medical students: A comparison study of portfolio assessments

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Key words: clinical exposure, portfolio, medical students and COVID-19 pandemic.

Abstract

Background and Objective

COVID-19 restrictions had a major impact on the academic sector globally. The aim of this study was to compare the clinical exposure of final year medical students at the professorial unit of Obstetrics and Gynaecology of Colombo South Teaching Hospital during the COVID-19 pandemic with those who attended clinical training prior to the pandemic.

Methods

Systematic sampling of 66 medical students belonging to two clinical groups, who had completed their professorial Obstetrics and Gynaecology appointment during the pandemic, was done, using their student portfolios recording the clinical skills and procedures performed during the appointment. The pre-COVID-19 data were gathered from a previous study carried out in the same unit in 2018.

Results

Most students managed to complete both the Gynaecological and the Obstetrics Mini-Clinical Evaluation Exercise (62.1% and 56.1% respectively) but, compared to the pre-pandemic era, a higher percentage presented only one case or none. All students completed the Objective Structured Assessment of Technical Skills in episiotomy suturing (100%) and a majority (90.9%) performed artificial rupture of membranes (ARM). However, only 36.4% had the opportunity to perform a PAP smear independently. Majority (95.1%) of the cases were presented to the registrars attached to the unit while only a minority was evaluated by a consultant (3.8%). The Obstetric and Gynaecological clinical procedures and skill acquisition showed slightly lower percentages than in the pre-COVID-19 period with the means and the medians lying in between the 1st and 2nd quartiles of the distribution.

Conclusion

On average, there was a slight decrease in the clinical exposure to procedures and skills during the COVID-19 outbreak compared to the non-COVID-19 period. Additionally, the opportunity of the medical students to be supervised by a consultant Obstetrician and Gynaecologist reduced drastically during the pandemic.

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Introduction

The COVID-19 pandemic had a global impact, particularly in the academic sector which was significantly compromised. Proper clinical exposure plays a major role in ensuring the competence level of medical students [1]. Students underwent major alterations in both the curriculum and learning methods due to restrictions caused by the pandemic.

Evidence shows that the mental state of a medical student is more pressured compared to a peer of the same age in the general population, due to the added academic stress and burden [2]. Learning and receiving sufficient clinical exposure amidst the pandemic posed an additional challenge. Visiting clinical wards as a part of their clinical training, despite the risks to their health was necessary to get an adequate exposure to clinical materials, particularly contact with patients and hands on skills.

A portfolio is a “collection of evidence to prove that learning has taken place”. It is a method of encouraging adult and reflective learning in professionals. A portfolio is a means of recording all learning, reflection and future learning in one place [1]. Learning is recorded in the form of documentation of learning and showcasing what has been learned, by a recording of events or experiences, procedures carried out, variety of cases observed and presentations during the clinical period. From the student’s perspective, the portfolio enables them to reflect, learn from their experience and ensure sustainable learning. Portfolios facilitate the connection of theoretical concepts with practical applications to gain more understanding in individualized care [3].

Portfolios are used in multiple ways to help the institute and the students evaluate and monitor progress in clinical education. They help in acquiring practical skills for professional development while serving as a self-assessment tool for students [4].

The surgical curriculum incorporates a large number of soft skills and hand skills, where students need to have hands-on experience under supervision before they practice independently. These skills must be critically assessed by a responsible trainer to ensure the safety of patients later. The tailor-made portfolio for the Obstetrics and Gynaecology professorial appointment of the University of Sri Jayewardenepura includes Objective Structured Assessment of Technical Skills (OSATS) and serves as a validated method for assessing clinical procedural exposure. This portfolio aids in evaluation of the training programme of the final year medical students [5].

The mini clinical evaluation exercise (mini CEX) is another assessment tool used in assessing the clinical skills, attitudes, and behaviors of medical students in real-life clinical settings. It is an established tool used to collect evidence of learning in a portfolio [6]. The main aim of using the mini- CEX is to guide the students and improve their clinical performance by providing structured and prompt feedback for the learning activity performed by the student. This aids to identify areas where they can improve in communication, history taking, physical examination and professional conduct [3].

The main objective of the study was to assess and compare the clinical exposure of the final year medical students engaged in the professorial appointment who underwent ward work amidst the COVID-19 pandemic with students who engaged in the professorial appointments before the pandemic.

Methods

The study was conducted among medical students attached to the Professorial Obstetrics and Gynaecology Unit of the Faculty of Medical Sciences, University of Sri Jayewardenepura using 66 portfolios maintained during their clinical rotation lasting for 7 weeks. The Professorial Unit is made up of three wards with a bed capacity of 38 beds per ward having a rate of 280-380 obstetrics and 250-350 gynaecology admissions per month before the pandemic [7] whereas during the pandemic it was reduced to 200-220 and 180-200 respectively [8].

At the beginning of the appointment, the students were instructed on how to maintain the portfolio, including recording the ward procedures performed and the cases presented, which is assessed at the pre-professorial and end appointment portfolio viva. The aspects of the portfolio we considered to assess clinical work exposure included 2 Mini Clinical Evaluation Exercises (Mini CEX) each for Obstetrics and Gynaecology, 3 Objective Structured Assessment of Technical Skills (OSATS) i.e. artificial rupture of membranes, episiotomy suturing and performing a PAP smear independently, other gynaecology clinical skills (21), gynaecological procedures (57) and obstetric procedures (54). The Mini CEX involves presenting a case history and examination to either a consultant Obstetrician and Gynaecologist, a senior registrar or a registrar.

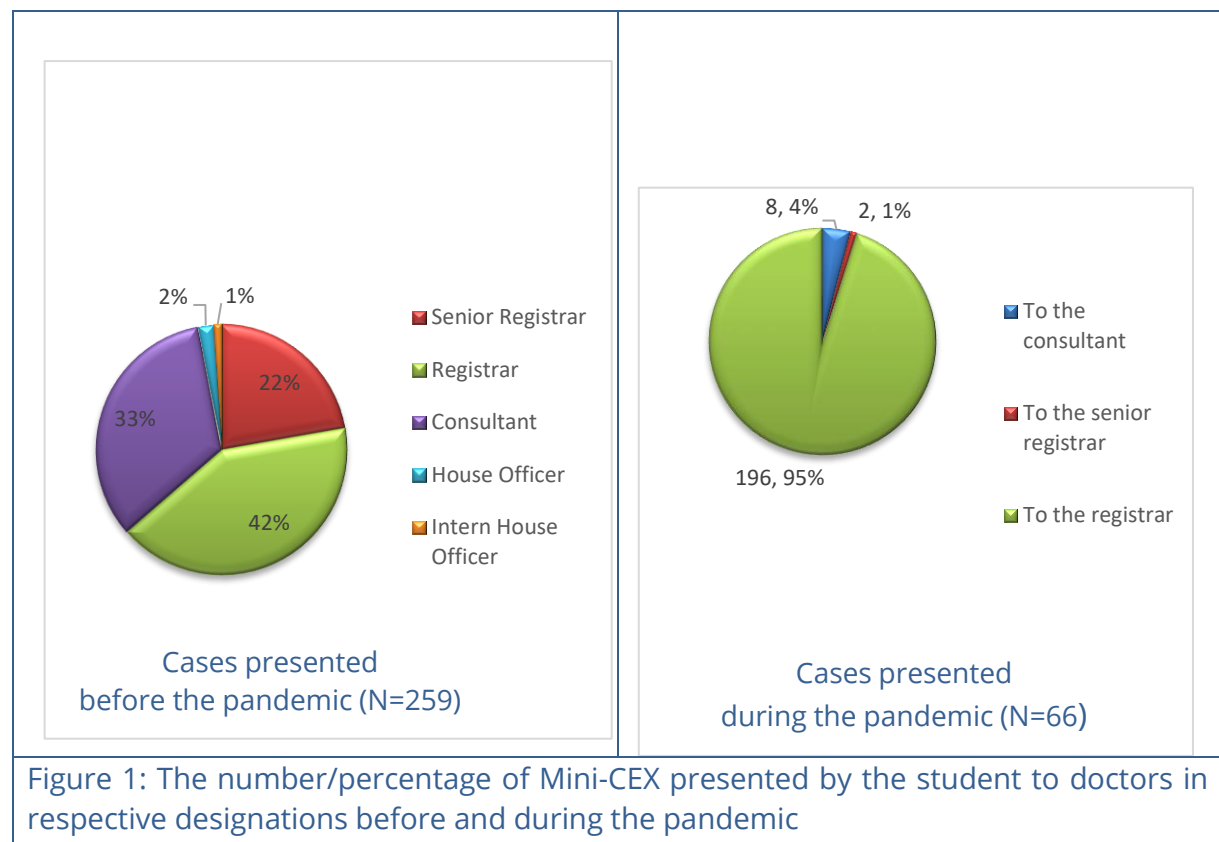
The sum of above-mentioned procedures done by each student were manually counted. The previous data regarding the student portfolios were gathered using a study done in the same unit during a non-COVID19 era [7] named "Feasibility of maintaining a portfolio for a professorial appointment in Obstetrics and Gynaecology in a low resource setting" and was compared with the current data. Statistical Package for Social Sciences (SPSS – 23) software was used to analyse data and Categorical data were presented as raw data and frequencies. A p value of less than 0.05 ($p < 0.05$) was considered as statistically significant for all analysis with a 95% confidence interval.

Results

Although, all medical students at the Obstetrics and Gynaecology professorial unit were expected to complete the portfolio to be assessed at the end of the appointment, only 62.1% had fully completed both Mini CEXs for Gynaecology and only 36.4% had presented at least one case. For Obstetrics, 56.1% had fully completed the Mini CEX while 39.4% had completed a single assessment. However, 1.5% and 4.5% of the group did not perform any Mini CEX during the Gynaecology and Obstetrics components, respectively. There were 3 OSATs to be completed by the students during the attachment. OSATS are important skills to be acquired as a medical student. All students (100%, $n=66$) performed at least one episiotomy independently while a vast majority (90.9%, $n=60$) performed artificial rupture of membranes. However, only 36.4% ($n=24$) collected PAP smear samples by themselves. Moreover, only 33.3% ($n=22$) performed all three OSATS.

The overall number of cases presented was 206. However, only 3.8% ($n=8$) were presented to and evaluated by a Consultant Obstetrician and Gynaecologist for with a

lower proportion (0.9%, n=2) presented to the Senior Registrar. The rest (95.1%, n=196) were presented to the registrars attached to the ward (Figure 1).



A majority (78.8%, n=55) of the students attended 15 lectures with a mean of 15.36.

All students managed to get patient feedback in their portfolios, and on average, one reflective writing was completed per student.

There were 21 gynaecological clinical skills allocated to be assessed in the portfolio and a range of 1 to 16 were performed by students with a mean of 7.47(SD=3.34).

Regarding gynaecological procedures, out of the 57 allocated tasks, the total number of procedures completed ranged from 5 to 32 with a mean of 12.14. T

he obstetrics procedures included 54 tasks and the total tasks performed ranged from 6 to 33 with a mean of 17.77.

All clinical procedures were expected to be performed individually, done under supervision or observed during the appointment.

Table 1: Number of Mini-CEX and OSATs completed

Assessment tools	Completed portfolios before COVID-19 (N=259)		Completed portfolios during COVID-19 (N= 66)	
	Number completed	Average (per student)	Number completed	Average (per student)
Mini-CEX-Gynaecology	477	1.588	107	1.621
Mini-CEX – Obstetrics	502	1.843	103	1.56
OSATS – ARM	258	0.99	60	0.90
OSATS–Episiotomy Suturing	259	1.00	66	1.00
OSATS – Pap Smear	197	0.392	24	0.36

Discussion

Medical education is one of the many sectors that were disrupted as a result of the COVID-19 pandemic. As it is a sector that cannot withstand long term disruptions, the clinical training time was limited without compromising the quality of the curriculum [9]. During the pre-pandemic era, the final year medical students attached to the Professorial Gynaecology and Obstetrics Unit had an 8-week clinical rotation which was restricted to 7 weeks during the pandemic. This was to facilitate the pending academic load which was on hold for a considerable period due to the island wide quarantine regulations. The Professorial clinical appointment commenced at the ward after a series of online teaching sessions during the travel restricted period. However, distance learning in medical education carries significant risks by increasing the level of cynicism and emotional exhaustion due to the lack of clinical experience before they start working as qualified doctors (2). Evidence shows that this negative emotional impact increases their worries regarding adverse outcomes during exam performances [10]. Hands-on clinical training has the benefit of effective acquisition of professional skills [4]. Similar studies have been carried out globally to assess the outcomes of limited clinical exposure during the COVID-19 pandemic [1,2,9,10]

In addition to the reduction of duration of clinical appointments, the students had to complete the appointment on a roster basis, with a minimum number of students allowed to be present in the wards at a time due to health concerns [9]. According to our findings, due to restrictions in physical gatherings, students had limited encounters with consultants and senior ward staff. These findings were in line with Gottschalk [10] and Miller [4] who also described a perceived decrease in clinical experience due to the pandemic.

The portfolio is seen as one form of assessment suited to evaluate the application of theory in practice [3]. It includes documented details of Mini CEX, patient feedback, ward procedures performed and surgical skills acquired during the clinical appointment. The student portfolio had been maintained well with adequate exposure to practical skills

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before the pandemic [7]. Conversely, exposure to case presentations and practical OSATs were relatively reduced during our study but this was not statistically significant. The reason behind this reduction could be due to the limited number of patients attending hospitals during the pandemic. However, although the admissions reduced due to COVID-19 regulations [8], student exposure was shown to be only slightly reduced than what was anticipated, probably due to dividing the students into two sessions allowing them to encounter the cases without overcrowding.

Compared to the previous study, done in the same unit, where the students were assessed on six OSATs, there were only three OSATs in the current portfolio [7]. However, this has been found to be reliable as a valid instrument to assess the surgical skills of a medical student [3,5].

The previous study did not carry data regarding the completion of the gynaecological and obstetrics ward procedures and skills [7]. Thus a comparison of ward procedures could not be done. Yet the mean distribution was between the 1st and 2nd quartiles, denoting lesser practical clinical exposure to ward, theatre, and labor room procedures.

Despite the low patient number, all students were able to get patient feedback forms filled during the pandemic. Furthermore, 100% positive feedback was provided by the patients about the attitudes and care of the students towards the patients. These findings were similar to the previous study done in the same unit during the pre-COVID era [7]. As opposed to the pre-COVID-19 era, the students were expected to write only one reflective writing during their appointment. This was due to the scarcity of interesting cases in the ward.

Conclusion

In this study comparing clinical exposure of final year medical students attached to the professorial unit of Obstetrics and Gynaecology appointment during the COVID-19 pandemic with that of those who completed the professorial appointment before the pandemic, the clinical exposure to procedures and skills was slightly reduced on average and the opportunity of the medical students to be supervised by a Consultant Obstetrician and Gynaecologist was reduced drastically during the pandemic.

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Compliance with Ethical Standards

Informed consent was taken from the students before enrolling them into the study.

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