

Participants experience on an adaptable platform implemented to conduct qualification exam in the middle of COVID-19 crisis: A cross-sectional study in an Ethiopian Medical School.

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Abstract

Background: During the initial phases of COVID-19 pandemic, medical training in Ethiopia faced interruptions, impacting students psychosocially and economically, especially final year students unable to sit for qualifying exams. St. Paul's Hospital Millennium Medical College (SPHMMC) devised an adaptable platform for qualification exams. This study evaluates the experiences of students and examiners with the modified face-to-face undergraduate surgical qualification exam.

Methods: An institution-based cross-sectional study was conducted from October to December 2020, among all 96 final-year undergraduate medical students and 50 examiner consultant surgeons who attended the qualification exam were included in the study. A semi structured questionnaire was distributed to collect data about participant experience and effectiveness of implemented adaptable platform. The collected data were cleaned and entered into Epi Data version 3.1. Statistical analysis was performed using SPSS version 26. Continuous variables were summarized as using mean and standard deviation (SD) and categorical variables were summarized using frequency and percentages. Results are presented in text and tables.

Results: Eight out of ten students were comfortable to sit for qualification exams adapted according to the needs of the pandemic and about 53 (67.9%) of them appreciated the modified exam platform. More than half of the participants (41, 52.5%) reported the practical exam was well designed, the orientations given about the modified platform were adequate (41, 52.5%), the long case scenarios (52, 66.6%), short and viva images, videos and patient pictures were clear, near to reality at ward evaluation (59, 75.7%). In parallel, a majority of examiners (70%) deemed the exam platform satisfactory, with satisfactory allocated time for long case scenarios (62.5%) and short case and viva exams (82.5%), and perceived students to be adequately prepared (82.5%).

Conclusion: The study found that participants generally appreciated the modified exam format despite concerns regarding contracting COVID-19 and inadequate availability of personal protective equipment (PPE) and support from hospital administration. Implementing adaptable exam format can be alternative way out in resource constrained facilities like Ethiopia to deliver qualification exams in the middle of COVID-19 crisis.

Keywords: Experience, adaptable, qualification exam, COVID-19, cross-sectional study

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Background

Coronavirus diseases 2019 (COVID-19) outbreak became a public health emergency of international concern on 30 January 2020, and declared as pandemic on 11 March 2020 (1). The pandemic persists, with WHO reporting nearly 800 million infections and 7 million deaths globally as of 2023(2). The pandemic has affected every aspect of human life including training of healthcare professionals. COVID-19 disrupted the traditional face-to-face teaching and student assessment (3–5). Wherever resource is not limited, the challenges of the pandemic could be partly mitigated using technology and innovative strategies such as e-learning (6). In Ethiopia, medical training was halted for a long period in the initial phase of COVID-19. This has created several challenges for healthcare in the nation, but it also impacted medical students psychosocially and economically (4). Graduating class students in particular could not sit for qualifying examination and thus their professional career paused.

Generally, medical schools assess students either in a summative or formative approach to evaluate competence and preparedness of students to implement evidence-based medical practices (7). On top of regular continuous assessment, qualification exam is given at the end of the clinical year as a prerequisite for graduation. These exams are high stake and thus are stressful. These exams are routinely patient-based practical exams where clinical knowledge, skill, and competence of candidates are thoroughly assessed before they are allowed to practice medicine(8).

Different countries approached medical training in various ways in the era of COVID-19 crisis(9). For example, reports show that Italy deployed final year medical students to join the medical workforce to combat COVID-19 prior to qualifying examination whereas the United Kingdom appeared to have used digitalized approach to deliver qualification exam before deploying them into medical practice (6). During the first wave of COVID-19 crisis, bringing in students for training or conducting qualification examination had uncertain consequences.

In the Ethiopian context, St. Paul's Hospital Millennium Medical college (SPHMMC) is a major tertiary level hospital in Addis Ababa and thus was dedicated as one of the national treatment centers in the fight against COVID-19 (8). This designation forced all elective clinical sessions and surgical procedures to be postponed indefinitely. By the time the first case of COVID-19 patient was reported in Ethiopia on March 13, 2020(2), the

final year undergraduate medical students had already completed their clinical rotations and were on the final week of their study-leave for their final exit qualification exam. With the nationwide lockdown curfew, the college discontinued any teaching and assessment sessions until the pandemic is controlled. Students were forced to continue their preparation for qualification exam at their home but there was no definitive answer for how long the shutdown would last. Students' dormitories in the campus were used as residency area for healthcare workers involved in the fight against the pandemic. Several months have passed while students remain in such an uncertain situation not just psychosocially but also economically and stagnation of their career(8,9).

Even in the pre-pandemic era, the use of technology is very limited at SPHMMC. Final written exams used to be given in a digital library center at SPHMMC. However, access to internet-based communication technology platforms including zoom was limited. Considering these challenges SPHMMC came up with adaptable approaches to conduct qualification exam for final year students complying with recommended COVID-19 prevention public health measures. The detail of the adaptable platform to conduct the qualification exam is extensively discussed in paper published in 2023 (10).

In this paper, the authors assessed the experience of participants (students and examiners) to modifications made on the traditional face-to-face undergraduate surgical qualification exam. The survey evaluated the preparation of candidates to take the exam in the middle of COVID-19 pandemic, personal infection prevention and control (IPC) practice, readiness and willingness to be part of the national health workforce in the fight against COVID-19. Since SPHMMC was the first medical school in Ethiopia to conduct qualifying examination in the middle of the pandemic crisis, the lessons learned throughout the process will serve as valuable input for others who are planning to design and implement similar modality to conduct qualifying exams in challenging circumstances such as pandemic or healthcare crisis.

Methods and materials

Study design and setting

An institution-based cross-sectional study was conducted from October 30 to December 4, 2020 at SPHMMC, located in Addis Ababa.

SPHMMC is the second-largest multi-specialty tertiary care teaching hospital in Ethiopia. The hospital has been giving medical services for more than seventy years with an emphasis on the underserved populations referred from all over the country. At present, there are about 800 postgraduate and undergraduate medical students, out of which 112 are final year graduating class undergraduate students, and more than 3031 medical staffs (8).

Sampling and participants

Participants were drawn from candidate students and internal and external examiners involved in surgery qualification exam in calendar year of 2019 at SPHMMC. Students who missed the exit exam and faculty members who didn't attend the examination were excluded from the study. All respondents were informed about the objectives of the study and agreed to voluntarily participate.

All 96 final-year undergraduate medical students and 50 examiner consultant surgeons attended the qualification exam were included in the study. The variables assessed were candidates' sources of information about COVID-19 experiences towards the modified undergraduate surgery qualification exam platform, and IPC practice towards COVID-19 during their preparation and exam time.

Data collection and scoring

Data were collected from final year medical students and examiners using a self-administered semi-structured questionnaire that was prepared after a thorough literature review on COVID-19 and undergraduate medical education. The experience and practice statements were scored on a 5-point Likert scale, from 1 to 5 (5 being strongly agree; agree, 3 neutral, 2 disagree, and 1 strongly disagree). Both paper-based and online google forms-based questionnaire were used to collect data. Participants were given sufficient time to read, comprehend, and answer all the questions, and information about the study was provided to address any question.

Operational definitions

Adaptable Platform: A modified qualification exam framework used during the COVID-19 pandemic. It replaces direct patient contact with an Objective Structured Clinical Examination (OSCE) to assess final-year medical students' clinical skills.

Qualification Exam: A mandatory assessment for final-year medical

students before becoming medical interns typically including written and practical components.

Good experience by participants with the adaptable platform is defined when the score is $\geq 75\%$ of experience section. Participants are considered to have **bad experience** when the score is $< 75\%$. In the practice questions section, a score $\geq 75\%$ is considered to reflect participants take **adequate precautions**. **Inadequate practice of precautions** is when the score is $< 75\%$ in the practice questions section.

Data processing and analysis

Data processing begun by checking the gathered data for accuracy and completeness. Each completed questionnaire was assigned a unique code and entered into a computer by using Epi Data version 3.1 and exported to SPSS version 26.00 (IBM, Armonk, NY, USA) for further analysis. Summary of the data is presented using frequency distributions, cross-tabulations, and graphs. Continuous variables were summarized using mean and standard deviation (SD) and categorical variables were summarized using frequency and percentages. Chi-square test was used to investigate the level of association between outcome and independent variables. Statistical significance is declared at a p-value of < 0.05 .

Data quality control

The questionnaire was pre-tested on 5% of the sample among randomly selected participants to ascertain whether the questions and instructions are sufficiently understood or require revision or additional instructions. Following some modifications, the questionnaire was distributed to the study population. All the collected data were reviewed and checked for completeness.

Results

Sociodemographic characteristics and source of information for student participants

A total of 79 final-year medical students participated in the study, resulting in a response rate of 82.3%. Nearly 52% of the participants were male, with an overall mean age of 24.04 years (± 1.6 SD). The majority of the participants lived with 2-4 students per dormitory, and 38.1% were from Addis Ababa. The most common mode of transportation was by taxi. Half of the participants had secured internet access at their homes. Their main sources of information about COVID-19 were official websites and social media. Notably, seven out of ten participants reported that they had not received formal training or any lectures about COVID-19 (Table 1).

Table 1: Sociodemographic characteristics and source of information (n = 79) of final year medical students at SPHMMC, December 2020.

Characteristics	Response category	Frequency	Percent
Age	20-24	55	69.6
	25-30	24	30.4
Sex	Female	38	48.1
	Male	41	51.9
Number of students in your dorm	Less than 2	1	1.3
	Between 2 and 4	73	92.4
	Greater than 4	5	6.3
High school completion address	Addis Ababa	28	35.4
	Amhara	20	25.3
	Oromia	9	11.4
	Somali	7	8.9
	SNNPR	3	3.8
	Gambella	3	3.8
	Afar	3	3.8
	Benishangul	3	3.8
Mode of transportation	Tigray	2	2.5
	Bus	11	13.9
	Taxi	54	68.4
	Walk	13	16.5
Secure internet at home	Others	1	1.3
	Yes	43	54.4
Heard of COVID 19	No	36	45.6
	Yes	79	100
Source of information	Social media	43	54.4
	Mass media	39	49.4
	Family and friends	28	35.4
	Official website	44	55.7
Attended any lecture or training on COVID 19	Yes	24	30.4
	No	54	68.4

The exam was conducted in 5 consecutive days, in 5 stations each day and about 50 examiners were involved on the practical exam out of which 40 of them were respondent for the survey with an average of 9.14 years ± 8 SD of experience. Each exam station was conducted by internal and external examiner. Although external examiners might repeat exam days, their experience at each encounter is assessed

independently because the content of their examination varies each day. Almost all of the examiners (39 of the 40) were from Addis Ababa. The COVID-19 status of majority of the examiners was unknown and about 17.5% of them had known comorbidities of diabetes (2), hypertension (4) and bronchial asthma.

Table 2: Sociodemographic characteristics of examiners (n = 40) at SPHMMC, December 2020.

Characteristics	Response category	Frequency	Percent
Sex	Male	37	92.5
	Female	3	7.5
Tested for COVID-19	Yes	15	37.5
	No	25	62.5
Co-morbidities	Yes	7	17.5
	No	33	82.5
Co-Morbidities	Bronchial asthma	1	2.5
	Diabetes Mellitus	2	5.0
	Hypertension	4	10.0
Year of examiners experience	Less than 5 years	16	40.0
	5 to 10 years	11	27.5
	Greater than 10 years	13	32.5

Admission condition and personal safety during COVID-19 pandemic

On their return to college for the qualification exam, all of the students were tested for COVID-19 using PCR test and were negative for COVID-19. But during the course of their preparation for exam, 7 of them tested positive for COVID-19 and were admitted to the treatment center where they finalized their preparation and even took their written exam being in the treatment center. One of the participants developed severe COVID-19 symptoms but improved well. In terms of habits and comorbidities, the students' report included one smoker, three khat chewers, and one diabetic (Table 3).

Table 3: Admission condition of participants and personal safety during the COVID-19 pandemic at SPHMMC (n=79), December 2020.

Characteristics	Response category	Number	Percent
Ever been tested for COVID 19 for Qualification exam	Yes	75	94.9
	No	4	5.1
Result of the test	Negative	68	90.7
	Positive	7	9.3
Dining place	Student cafe	59	74.7
	Hotel	13	16.4
	Take away from home	5	6.3
Where do you study most?	Dormitory	54	68.4
	Library	20	25.3
	Others	5	6.3
Diagnosed with COVID 19	Yes, with mild symptoms	6	7.5
	Yes, with severe symptoms	1	1.3
	No	72	91.1

Experience of students to the adaptable surgery qualification exam platform

Table 4 presents the summary responses of students about their experience with the modified qualification examination. The majority (64,82.2 %) of participants reported receiving full emotional support from their families during exam preparation. Additionally, most students indicated that reading materials for preparation were available (63, 80.8%). However, concerns were raised about the inadequate emotional, material, and health support from the hospital administration (38, 45.9%). Six out of ten (65.3%) participants reported platforms created by SPHMMC to access their mentors was inadequate and 36 participants (46.1%) found the exam preparation stressful. A significant portion of the participants (56, 71.8%) expressed worry about acquiring COVID-19 during their preparation and examination on campus. The majority believed that contact with patients during the practical exam could increase their risk of infection (70, 89.8%). Eight out of ten participants were comfortable to sit for qualification exams adapted according to the needs of the pandemic and about 53 (67.9%) of them appreciated the modified exam platform. More than half of the participants (41, 52.5%) reported the practical exam was well designed, the orientations given about the modified platform were adequate (41, 52.5%), the long case scenarios (52, 66.6%), short and viva images, videos and patient pictures were clear, near to reality at ward evaluation (59, 75.7%).

The study revealed that a majority of students (61, 78.2%) preferred conducting the qualification exam with adjustments for COVID-19, while smaller percentages preferred passing without an exam (7, 9%), conducting the exam as usual (6, 7.7%), or postponing the exam until the pandemic passed (1, 1.3%). In terms of stress levels, 42 students (53.8%) reported higher-than-usual stress, 22 students (28.2%) reported stress levels similar to usual, and 13 students (16.7%) reported less-than-usual stress. The primary causes of distress during the seven-month postponement of exams due to COVID-19 included the unpredictable time of return to college (61, 78.2%), long study times (31 students, 39.7%), being alone at home (16, 20.5%), and economic loss from not starting internships on time (16, 20.5%).

Experience of examiners with the modified surgery qualification exam

As shown on Table 5, more than half (52.5%) of the examiners reported there was adequate personal protection equipment during examination and the safety precautions implemented were adequate. Only 6 (15%) of the examiners agreed that they are concerned that they would acquire COVID-19 during the examination. About 75% of them reported practical exit exam involving patient contact will be associated with increased risk of COVID-19 transmission. Overall, the majority of examiners (28,70%) reported the exam platform was good, the allocated time for long case scenario (25,62.5%) and short case and viva exams (33,82.5%) was adequate, and the students were well prepared (33,82.5%).

The practice of infection prevention and control and preparedness of student participants to the fight against COVID-19 pandemic

The practice patterns of student participants in infection prevention and control (IPC) are presented in Table 6. The majority of student participants reported practicing adequate IPC measures: avoiding large gatherings (58, 73.4%), avoiding hand shaking (66, 83.6%), using face masks in public places (70, 88.7%), and covering their nose and mouth during coughing (66, 83.6%). However, less than half of the participants (38, 48%) indicated that the availability of personal protective equipment (PPE) during preparation and examination was adequate. Additionally, 58 participants (62.1%) believed they had acquired adequate knowledge and skills to practice clinical medicine and contribute to the fight against COVID-19. A significant proportion of the participants (61, 77.2%) expressed their readiness and willingness to join the national medical workforce at any time, highlighting the moral obligation for physicians to volunteer during a pandemic like COVID-19.

Discussion

The final year qualification exam is a crucial gateway for medical students, and ensuring their graduation to contribute to the healthcare workforce during this crisis is a demanding task(11). The findings of this study provide valuable insights into the experiences, perceptions, and preparedness of final-year medical students and examiners at SPHMMC during the COVID-19 pandemic, particularly in relation to the modified qualification examination.

The study found that most students lived in shared dormitories with up to four roommates and relied on taxis for transportation, indicating potential areas for increased COVID-19 exposure. During exam preparation, 93.7% of students studied in dormitories or libraries, and 74.7% dined in the student cafe, further highlighting the need for stringent infection control measures in these shared spaces. Additionally, internet access was available to only half of the participants, potentially hindering their ability to access online resources and communicate with mentors. Previous research has reported that unstable internet signals lead to low motivation to learn and poor attendance among students (12). This supports the necessity for institutions to ensure reliable internet access to support students' academic and clinical preparation.

During the study period, nearly 70% of the students had not received formal training or lectures on COVID-19, despite all being aware of the virus through sources such as social media and official websites. In Mexico, almost all final-year medical students (97%) agreed on the necessity of COVID-19 education, yet only about half (54%) reported receiving such education from their medical schools, primarily through in-person or virtual lectures (57%) and educational pamphlets or handouts (15%)(13). Similar deficiencies in formal disaster management training have been observed globally, with recommendations for its inclusion in the medical curriculum for all undergraduate healthcare students (14). This gap in formal education may negatively impact the practice of appropriate infection prevention and control (IPC) methods, increasing apprehension during exams and affecting students' preparedness and confidence in handling COVID-19 cases. A Polish study highlighted concerns about students' limited knowledge as a hindering factor for volunteering and taking responsibility(15).

Additionally, all students were tested for COVID-19 using PCR tests before returning for their qualification exams, with 94.9% testing negative.

During the preparation period, 8.8% of students were diagnosed with COVID-19, though only one case developed severe symptoms. Comparatively, 13% of students reported positive PCR tests, with higher rates among clinical students (15.2%) compared to pre-clinical students (11.2%), in a Jordanian medical school(16). These findings emphasize the ongoing risk of infection and the need for continuous monitoring and support to ensure students' health and safety.

The study revealed that while most students received emotional support from their families and had access to reading materials, there were concerns about hospital administration support. Approximately 46% reported inadequate emotional, material, and health support from the hospital administration, consistent with findings from other studies. The COVID-19 crisis and related changes made to the examination process exacerbated mental health issues among medical students, with 14% highlighting the need for enhanced psychosocial support, including counseling and peer advocacy (17–19). Additionally, online learning and increased clinical workloads hindered students' ability to build supportive relationships with academic and placement staff, negatively affecting their wellbeing and engagement (20–22).

Additionally, a large proportion of students expressed fears about contracting COVID-19 during their preparation and examinations, which is consistent with global concerns among healthcare workers during the pandemic. Fear of contagion of oneself and their family members and changes to the examination process were some of the major stressors among dental medical and college students(12,19,22). Similarly, the data reveals that while over half of the examiners felt adequately protected with PPE, a significant 75% still perceived practical exams as high-risk activities for COVID-19 transmission. It is therefore important to safeguard medical students fear and mental health with an effective plan to support their wellness and education (22).

The study found that a majority of students felt comfortable with the adapted examination format, appreciated the modified platform, and considered the practical exams well-designed and realistic. Similarly, most examiners rated the exam platform favorably and believed that the allocated time for different exam components was sufficient, reflecting general satisfaction with the modified examination format despite concerns about COVID-19 transmission. Supporting this, a study among 4th-year medical students in Ireland demonstrated that conducting a face-to-face OSCE during the pandemic is feasible and received positive

Table 4: Assessment of experience of final year medical students (n = 79) with modified surgery qualification exam at SPHMMC, December 2020.

Characteristics	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
I had full emotional support from family members during my preparation for the exam.	7	9.0	2	2.6	5	6.4	8	10.3	56	71.8
During exam preparation was distressing, was difficult to get advice and emotional support	21	26.9	6	7.7	15	19.2	15	19.2	21	26.9
Reading materials for preparation were available	4	5.1	2	2.6	9	11.5	18	23.1	45	57.7
A platform/resources developed by the college to contact with mentors and instructors when in need	37	47.4	14	17.9	16	20.5	7	9.0	4	5.1
Used the last 7 months to study my reading materials to be a better-qualified, safe new doctor	15	19.2	14	17.9	29	37.2	16	20.5	4	5.1
The 7 months lost due to COVID-19 were frustrating, and have delayed my graduation time.	3	3.8	6	7.7	10	12.8	16	20.5	43	55.1
COVID-19 has caused significant distraction on my preparation for exam making sharing reading materials and group discussion difficult	6	7.7	6	7.7	13	16.7	19	24.4	34	43.6
The delay in qualification exam due to COVID-19 have no impact on my proficiency as doctor.	25	32.1	27	34.6	15	19.2	7	9.0	4	5.1
I was very concerned (stressed) about acquiring COVID-19 or contaminating someone else during my preparation for the exam.	6	7.7	6	7.7	10	12.8	32	41.0	24	30.8
Adequate emotional, material and health support were availed from the college administration during the preparation and examination.	10	12.8	18	23.1	28	35.9	26	20.5	6	7.7
Adequate time was given for exam preparation once we were admitted to the college.	4	5.1	7	9	18	23.1	22	34.6	27	34.6
The written exam was well-organized and assessed students' knowledge properly.	14	17.9	12	15.4	14	17.9	31	39.7	7	9.0
The practical exam was well designed and organized to assess students' knowledge and problem-solving skills.	6	7.7	10	12.8	21	26.	32	41.0	9	11.5
Practical examination involving patient can be delivered safely during COVID-19 pandemic.	20	25.6	28	35.9	20	25.6	7	9.0	3	3.8
The Long exam case scenario was presented clearly and was near to the reality at ward patient evaluation.	6	7.7	8	10.3	12	15.4	40	51.3	12	15.4
Short and viva topics, imaging, pictures and videos resembled the reality at wards and assessed students' clinical knowledge properly.	5	6.4	4	5.1	10	12.8	34	43.6	25	32.1
Patient contact during practical examination will increase risk of being infected by COVID-19.	2	2.6	-	-	6	7.7	30	38.5	40	51.3
Exam without patient contact have no effect on my preparedness as a qualified doctor.	10	12.8	14	17.9	18	23.1	25	32.1	11	14.1
Adequate orientation was given to me about the modifications made on the exam types.	3	3.8	6	7.7	7	9.0	33	42.3	29	37.2
Examiners were friendly and cooperative during examination.	3	3.8	5	6.4	18	23.1	23	29.5	29	37.2
How do you rate the overall surgery qualification exam?	Fair		V. Good		Excellent					
	N	%	N	%	N	%				
	20	25.6	33	42.3	20	25.6				

Table 5: Experience of examiners (n = 40) with the modified surgery qualification exam platform at SPHMMC, December 2020.

Characteristics	SD		D		N		A		SA	
	N	%	N	%	N	%	N	%	%	N
Adequate amount and type of PPE were available during the exam preparation and examination times.	-	-	7	18.5	12	30	18	45	3	7.5
I was very concerned (stressed) about acquiring covid 19 or contaminating.	5	12.5	16	40	13	32.5	6	15	-	-
Practical examination involving patient can be delivered safely during covid 19 pandemic.	6	15	12	30	5	12.5	16	40	1	2.5
Patient contact during practical examination will increase risk of being infected by Covid 19.	-	-	6	15	4	10	26	65	4	10
Students were well prepared.	-	-	3	7.5	4	10	30	75	3	7.5
The practical exam was well designed and organized.	-	-	0	0	10	25	27	67.5	3	7.5
The Long exam case scenario was presented clearly	-	-	0	0	9	22.5	28	70	3	7.5
Short and viva topics, imaging, pictures and videos resembled the reality	-	-	1	2.5	6	15	29	72.5	4	10
The time allocated for long exam was adequate to examine thoroughly	-	-	2	5	13	32.5	21	52.5	4	10
The time allocated for short and viva exam was adequate to examine thoroughly.	-	-	2	5	8	20	26	65	4	10
It is possible to conduct medical students' practical exam in the absence of direct patient contact.	-	-	2	5	10	25	26	65	2	5
The safety precautions taken against covid 19 throughout the exam were adequate.	-	-	1	2.5	11	27.5	26	65	2	5

Table 6: Infection prevention and control practice and preparedness to be involved in the fight against COVID-19 (n = 79) at SPHMMC, December 2020.

Characteristics	Strongly Disagree (%)		Disagree (%)		Neutral (%)		Agree (%)		Strongly Agree (%)	
	%	N	%	N	%	N	%	N	%	N
Adequate amount and type of PPE were available during the exam preparation and examination times.	11.4	9	15.2	12	25.3	20	39.2	31	8.8	7
I avoided large gatherings of people during my preparation for qualification exam.	2.6	2	6.3	5	17.7	14	45.6	36	27.8	22
I avoided shaking hands during the pandemic.	2.6	2	6.3	5	7.6	6	20.3	16	63.3	50
I regularly use facemask at public places.	-	-	2.6	2	8.8	7	27.9	22	60.8	48
I cover my nose and mouth with a tissue /elbow when coughing or sneezing.	1.3	1	5.1	4	10.1	8	20.3	16	63.3	50
I have adequate clinical knowledge and skill to practice medicine and serve in the fight against Covid-19.	5.1	4	10.1	8	22.8	18	38	30	24.1	19
I am ready and willing to be deployed in the fight against Covid-19 pandemic.	6.3	5	10.1	8	17.7	14	30.4	24	35.5	28
Health care professionals have moral obligation to volunteer in a pandemic like covid19.	1.3	1	5.1	4	16.5	13	32.9	26	44.3	35
I have great fear of being infected with covid-19 when I start my internship rotation.	5.1	4	16.5	13	36.7	29	29.1	23	12.7	10

feedback from students (23). These findings suggest that with adequate planning and mitigation measures, face-to-face examinations can occur with minimal risk to participants while delivering a defensible assessment (11).

On the other hand, student participants demonstrated strong adherence to infection prevention and control (IPC) practices, with high percentages avoiding large gatherings, handshakes, and consistently using face masks. Similarly, undergraduate medical students at the University of Tikrit showed good attitudes, practices, and behaviors towards COVID-19 preventive measures, with about 66% committed to practicing these measures (24). However, only 48% of students felt that the availability of PPE was adequate, showing a gap between their perceptions and those of the examiners. Despite this, 77.2% of students felt well-prepared to join the medical workforce and expressed readiness to volunteer during the pandemic. Given the acute shortage of healthcare workers, medical students have been considered for induction into healthcare systems in countries like the NHS in the UK, India, and others, with roles ranging from administrative support to physician assistants (15).

Limitations of the study

The study had several limitations, including its single-institution, cross-sectional design, the potential for response bias due to self-reported data, and a relatively small sample size. However, the selection of SPHMMC, a large, multi-specialty tertiary care teaching hospital with a diverse student body, aimed to provide a representative snapshot of the broader medical student population in Ethiopia. Although cross-

sectional, the study's timing during the COVID-19 pandemic allowed for capturing relevant and timely data on student experiences and practices.

Conclusion

Given the high risk of bringing students back together in the peak of the pandemic, it is quite encouraging that the adaptable qualification exam was conducted successfully and without any major event. The majority of students and examiners thought they had good experience with the planning and implementation of the qualification exam and cautions taken along the way. The study reported that the practical exam was well designed, the orientation given about the modified platform was adequate, the long case scenarios, short and viva images, videos and patient pictures were clear, and near to reality at ward evaluation. This study also pointed out some important areas to improve. For example, maintaining the infection prevention and control protocols, provision of adequate personal protective equipment during exam, providing more academic and psychological support by mentors, and accessible medical care for infected candidates. Thus, planners of such platform should pay attention to such key areas.

Abbreviations

IPC: Infection prevention and control; PPE: Personal protective equipment; SPHMMC: Saint Paul's Hospital Millennium Medical College UK: United Kingdom; NHS: National Health Service

Declarations

Consent for publication

Not applicable.

Ethical declaration

The study was approved by SPHMMC's Institutional Review Board (IRB). Written informed consent was obtained from all participants. The study was conducted based on the approved protocol following the principles of Helsinki Declaration.

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Competing interest

The authors declare that they have no competing interests.

Availability of data and materials

The datasets used in the current study or data collection tool are available from the corresponding author with a reasonable request.

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