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Exploring all the Possible Approaches to Measure Practical and Communication-skills in OSPEs and OSCEs of medical undergraduates during the Pandemic-time of COVID-19.

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ABSTRACT
INTRODUCTION: Pakistan was not prepared for such a world-wide dangerous infectious decease never in the past or at this moment so it's for the first time in history of Pakistan and so does in its medical colleges to do working under standard operating procedure (SOPs). Based on the "constructivist-learning-theory" that highlight the student's experiences rather than the exchange of knowledge from the educators, would be utilised to understand the online home-based education settings.
OBJECTIVES: The objectives of the study are; increase understandings into evaluating risk-stages for 'practical-and-clinical' examinations; and get techniques for running OSPEs and OSCEs in 'pandemic-time' in future
METHODS: It was a cross sectional study for a period of five months using a convenient sampling with a sample size of 157 students. Frequencies were detected as percentages, their means and standard divisions.
RESULTS: The total sample size of participants was 157 (100%) with a mean age of 22 years (S.D= 1.414). In formative assessments 83.0% (129) students scored above 50% passing marks and 17.8% (28) was failed whereas, 56.1% (88) were passed in their exit-assessment and 43.9% (69) students was failed out of 157 respectively.
CONCLUSIONS: All web-based learning must be maintained successfully to provide educational drive, motivation and logic of perseverance for all students.
KEYWORDS: OSCE; Clinical Examination; Pandemic; COVID-19;Pandemic management; Medical; Computer-Assisted Instruction.

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I. Introduction

Soon after the declaration of global pandemic of COVID19 from WHO **(1)**on March 11, 2020 all institution including medical colleges in Pakistan are instructed to closed for normal physical activity**(2)**. Pakistan was not prepared for such a world-wide dangerous infectious decease never in the past or at this moment so it's for the first time in history of Pakistan and so does in its medical colleges to do working under standard operating procedure (SOPs)**(1)**.

As Pakistan is a less resourceful developing country and teleconferencing technology was only a part of its major cities,therefore, teaching from home was a hugeencounter at all level of institution in Pakistan including medical colleges**(3)**.

Apart from other medical institutes, M. Islam Medical and Dental College, Gujranwala (M.IMDC) took this improvisedtaskmeditatively along with all the SOPs instructed and documented by the University of Health Science (UHS) - the governing-university**(4)**.In addition there has been no pre-established complete'online-teaching'practice**(5)** and the system was under production thus afree online-teaching system was incorporated initially through Google class-room ™, google hangouts™, go to meeting™,MOOC™, Skype ™, Zoom™and WhatsApp™**(6)**.However, only google class-room™, Zoom™ and WhatsApp™ was found successfully convenience in practice of online teaching**(7)**. Medical students was already having WhatsApp™ class group with their concerned departments. After the development of e-learning"platform and quick faculty training in M.IMDC "learning and teaching" was functioned smoothly through web constructed learning withoutthe domain of "practical-and-clinical", "communication-and-ethic-skills"assessmentthat was an immense encounter**(8)**.

Based on the "constructivist-learning-theory" that highlight the student's experiences rather than the exchange of knowledge from the educators, would be utilised to understand the online home-based education settings**(9)**.In addition all professors must do the in-advance practice of what they were going to teach and make expectation of the setting of the "practical-and-clinical" session whether it was ended with voiced or typed communication box response**(10)**. Literature surge reveals very few data about corona virus pandemic and no information was available for conducting online and on campus assessment methodologies during pandemic time in Pakistani context. Therefore in view of all these concerns this studyaimed to explore all the possible approaches to measure these "practical-and-communication-skills" in OSPEs (Objective Structured Practical Examinations) and OSCEs (Objective Structured Clinical Examinations) during the Pandemic time of COVID-19 in academic period of 2020 in context of Pakistan.In order to accomplish this aim, a hypothesis was made that COVID-19 has not affects the students' clinicalperformance. Hence two objectives were broughtto get the insight in these possible approaches;

i. Increase understandings into evaluating risk-stages for 'practical-and-clinical' examinations
ii. Get techniques for running OSPEs and OSCEs in 'pandemic-time' in future

II. Methods

Study design and duration: This was a cross sectional study conducted in M. Islam medical and dental college, Gujranwala, Pakistan for a period of five months; from August to December 2020.

Sample size and study population:A convenient sampling techniques was applied and a total of 157medical undergraduates from 3rd and 4th-year wererequested to participate through online offer. An information page and briefing about the research was provided. After they signed back their consent paper voluntarily, they were observed in this assessment.

Data collection procedure: After taking the ethical approvalfrom the IRB of M.IMDC (IRB number 001/2020 dated: August10, 2020) and confirmed the platform setting for the assessment, students were divided into small cohorts.

In addition to complete objective-1 of this study the following standards were applied.

a. Strict SOPs with personal cleanness such as; scrubbing all circuits, confirmed "face-masks", decontamination of hands along with COVID-19 test reports, temperature checking, and self-contained lunches
b. Cohort of all groups including by student, respective departmental teachers and other supporting staff of the institute
c. Social partition of all cohortfrom different groups
d. Prior to the assessment a "Zoom-facilitated updates were given to all students with sufficient time and guidance tobecome accustomed to this new encounter
e. Wifi-enabled system to secure monitoring and gathering scores on time
f. Sitting more than 4 person was not allowed
g. use of sanitizers
h. Social divisions of a metered apart except"to examine patient"

While, the followings IT-department services was acquire to complete objective-2 of this study.

i. Utilization of collaborating web-based podiums such as; Zoom, WhatsApp groups, Facebook groups. Messenger and Telegram groups.
ii. Videotaped and google-meet for observational skills and viva voice between students and examine-faculty for OSPEs and OSCEs
iii. Online modified multiple choice question (MCQs) with time synchronicity for OSPEs and OSCEs
iv. Short answer questions (SAQs) online mode with time-synchronised for OSPEs and OSCEs
v. Modification of patient-contact-station to task-trainersand junior faculty participation for OSCEs
vi. Invigilation were incorporated through google zoom meeting of 1 examiner with 5 students to ensure no cheating
vii. Very fewer OSCEs components where patients contact was mandatory were allowed with SOPs

OSPEs and/or OSCEs content: The complete assessments for 3rd and 4th year medical undergrads were consisted of 08work stations and 01 rest-station. Each station has allotted 05 minutes. The total duration for observed stations was 135 minutes. Moreover, the OSPEs and/or OSCEs set out the facts, behaviours and capability to determine their skill to make sure it reflects real life practice. Also the following stations wereshared parallelin communication and ethics-skills exam for both cohorts of 3rd and 4th year.

a. Find patient concerns, proper listening and shows empathy
b. Mention appropriate management in current situation
c. Find-out suitable daily life history regarding; diet, relationship and sleep

Delivering OSPEs and OSCEs: The 4th-year clinical-assessment (OSCEs) was conducted across a four-day period with different assessors through online as preparation for exit exam and used as formative-assessment which later on accomplished within the campus as summative-assessment. However, 3rd-year practical-

assessment (OSPEs) was covered in two weeks duration with same examiners respectively. The scoring was built on numbers, with key-answers checklists assimilated for the assessors with each station. The passing scores for these assessments were marked through university rule of 50% holistic passing score. As soon as write-ups are go through by assessors, results was generated and declared to students. In this way the educational strength and reliability of the "practical and communication-ethics"skills were not compromisedin OSPEs /OSCEs exit examination.

Statistical analysis: Data was uploaded on SPSS version 21 and frequencies were observed in the form of percentages, their means and standard divisions.

III. Results

In this study assessment of "practical-and-clinical" "communication-and-ethics"skill was measured through MCQs, SEQs and oral viva which were designed to use scenario-concept in their description that the medical undergraduates have encountered in their real life circumstances. The total sample size of participants was 157 (100%) with a mean age of 22 years (S.D= 1.414). Out of which 134 (85.3%)was from3rd year and 23 (14.6%) was from 4th year MBBS students respectively. The total male students was 83 (69 from 3rd year and 14 from 4th year) whereas total female students was 74 (65 from 3rd year and 9 from 4th year). All these approaches of measuring "communication-and-ethics" skill were part of programmatic evaluation of students where both the foundational (formative) examination as-well-as the exit-examination were graded with markings. Table.1 below shows the formative online assessment for both the cohorts of 3rd and 4th year MBBS.

Table.1- Number of students passed in Formative Online Assessment part of OSPEs/ OSCEs.

Participant	MCQs and SEQs "scenario concept" based OSPEs and OSCEs with Live Question and Answers used in cohort of 3rd and 4th year MBBS (passed n=129)			Number of students fails(n)	Failure rate (%)
	Passing cut off score via holistic method (50%)				
	MCQs	SEQs	Online viva		
3rd year (n= 134)	65	16	28	25	18.6%
4th year (n=23)	8	6	6	3	13.0%
Total (n=157)	73	22	34	28	17.8%

It was clear that 83.0% (129) students scored above 50% passing marks and only 17.8% (28) were failed out of 157. It was assumed that the outcomes of online formative-assessments were a close prediction of students' preparation for their exit assessment part. See the table 2 for 'high-stakes' assessments of participants appearing in on-campus exam which shows 88 (56.1%) studentswerepassed in their exit-assessment part of OSPEs/ OSCEs and 69 (43.9%) was failed.

Table.2- Number of students passed in Exit-Assessment on campus part of OSPEs/ OSCEs.

Participant	OSPEs/OSCEs competency shared stations in cohort of 3rd and 4th year MBBS (passed n=88)			Number of students fails(n)	Failure rate (%)
	Passing cut off score via holistic method (50%)				
	Find patient concerns, proper listening and shows empathy (examination)	Mention appropriate management in current situation (management)	Find-out suitable daily life history regarding; diet, relationship and sleep (history)		
3rd year (n= 134)	7	18	46	63	47.0%
4th year (n=23)	2	8	7	6	26.0%
Total (n=157)	9	26	53	69	43.9%

While looking into the competency shared in both cohorts it was noted that 33.8% (53) students were scored high in history taking part that most of the timeutilised cognitive domain of OSPEs/ OSCEs. Contrary to that only 5.7% (9) students were scored high in the examination part which applied affective domain of OSCEs/OSCEs representing a very little or no exposure to clinical learning and a weak practice.The bulk of students' failure implies that the hypothesis generated for this study was incorrect. Below is the figure 1 showing comparison of unsuccessful cohorts of 3rd and 4th year MBBS.

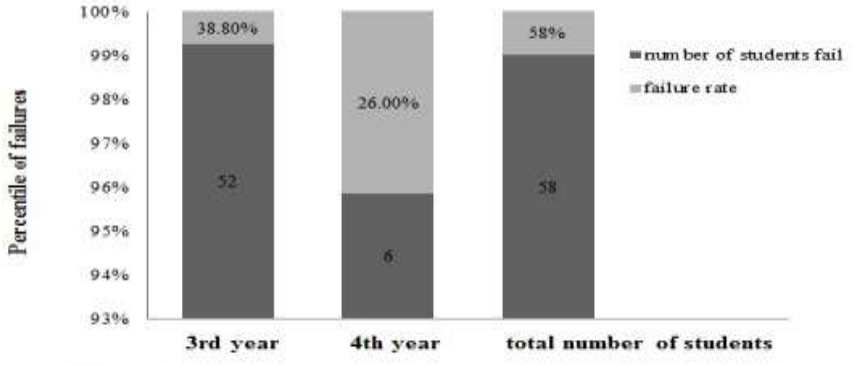

Figure 1 Failure rates among cohorts of 3rd and 4th year MBBS

IV. Discussion

The results of this study provides an empirical findings about the asynchronous approaches used for the assessments of student's "practical-and-clinical" communication-skills in times of COVID-19 pandemics in Pakistani medical education program. The study outcomes reveals that online teaching and learning alone was not sufficient to build self-motivation and self-sufficient learning among students. Medical students need to be physically present in their clinics to do their entrust-able skilled trainings along with their peers and directly observing their teachers to get to know-how of the skills part. These findings were different from another study which was conducted inDuke-National University ofSingapore Medical School in 2020 **(11)**where the resultswere very satisfactory and the only reason emerges was they have their past experience of such disasters and preparedness. The methodology used in this study was an advanced step towards new approaches combined in teaching and learning strategies which ends with the new assessment arrangements. These were very similar to another study conducted in Deakin University, Australia where the results wassignificantly in support of delivering assessment through online as high-stakes examination**(12)**. The reason claimed in their conclusion was a fully prepared initiative taken towards medical improvement in teaching and assessments and similarly involving online video application for undergraduates throughout their learning during their routine academic year. Whereas, a large study conducted in Nigeria, Saudi Arabia and India releases the same outcomes as in this study's results about students poor performance because of COVID-19 lockdown **(13)**.

Regarding the failure percentage of students in this study (formative=17.8% and summative=43.9%) , it was later found that these students encounters a bad internet connection or interrupted network that does not permit them to continued their learning practice and as a results they lacks the communication power to express their reasons. These findings were similar to outcomes of a study conducted in School of Medicine, University College Dublin,Ireland in 2020, whichdiscloses some of the significant findings regarding students' failures such as; improper clinical exposure and unprepared medical undergrads placed patients life at risk and poor mental health of students**(14)** during the time of disasters like pandemics. However, students who was passed in the given competencies (formative=129, and summative=88) represents their preparedness and reflects the contingency plan of short-term application of online facilitated assessments programs infused by M.IMDC with patients-less teaching and learning practiced which signifies pragmatic(an informal learning of students) experience during the times of pandemics. These findings were similar to a study conducted in Washington State of USA in 2020**(10)**, where the morning rounds were replaced by computer-generated classrooms and clinico-pathological meetings were replaced by videoconferencing case-based interactive teaching along with reflection-session that was a kind of feedback. Whereas, study findings from University of Calgary and McMaster University, shows that students suffers a lot because of abrupt cessation of their clinical learning and postponing of their oral examination**(15)** and likewise another study from College of Medicine and Public Health, Flinders University, results discloses decline of undergraduate medical students' mental health and their scores **(16)**.

V. Conclusion

It was clear in this study that online facilitator and learner communications should be effective. Students should be well-informed and institutional resources should be accessible all the time whenever students wish to see and study the available online learning material especially during the time of disasters like COVID-19 pandemic. All web-based learning must be maintained successfully to provide educational drive, motivation and logic of perseverance for all students. M.IMDC learned to adapt new teaching concepts, innovative steps utilizing online delivering and assessing schemes to improve existing curriculum into educational transformation.

Limitations

This study has few limitations such as not all the medical undergraduates were the part of this study. Also, no other public or private medical institute were involved in this study to get deeper knowledge and generalization of the results. Majority of students has not been asked their first feedback on their webinar learning experience which may results in an explicit difference in participants' high-stakes examination scores.

Future Suggestion

A prompt reorganization of medical education reforms due to COVID-19 has been considered across all level of practical and clinical training in Pakistan region. Also, planning and policies regarding implementation and utilization of online teaching and learning must be made to prepared future medical students from pandemics.

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Declaration of interest:M. Islam Medical and Dental College, Gujranwala did not impact the design and interpretation of information collected for writing. All the authors and co-authors have no conflicts of interest to declare for this study.

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