

CLINICAL EDUCATION DURING COVID-19 PANDEMIC: EXPLORING MEDICAL STUDENTS AND CLINICAL SUPERVISORS' EXPERIENCES

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Submitted: 25 Jul 2022, Final Revision from Authors: 28 Jan 2023, Accepted: 01 Feb 2023

ABSTRACT

Background: COVID-19 has become a global pandemic that has caused significant changes, including in the context of implementing clinical education. Medical students and clinical supervisors face various adjustments that become a dilemma. This study aims to explore the implementation of clinical education in the era of the COVID-19 pandemic based on the experiences of medical students and clinical supervisors.

Methods: Qualitative research was performed using purposive sampling. Informant interviews were arranged until data saturation was achieved, followed by an analysis process using thematic analysis.

Results: Seven themes were identified, including learning opportunities and engagement, interaction with patients, communication and interaction with colleagues and supervisors, facility and individual management, supervision process, awareness and confidence, and evaluation and assessment on clinical rotation. The results of this study indicate several changes in the implementation of clinical education during the COVID-19 pandemic compared to before the COVID-19 pandemic.

Conclusion: There are several noticeable changes in the implementation of clinical education during the COVID-19 pandemic compared to before the pandemic by referring to the experiences of medical students and clinical supervisors. It is related to the factors that influence the implementation of clinical education during the COVID-19 pandemic.

Keywords: clinical education, medical students, clinical supervisors, COVID-19 pandemic

PRACTICE POINTS

- The opportunity to conduct clinical practice through direct interaction with actual patients is an essential requirement in implementing clinical education during the COVID-19 pandemic to develop the clinical skills of medical students.
- The intensity of supervision and feedback from clinical supervisors are needed to complement the limitations in implementing clinical education during the COVID-19 pandemic.
- The online approach is applicable and can enhance as an alternative theoretical mentoring modality to resolve the limited time of clinical supervisors with multiple workloads.

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INTRODUCTION

Continuity of medical education is essential in shaping future generations of doctors to answer the need for better health degrees, including during the COVID-19 pandemic as a global pandemic.¹ Consequently, education needs to pay attention to developing the implementation of student competencies by adapting to the components that contribute while considering the vigilance against COVID-19.² Various implications of implementing clinical education during the COVID-19 pandemic include a shift in the learning paradigm more directed towards e-learning or virtual approaches,³⁻⁶ using of telemedicine to facilitate the management of patient cases,^{7,8} clinical rotation tends to be shortened⁹ and also the contribution of medical students in handling COVID-19.^{10,11}

In the experience-based learning (ExBL) concept, the implementation of clinical education requires concrete experience to help determine the abilities medical students need to get comprehensive practical opportunities through involvement with clinical supervisors and learning from actual patients to become a competency.¹² Several things that affect the effectiveness of clinical learning experienced by medical students when undergoing clinical rotation, as stated by Dolmans et al.,¹³ in their research, include the diversity of patients related to case variations, authentic experiences, patient interactions, first experience while undergoing clinical clerkships, the application of knowledge, and all other forms of experience that are integrated; supervision from clinical supervisors, organization of teaching experience including learning environment factors, curriculum, learning activities; and learning skills, related to personal characteristics in the learning process. Furthermore, Findyartini et al.¹⁴ conducted a follow-up study in Indonesia by adopting the concept of clinical learning by Dolmans and Strand, formulating six factors or subscales that play a role in the clinical education environment, including learning opportunities and involvement, interaction with patients during clinical rotation, communication and interaction with colleagues and supervisors, facility and individual management, supervision process, and self-awareness and confidence.

This differs from implementing clinical education during the COVID-19 pandemic, which is more oriented towards an online approach with various restrictions according to existing conditions. Research that specifically reviews the implementation of clinical education in the pandemic era based on medical students' and clinical supervisors' perspectives or experiences has not been published explicitly, especially in Indonesia. Thus, this study aims to explore the experiences of medical students and clinical supervisors in implementing clinical education during the COVID-19 pandemic era.

METHODS

This study was performed at the Faculty of Medicine, Universitas Pattimura (FM UNPATTI). The implementation of clinical education at FM UNPATTI is carried out in 13 departments, divided into five major departments or major stations (Internal Medicine/Internal Medicine, Obstetrics and Gynaecology, Surgery, Pediatrics and Public Health) and eight minor or minor departments (Forensic, Radiology, Ophthalmology, Skin-genital, Ear Nose Throat (ENT), Nerves, Psychiatric and Anesthesia). In the context of a pandemic, the clinical rotation duration is shorter than before and uses a blended learning method.

A qualitative method with a phenomenological design was used to describe the essence or meaning of a phenomenon that occurs by exploring individual perspectives when experiencing it. It refers to a reflection of life experiences to interpret their meaning consciously.¹⁵ Thus, it is in line with this study context to explore the experiences of medical students and clinical supervisors undergoing clinical education during the pandemic by adopting the concept of clinical learning by Dolmans and Strand refers to six factors or subscales that play a role in the clinical education environment.

Study participants were selected using purposive sampling. The sampling criteria determined according to the purpose of this study include (a) medical professional program students and clinical supervisors representing each department (both major and minor) who have actively registered in

September-December 2021; (b) length of clinical rotation /number of stations that students have passed; and (c) clinical supervisors are heads of departments and or staff based on their experience in contributing to these roles and functions. Exclusion criteria related to the sample in this study include (a) medical professional program students undergo clinical rotation for the first time (prime station); (b) clinical supervisor lecturers play a role in clinical mentoring for the first time (<3 months), and (c) students of the medical profession program and clinical supervisors who are not willing to become informants. The sample size decided after the interview reached saturation: seven medical student informants and seven clinical supervisor informants. The interview recordings of each informant were made verbatim transcripts followed by manual data analysis using thematic analysis with an iterative process.

Ethical approval for this study was obtained from the Medical and Health Research Ethics Committee (MHREC) Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada (Ref. No KE/FK/1259/EC/2021).

RESULTS AND DISCUSSION

In total, 14 interviews were collected in this study, consisting of seven informants representing the experiences of medical students in Obstetrics and Gynaecology, Pediatrics, Internal Medicine, Surgery, Dermatology and Venereology, Anesthesiology, and Neurology; and seven other informants representing the experience of clinical supervisors at the seven departments. Seven themes reflect the implementation of clinical education during the COVID-19 pandemic. Table 1 shows the theme identifications' and excerpts of informants.

Learning opportunities and engagement

According to the informant statements, it was found that the institution implemented a blended clinical rotation with certain restrictions, including students not being allowed to work in the ER, reducing the time on duty while in the hospital, and only treating non-COVID-19 patients. The use of the blended method shows a better impact in terms of knowledge acquisition when compared to traditional learning in health education.¹⁶ It follows by the informant expressing that they lack the acquisition of clinical skills.

Table 1. Themes and Excerpts

Theme and definition	Excerpts
<p>Learning opportunities and engagement</p> <p>The opportunity for medical students to learn independently and comprehensively, to be involved in handling patients to achieve doctor competence during the COVID-19 pandemic.</p>	<p>Lack of clinical practice opportunities <i>"...the skills of ER, I think still lacking, maybe because we are not allowed to work in the ER, so anamnesis, physical examination skills and treatment for patients' management are lacking, we can't practice directly with patients, and also we're never doing infusion of patients at the pediatric department..." (Student, INF2)</i></p> <p>Effectiveness of online implementation <i>"... the implementation is online and offline, the monitoring is lacking, make it through zoom only, after that we can't control the students studying or playing, because we've never been online before, so we need adjustments..." (Clinical supervisor, INF1)</i></p> <p>Readiness in handling emergency cases <i>"...Actually, for emergency cases, it's a bit lacking, if you want to say that there will be less treatment and other types of treatment, so it's a bit paradoxical and feels unprepared if we want to help people (emergency patients) directly..." (Student, INF1)</i></p> <p>The impact of learning during clinical rotation on competency achievement <i>"Obviously, it's not exactly right when comparing their (medical students) before the pandemic, which now has very little practice, maybe because of that there are also less opportunities, they are more online, so it's clear that their competency achievement is different from before the pandemic." (Clinical supervisor, INF2)</i></p> <p>Contribution to handling COVID-19 <i>"...maybe it's best for us to take a look but not go straight into it unless the equipment is complete (personal protective equipment)..." (Student, INF5)</i></p>

Theme and definition	Excerpts
<p>Interaction with patients during clinical rotation</p> <p>Interaction between patients and students of the medical profession program while undergoing clinical rotation to achieve doctor competence as well as the patient acceptance response to the student's main tasks during the COVID-19 pandemic.</p>	<p>Limited interaction with patients <i>"... Interaction with patients is also like being limited during a pandemic like it shouldn't take long to check, whereas before the pandemic it was free..." (Student, INF3)</i></p> <p><i>"The interaction must be limited because there is a pandemic, starting from the emergency room that the students is no longer able to enter, then the patients have been sorted out, moreover they (students) are not allowed to the isolation room at all. So yes, there are restrictions, different from before the pandemic..." (Clinical supervisor, INFIV)</i></p>
<p>Communication and interaction with colleagues and supervisors</p> <p>Communication and interaction between medical students with colleagues (including other health workers) and supervisors, as well as response and support for the main tasks of medical students in clinical education during the COVID-19 pandemic.</p>	<p>Good communication and interaction <i>"So far, we (students and other health workers) have helped each other, ...so we complement each other. So, if there's something we (students) don't know, we'll ask the nurse then we (students) are directed to do this and this, so help each other, we can work together..." (Student, INF7)</i></p> <p><i>"... it's all safe, their interactions (students) with nurses are good, it's the same as before the pandemic..." (Clinical supervisor, INFVII)</i></p>
<p>Facility and individual management</p> <p>Availability and management of facilities needed to support the implementation of clinical education during the COVID-19 pandemic.</p>	<p>Availability of personal facilities <i>"The personal protective equipment (PPE) is all personal, prepared individually, all departments we (students) personally bring the masks..." (Student, INF6)</i></p> <p><i>"I think each one is obliged, yes, you need to prepare yourself too, don't expect from the hospital, the hospital doesn't have the ability if you have to prepare to change every day like that, each person needs to prepare himself..." (Clinical supervisor, INFIII)</i></p>
<p>Supervision process</p> <p>The supervision process carried out by the supervisor in terms of personal abilities as a supervisor, the method used, to the benefits of the process for the achievement of competence during the COVID-19 pandemic.</p>	<p>Supervision frequency <i>"If we give supervision with patients every day, we (supervisors) guide, as long as there are patients, we will guide them (students)...so if there are patients, we will teach the case that day immediately, but it's clearly reduced (frequency) compared to before the pandemic..." (Clinical supervisor, INFIV)</i></p>
<p>Self-awareness and confidence</p> <p>Self-reflection on the learning experience during clinical rotation and the impact on student confidence during the COVID-19 pandemic to become a competent doctor.</p>	<p>Lack of clinical practice for emergency cases <i>"Actually, in surgery department, I think the least thing is emergency skills, ... It's clearly still lacking, even though I know how, but I've never felt (try directly) like that..." (Student, INF4)</i></p>
<p>Evaluation and assessment</p> <p>Evaluation of the mechanism or flow of the implementation of clinical education, and the availability of supporting resources and assessment systems that have been implemented, including during the COVID-19 pandemic</p>	<p>Clinical rotation scheduling <i>"In my opinion, it might be possible to improve in the future for a more consistent rotation schedule, because the rotation system that suddenly changed suddenly seemed to make us delayed ... " (Student, INF3)</i></p> <p>Limited resources <i>"... we are still few supervisors, and most of them are busy, and actually because we are non-permanent lecturers, only special lecturers, so we have another job in other places too..." (Clinical supervisor, INFIII)</i></p> <p>Assessment system <i>"... we still don't have an evaluation mechanism. We need to determine the assessment method, I actually want an MCQ (multiple choice question) like CBT, then SOCA (student oral case analysis), I want it to be set like that...." (Clinical supervisor, INFVI)</i></p>

Most informants said that the decrease in patient case variation during pandemic conditions, accompanied by existing restrictions on institutions, indirectly affected the opportunities and involvement of students in the clinical environment learning process, including the lack of learning opportunities to practice and impact clinical skill progress. Referring to the experience-based learning concept as part of WBL, students should get practical experience or comprehensive practice-based learning from actual patients to become competent.¹²

In terms of the learning method, the online approach provides opportunities, as the findings in this study reveal that it seems flexible without space and time constraints. It is in line with the results of previous research by Mukhtar et al. and Alqudah et al. that this flexibility provides convenience for students who adapt easily to the learning schedule¹⁷⁻¹⁹ and is cost-effective.²⁰ On the other hand, the challenge of using the online method is the lack of control over student learning activities because of the possible distraction that can be caused, as conveyed by the informants in this study. Research by Opuku²¹ to investigate factors that become distractions from using e-learning identified three factors: notification of technology, family, and environment. Different findings are shown in Gallegos and Nakashima's²² research on nursing students, who state that the use of cellular technology positively impacts effective learning. Based on these different perspectives, each clinical supervisor needs to adequately facilitate online learning design using technology because it may indirectly be caused by the gap in pedagogical competence among educators related to promoting learning in an enhanced learning environment through technology.²³

Another characteristic of implementing clinical education during the COVID-19 pandemic is the students' contribution to handling COVID-19. Medical students expressed willingness to manage COVID-19 if facilitated with personal protective equipment (PPE). Meanwhile, the clinical supervisor suggested that final-year student involvement in this context aligns with previous research by Drexler et al.¹¹ It supports the ExBL concept that supports student participation in practices that will result in real patient

learning that can equip students to form the identity and capabilities of a safe, effective, compassionate doctor and develop long-life learning.¹²

Interaction with patients during clinical rotation

This study shows the limitation of medical student-patient interactions, including the intensity of time and the scope of work. It also revealed in a previous study that the lack of patient exposure and the limited time for students to interact with patients in the context of clinical learning resulted from implementing clinical rotation during the COVID-19 pandemic.¹⁹ In fact, experience interacting with patients (concrete experience) becomes the basis of the process of observation and reflection so that new implications in its application are more manageable if you find similar cases on other occasions.¹³

Communication and interaction with colleagues and supervisors

In this study, the informant stated that clinical rotation during the pandemic and adjusting to environmental and individual conditions could establish good cooperation through synergistic communication and interaction between students, colleagues, and supervisors. It helps medical students to develop knowledge and confidence during clinical rotations, as researched by Samuriwo et al.²⁴ This study did not show a striking difference in communication and interaction of students with colleagues and supervisors before and during the COVID-19 pandemic.

Facility and individual management

Informants in this study explained that each individual prepared the availability of PPE and that PPE was an essential requirement for handling COVID-19. This study does not show significant differences when comparing the implementation before and during the COVID-19 pandemic. Referring to the SpaRC model, the availability of facilities should be a necessary support component to optimize effective clinical learning.¹²

Supervision process

Clinical supervision is a mechanism that allows students to get feedback and personal evaluation in developing clinical practice skills and professionalism.²⁵ However, implementation in this context acknowledged decreased supervision frequency due to existing conditions. Based on this study's findings, the main difference between the implementation before and during the COVID-19 pandemic was seen in the approach or method used, the blended approach, and the reduced frequency of supervision.

Self-awareness and confidence

In this study, what stands out as a distinctive difference comparing experiences during and before the pandemic is the lack of experience handling emergency cases during the COVID-19 pandemic. Learning in a clinical education environment should involve concrete experience to facilitate active experimentation. It means that the existence of students who learn from their experiences when handling a particular case will be applied more easily if they find similar issues in others, as the concept of Kolb's experiential learning.²⁶

Evaluation and assessment of clinical rotation

Assessment and evaluation are crucial stages in the educational process.²⁷ This study did not show a significant difference between the implementation before and during the COVID-19 pandemic. Informants stated that it was necessary to establish a standardized assessment method at each department to make the assessment more effective. Implementing the workplace-based learning (WBA) concept, which includes an assessment strategy to evaluate students in a clinical setting accompanied by providing feedback, thus enabling a more structured assessment format not only based on numbers,²⁸ can be the right solution for the problem.

Limitations

The study was only conducted in one place, so the results are local context and cannot generalize the implementation of clinical education in other institutions or different settings. Second, this study

only explores the experiences of medical students and clinical supervisors without measuring the actual learning outcomes of students, so the data obtained is only based on the experience felt at that time and is subjective.

CONCLUSION

This study explains several noticeable changes in the implementation of clinical education during the COVID-19 pandemic compared to the implementation before the pandemic by referring to the experiences of medical students and clinical supervisors. The factors that influence the implementation of clinical education during the COVID-19 pandemic are the opportunity and involvement in learning, the variety of cases and the intensity of interaction with patients, communication and interaction with colleagues and supervisors, supervision, availability of supporting facilities, evaluation and assessment systems, and students' reflection ability.

RECOMMENDATION

Theoretically, this study supports the implementation of the ExBL concept in clinical education, including in the COVID-19 pandemic context. Furthermore, it is necessary to increase the facilitation of reflection and feedback on the performance of medical students in undergoing clinical education during the pandemic, which faced various restrictions. Quantitative research evaluating the implementation of clinical education can use valid parameters and larger samples. In addition, it can also measure the achievement of student competencies.

COMPETING INTEREST

The authors declare that there are no competing interests related to the study.

AUTHORS' CONTRIBUTION

Stazia Noija – developing research proposal, collecting data, data analysis, and publication manuscript

Yoyo Suhoyo – supervising all steps

Rachmadya Nur Hidayah – supervising all steps

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