

THE IMPACT OF THE COVID-19 PANDEMIC ON FINAL YEAR MEDICAL STUDENTS: A CASE STUDY OF PAKISTANI MEDICAL COLLEGE

1. Hamza Amin - Doctor Of Physical Therapy (DPT), Foundation University Islamabad (FUI) hamza.amin22@yahoo.com
2. Swaleha Bano Naqvi, Department of English, Foundation University Islamabad, Pakistan
Email: swaleha.naqvi@fui.edu.pk
3. Aisha Saqib - Doctor of Physical Therapy (DPT), Foundation University Islamabad (FUI) aishasaqib410@gmail.com
4. Fahad Javaid - Army Medical College 43rd MBBS
fidokhattak100@gmail.com
5. Faiza Tabassum - Doctor of physical therapy(DPT), Foundation university Islamabad (FUI)
Faizatab2020@gmail.com

Abstract

We explored the impact of COVID 19 on final year medical college students in Pakistan during the COVID-19 outbreak. Our investigation aimed to distinguish the effect of the COVID-19 outbreak on the medical students' examinations, assessments, electives and assistantship situations and the resulting psychological impact on readiness and certainty of the students going into FYI. An online survey was administered to a total of 150 participants (students enrolled in a medical college of Pakistan). Motivational, behavioral and psychological variables were measured via the multivariate analysis. The study identified that the effect of COVID-19 on final year medical students has been critical in Pakistan. Most of the students feel less ready for starting work as a doctor, with the study revealing that the disturbances to understudy assistantships essentially affected readiness. Regardless of being unprepared, numerous students felt keen on joining the workforce during this pandemic. It is recommended that medical schools and employers should take into account the COVID-19-related interferences in the final months of preparation by this cohort of students, and ensure that their well-being is not compromised. The changes compelled by this pandemic provides a critical opportunity to assess elective medical education and assessment methods, including novel online summative assessments. During the COVID-19 outbreak, medical students faced many problems such as confidence level, psychological issues and a lack of practical classes which hindered the acquisition of practical medical knowledge through face to face involvement. On the basis of the findings of the study, a number of recommendations are made.

Keywords: COVID-19, Medical students, Medical knowledge, Assessment,

Introduction

Governments in several nations have implemented a lockdown to control the spread of the coronavirus illness (COVID-19). This has given rise to a variety of mental issues. A discussion of the difficulties that might arise within families and time management during this period is presented. Additionally, the stigma and anxiety associated with the coronavirus infection are addressed (Mackolil & Mackolil, 2020). The World Health Organization (WHO) declared coronavirus disease 2019 (COVID-19) to be most likely a severe acute respiratory infection caused by the acute respiratory syndrome coronavirus 2 (SARS-CoV-2). (WHO, 2020). Coronavirus disease-2019 (COVID-19) is a virus that has spread to over 200 nations by now. People's day-to-day lives have been drastically altered due to containment measures such as lockdown implemented in numerous countries. Even though these modifications were necessary for dealing with the spread, they came to be associated with several unexpected

consequences. Mental health experts such as psychologists and other mental health professionals can play a critical role in limiting the adverse effects of the lockdown on people's mental health. The specific critical topics that psychologists must address while delivering treatments are outlined in the following section

SARS-CoV-2 is exceptionally contagious, presently assessed to be multiple times more so than occasional flu. This more prominent contagiousness has brought about a remarkable general wellbeing reaction from the Pakistan government, which has implemented social separation at individual and population levels. Measures included cross country school closures, bans on public occasions, self-confinement for indicative people, and most recently 'lockdown', and stay-at-home orders excluding any activity except for essential errands and exercise. This administrative reaction has been precautionary, demonstrating that these actions may moderate the spread of COVID-19 to the weakest populations and guarantee a reasonable caseload in the National Health Service (NHS) (Flaxman S et.al. 2020; Fadda , Afzaal, & Haberman, 2020).

Saqib et al. (2021) argue that the educational institutes have remained closed for most of the previous year, with closures continuing into 2021. Activities such as exams and routine learning, especially among the younger age groups, experienced stagnation. The Covid-19 pandemic has affected people from all walks of life. The business and education sectors have been particularly heavily impacted.

The presentation of these actions in Pakistan significantly affect the economy, and specifically the education sector. Universities have stopped unnecessary administrative work with many confining grounds based on education, and proceeded with online assets. Some are utilizing remote online evaluations (Afzaal, Khan, Bhatti, & Shahzadi, 2019; Afzaal, Hu, Chishti, & Imran, 2019). Final year medical students are a group who have been uniquely affected by these changes in an under-developed country like Pakistan. Last year medical graduates learned through practical work while working with senior professionals in the hospitals. In 2009, the General Medical Council UK (GMC) distributed direction on results clinical understudies are required to show named 'The upcoming Doctors' (General Medical Council. Tomorrow's Doctors Outcomes and standards for undergraduate medical education. London, 2009) which was up-dated in 2018 as 'Results for Graduates' (General Medical Council. Outcomes for Graduates. London, 2018). As a pre-requisite for achieving these results, last year clinical understudies need to pass the end of year assessments, complete an understudy assistantship and take up a medical elective.

Our investigation sought to distinguish the effect of the COVID-19 outbreak on final year medical students' examinations, assessments, electives and assistantship situations and the resulting psychological impact on readiness and certainty of the students going into FY1. This will give significant knowledge to medical schools on what the pandemic has meant for medical education and proposals for pushing ahead.

Data and Method

The study was based on an online survey which was distributed to the participants of Pakistan Medical university. The targeted participants are participants of third, fourth and final year medical students. The questionnaire was designed combining multiple questions on the Likert scale and distributed through Google form. Last year medical students were asked to self-assess on a 5-point Likert scale of agreeableness against specific questions in the survey. Google forms was the online platform chosen to deliver the self-administered surveys. The questionnaire was distributed

using social media groups. When the questionnaire was distributed, clear instruction was given to enrol in the survey only if the individuals were graduating in the academic year of 2020-2021 and starting FY1 in September 2021. Study participation was voluntary, and no identifying information was collected.

Table 1 Criteria to measure the CVOID Impact in Learning Experience

Composite variable	Key variables	Description
Criteria I: Covid impact (C-1)	C-1.1	How interesting did you find an online clinical reasoning course during COVID 19?
	C-1.2	How interesting did you find this clinical reasoning course?
Criteria II: Learning experience (C-2)	C-2.1	How much did you learn during online learning?
	C-2.2	Do you think you have learnt enough that you can deal with patients directly after graduation?
	C-2.3	How much did you learn from your practical (hospital rounds)?
Criteria III: Satisfaction with online learning (C-3)	C-3.1	How satisfied are you with the quality of online teaching during COVID 19?
	C-3.2	How satisfied are you with the subject taught in the final semester through Zoom of cardiopulmonary and manual therapy?
Criteria VI: Perceived ease of learning level (C-4)	C-4.1	Did Objective Structured Clinical Examinations take place?
	C-4.2	Did practicals take place?
	C-4.3	Did written exams take place?
	C-4.4	Were you able to do your final year internship?
	C-4.5	Do you have a fear of being failed?
	C-4.6	Are you ready to start your house job after graduation?
Criteria-V: Behavioural factors (C-5)	C-5.1	Confidence
	C-5.2	Interest
	C-5.3	Effort
	C-5.4	Importance
	C-5.5	Satisfaction

The complete methodology undertaken in this paper is shown in the following diagram;

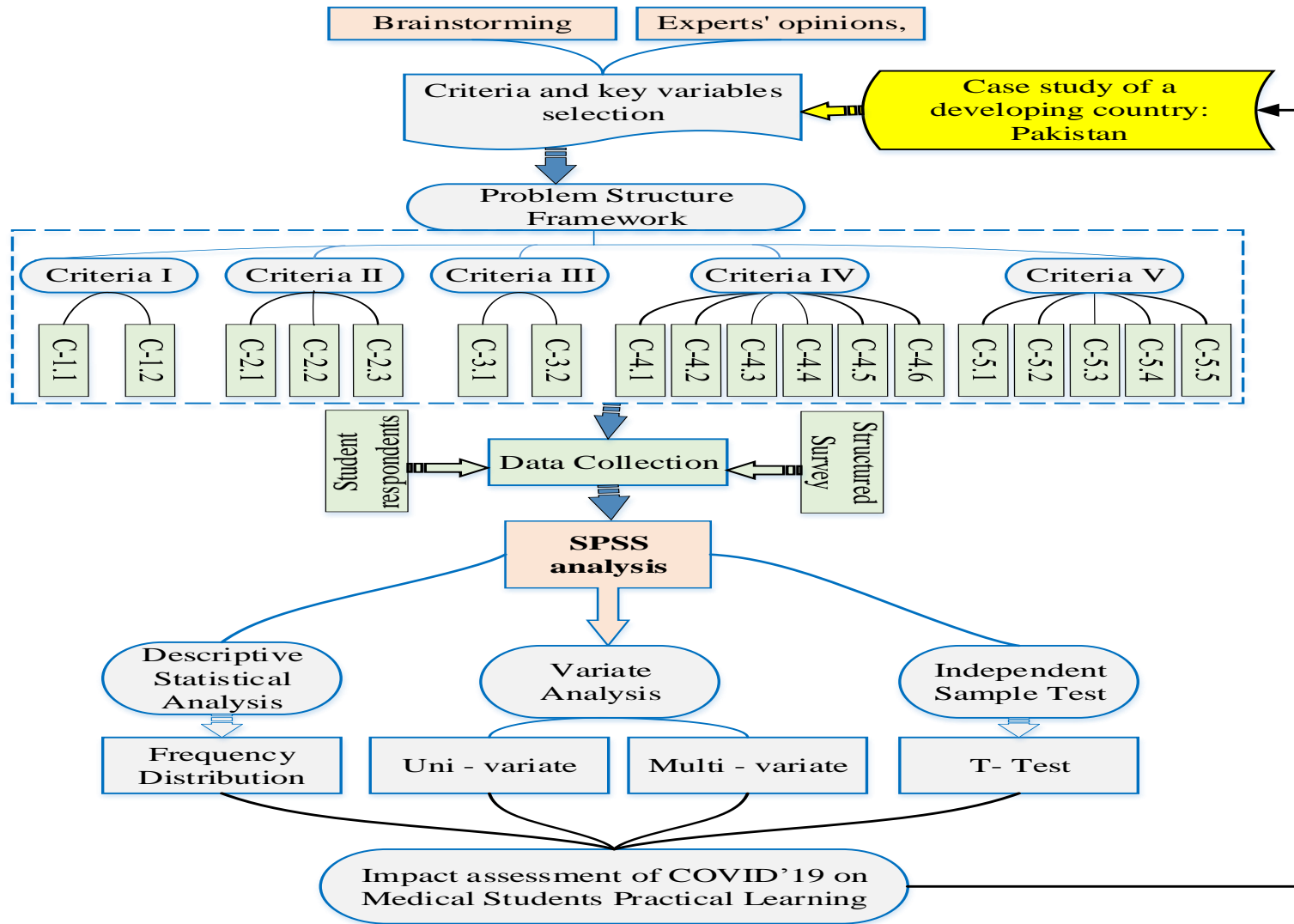


Figure 1 Theoretical Framework and Methodology

RESULTS

In this study, 150 Foundation University medical college participants responded to the survey. The results are shown through the different criteria in this study, e.g. criteria I indicate three variables (C-1.1, C-1.2 and C-2.2), indicating that COVID 19 has impacted their learning and the response of online teaching during the COVID era. However, Criteria-II shows the learning experiences as indicated in C-2 in table 1. The results of Criteria-III present the response of satisfaction level of online learning followed by the Criteria-IV showing the practical experience, confidence level and problems. The results show that 55% of respondents announced that they faced many issues through the online clinical reasoning courses, while 25% of respondents considered online teaching enjoyable and expressed satisfaction with online education. The frequency distribution of C-I is shown in figure 2

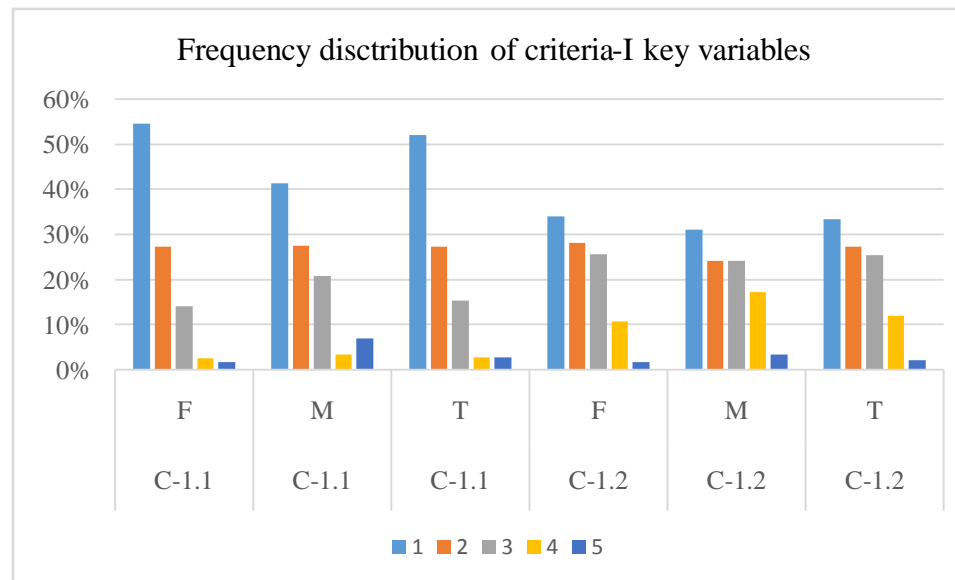


Figure 2 descriptive statistical analysis of criteria-I key variables

Moving to the C-2, the results were slightly different from C-I. The results indicate that only less than 25% of respondents showed their confidence level that they learned through the rounds during COVID. On the contrary, 48 % of respondents revealed that they had not learnt enough to work in the hospitals due to fewer patient encounters during COVID. The distribution of results indicated that the majority of the respondents are not fully satisfied with online teaching in medical colleges in Pakistan. Figure 2 shows the results of C-2 through the graphs below;

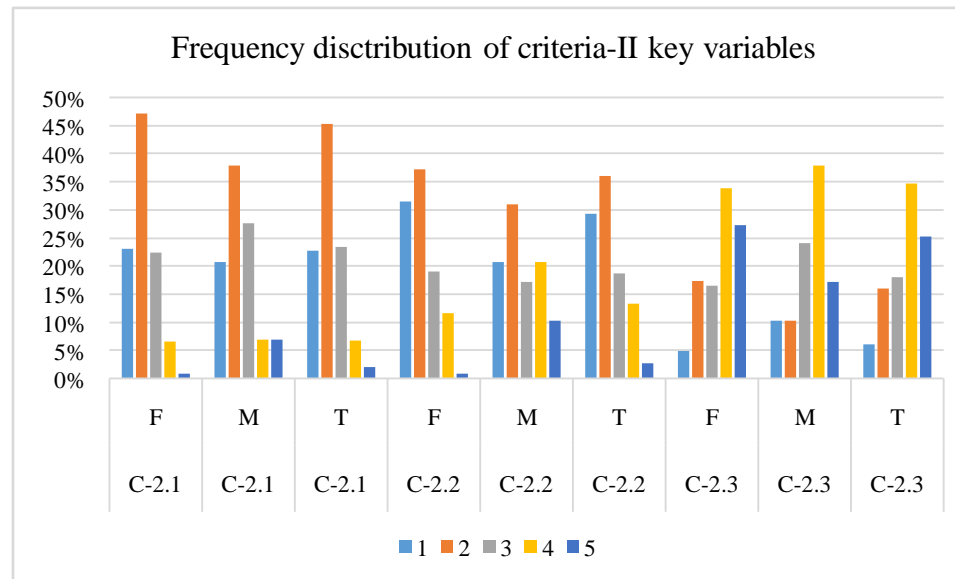


Figure 3 statistical analysis of criteria-II key variables

COVID pandemic has set out the freedom for early temporary enrollment to rehearse as doctors for students to collaborate at international levels without borders. . Although likely to be taken up by various last year clinical students anxious to help the front-line workforces, it ought to be understood that there is a pressure between safeguarding education and reacting to the demands on health service. But the question arises: Are the final year students satisfied with their learning through online sources in under-developed countries such as Pakistan, India, Bangladesh, Sri Lanka, or many other states. Figure 3 shows the results of C-3 indicating to what extent students are satisfied with the quality of online teaching during COVID 19, particularly subjects such as cardiopulmonary and manual therapy. These two subjects suggest that practical education is necessary.

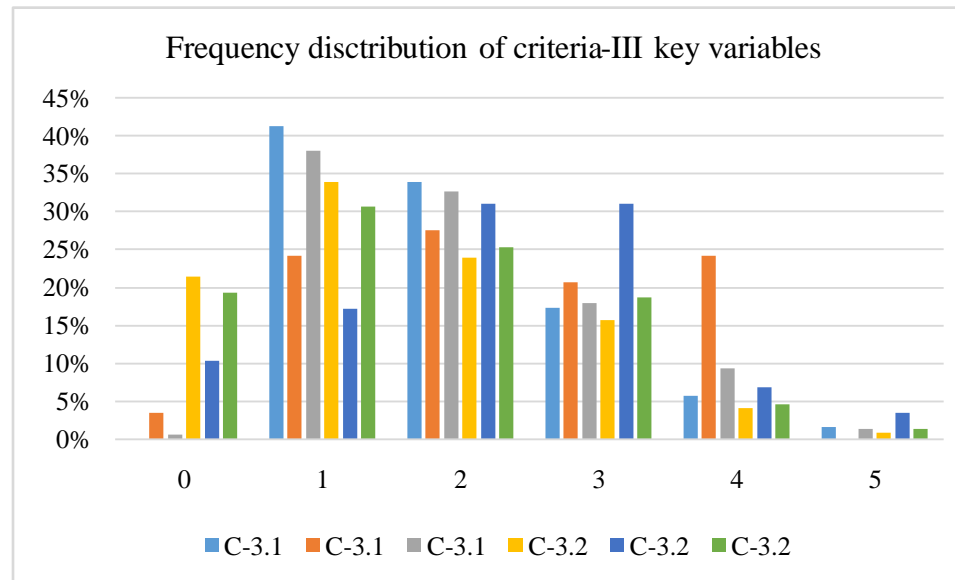


Figure 4 statistical analysis of criteria-III key variables

The C-4 of the study presents the perceived ease of learning during COVID 19. The respondents were asked if the practical classes had taken place during their final semester or not. To a considerable extent last year, the students had effectively taken written and clinical examinations before the COVID-19 pandemic, prior to social distancing and subsequent university closures. With reference to OSCEs, only a portion of Pakistan medical schools had effectively finished them, and around a third had these clinical assessments dropped. Four clinical schools changed them by utilizing actors instead of genuine patients.

Additionally, written examinations were finished prior to the breaks in many of the Pakistan medical universities. Breaking down the impact of test disturbances on readiness for OSCEs and written studies showed a genuinely critical effect on preparedness. This may indicate that students see clinical knowledge created through examinations as a significant contributing element in their preparedness to work, while their clinical confidence is

builtthrough interaction other than through academic assessment. Figure 5 shows the comparison clinical examinations (OSCE) take place in Pakistani medical colleges or even written exams were taken during this time.

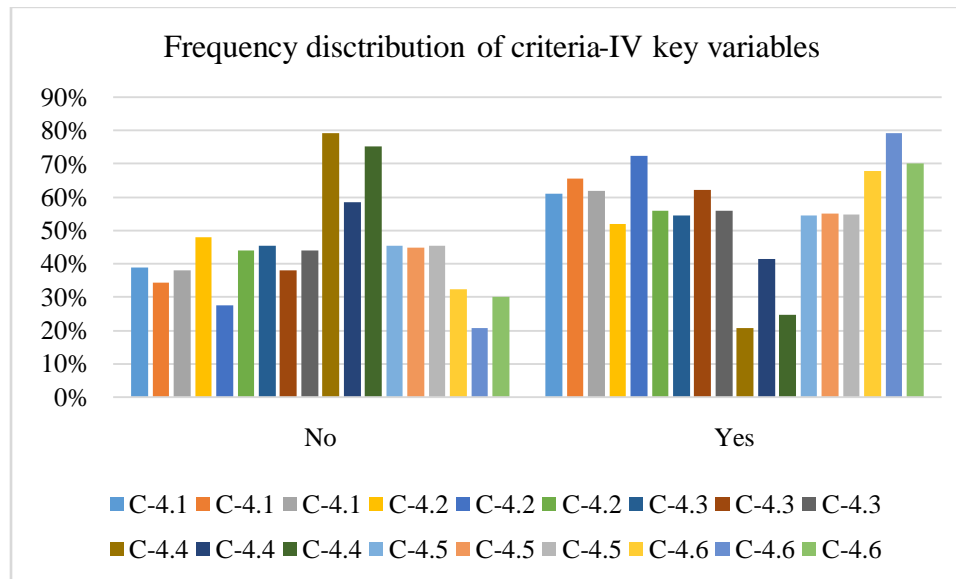


Figure 5 Criteria-IV key variables

Figure five shows the comparison of C-IV, wherein the respondents show their interest and confidence level of perceived knowledge through online teaching and examinations. Online evaluation and instruction highlighted many challenges for teachers and learners in Pakistan (Qiuhan, Afzaal, Alaudan & Younas, 2020a). Initially, the dependability of online assessment systems, especially network availability, showed many challenges for the students and teachers. Moreover, students without a suitable study environment at home for online examination or alternative arrangements of access to online facilities may experience obstacles to learning. Although online quizzes and teaching methods have gotten more conspicuous in the previous decade, the COVID-19 pandemic has createconditions that may speed up their far and wide use in medical education. Figure 5 shows the problems and perceived ease of learning of students during COVID-19. The fourth criterion (C- IV) show that only 39 % of students are satisfied with OSCE, whereas 45% of students (C-4.2) showed that practical never took place and could not understand the topics

very well. The very significant variable (C-4.6) shows that only 55 % of students feel more confident that they are ready for work after graduation in hospitals.

Figure 6 shows the learners' responses to criteria-V (C-5) while paying attention to the psychological level, motivational and behavioral effects on the respondents. C-5.1 variable presents the results of the confidence level of the learners. The results indicate that many of the students are not confident in learning and teaching online in Pakistan.

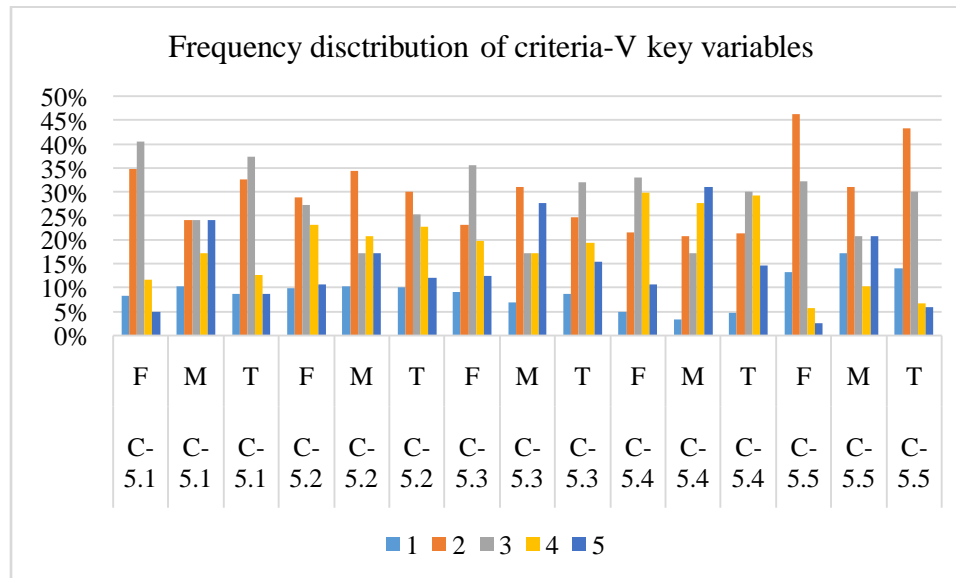


Figure 6: Criteria-V key variables

The statistical analysis of variance and univariate analysis was analyzed to see the effect of the COVID based on gender, particularly due to the impact of OSCEs, written examinations. When considering the gender of final year students, the study shows that electives and assistantships were analyzed. Uni-variate exact test was used to see a significant difference. Table 1 indicates that only criteria C-IV ($p = 0.032$, and C-V ($p = 0.003$, $p = 0.005$). C-I, C-II C-III, however, did not have a significant effect on preparedness for gender.

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Composite variable	Key variables	mean	Standard deviation	Independent Samples Test (t-Test) value	Uni-variate Significance value w.r.t. gender independent factor
Criteria-I	C-1.1	1.772	0.987	0.066	0.113
	C-1.2	2.220	1.098	0.386	
Criteria-II	C-2.1	2.200	0.934	0.171	0.225
	C-2.2	2.240	1.097	0.014	
	C-2.3	3.573	1.200	0.427	
Criteria-III	C-3.1	2.013	1.043	0.035	0.004
	C-3.2	1.627	1.201	0.004	
Criteria-IV	C-4.1	0.620	0.487	0.666	0.032
	C-4.2	0.560	0.498	0.048	
	C-4.3	0.560	0.498	0.467	
	C-4.4	0.247	0.433	0.020	
	C-4.5	0.547	0.499	0.952	
	C-4.6	0.700	0.460	0.226	
Criteria-V	C-5.1	2.800	1.056	0.020	0.003
	C-5.2	2.967	1.190	0.867	
	C-5.3	3.080	1.184	0.323	
	C-5.4	3.280	1.100	0.063	
	C-5.5	2.473	1.015	0.021	

Moreover, table 1 shows how different factors (OSCE, written exams, perceived ease of learning, behaviour and motivation) affected students' preparedness to start a job after graduation. Uni-variate factor analysis is done to produce a p-value. The research shows that C-2.2 ($p = 0.014$), C-3.2 ($p = 0.004$) significantly affected final year medical students' preparedness to start their job after graduation.

Discussion

Our study inquire into the effects of the covid-19 pandemic on final year medical student's examination, elective and assistantship positions and the ensuing impact on readiness and certainty of a student going into FY1. Although the study highlighted that the respondents had a impact of the effect of covid-19, practically all the participants (65.9%) felt changes that had been made were essential measures during this pandemic 35.3% of respondents dropped electives. Although frustrating to many, the students perceived that overall travel limitation was significant.

The transition from a student to a doctor:

The student's assistantship aims to give students an upgraded freedom to help the change from understudy to specialist and accustom them with regular assignments to ultimately train up as a FY1 specialist. As opposed to customary clinical pivots, assistantships are incorporated, enabling students with more prominent reconciliation inside the group to assist with creating clinical, valuable and managerial abilities and responsibility. Given the exceptional interruptions brought about by the pandemic, students ought not to be upgraded to enter the workforce without adequate preparation, clear direction on working with their skills, support and appropriate compensation for their time. This is fundamental to ensuring both patient and student wellbeing (Imran et al., 2019).

For medical schools assigning students to aid medical clinics during the COVID-19 outbreak, this is a chance to assess the association, obligations, and jobs they are given. Medical students can be assigned to targeted volunteering in favorable circumstances that supplement their educational needs. For clinical medical students volunteering on hospital wards, this is a chance to become coordinated into the team and learn through mentorship by shadowing specialists finishing their clinical activities, Pakistan (Qiuhan, Afzaal, Alaudan & Younas, 2020b).

Online assessment and education

Strangely, in a first for Pakistan medical universities, six medical universities changed the written final year examination to online assessments. On the off chance that the COVID-19 lockdown proceeds, it is conceivable that re-sitting of investigations may likewise be done online. At Imperial College London, the online evaluation comprises an open book examination of 150 questions, with 72 to be answered by everyone. Questions were randomized to forestall helping one another. Students were given recreated patients, and through provided history, examination and investigation findings were needed to work through questions (Tapper J et al., 2020). If psychomotor analysis of the data from these remote examinations is to be compared with that of closed book examinations, it might accelerate a switchover to the online era of medical student assessment. Developmental online reviews are prevalent in medical education; this enables students and teachers to recognize spaces of shortcoming and give brief input to proceed with improvement (Altaf, 2019). Unlike formative assessments, summative evaluations, for example, final medical year students examinations, are high-stakes, with results of students passing or failing determined to decide whether students are prepared to progress to the following phase of their training or grant graduation. The online summative assessments which have been allowed due to the COVID-19 pandemic at certain medical schools may enable the evaluation of the sustainability of online summative assessment.

Despite the closure of university campuses, medical education has not been altogether suspended because of online learning. Virtual online communication platforms (for example, Zoom, Microsoft Teams, Skype) have empowered lectures and little group teaching and instruction, while formative assessments have empowered learning and development. Thus, online delivery has provided a significant solution for proceeding with medical education regardless of the interruptions of COVID-19.

Challenges within the family

Families can use the COVID-19 lockdown as a chance to develop their relationships with one another. However, according to research, there is an increase in the number of domestic violence incidents (Bradbury-Jones and Isham, 2020), a lack of personal space in the family, and boredom during this period (Wang et al., 2020). Homemakers may be stressed by a scarcity of resources and the unexpected necessity to care for the entire family, which may be overwhelming. Parents may be stressed out by concerns about the future of their careers and their children's education. The increased amount of time spent inside the house can contribute to physical inactivity and developmental delays in all family members (Glynn et al., 2016). Parental education should thus focus on encouraging children to participate in more creative activities such as board games, gardening, and sketching. Family rituals should include time spent playing with the children and engaging in daily practices that enhance the family bond while also passing the time (World Health Organization, 2020).

2. Time management problems

The lockdown allowed individuals to have more spare time on their hands. Some people utilized this time to engage in creative self-care activities such as learning new hobbies or developing new abilities. Others may become bored and frustrated as a result of the situation. As a result, people develop harmful daily habits such as unhealthy sleep patterns, excessive screen time, and a lack of self-efficacy in addition to overthinking, brooding, and losing hope, not understanding how to use one's time efficiently can contribute to depression. These negative thoughts might develop into bad habits, which could be persist long after the virus has been eradicated from the environment. As a result, it is recommended that individuals should create a timetable that includes blocks of time for sleep, exercise, leisure, online socializing, and relaxation (World Health Organization, 2020).

3 Anxiety and stigma

As the viral infection spreads, so do the fear and stigma associated with it. As a result, psychologists must investigate how people react to these stressful circumstances. Anxiety, insomnia, fear of acquiring the virus, impatience, and irritation are some of the side symptoms of pandemic lockdown (Johal, 2009). Misinformation and the spread of fake news via social media are two elements that contribute to people's fear and shame. Uncertainty, Johal adds, contributes to an individual's sense of uneasiness, leading to a loss of optimism and initiative. People who are experiencing active symptoms of the condition are hesitant to report or seek assistance because they fear social stigma (Logie & Turan, 2020). In addition, fear and ignorance about health-promoting methods can lead to hostility against healthcare personnel and government directives. Psychologists should educate people about the various stress reactions and give them accurate and up-to-date information about the epidemic. The dread of being affected by the pandemic may be more lethal than the virus itself. As a result, even the uninfected people must be taught about the spread of fake news and supported with interventions that augment hope and optimism.

The psychological effects of the COVID-19 lockdown will last indefinitely. As a result, psychologists and mental health experts must constantly monitor these areas to provide specialized assistance to those in need of such support. In addition, psychologists should ensure that awareness campaigns are combined with psychological interventions to assist those who are infected and their families and other vulnerable populations.

Limitations of the study

The study has some limitations which need to be outlined here. The primary impediment is the retrospective nature of the study design. Subsequently, the drawn-out effect of COVID-19 on the progress period from student to doctor cannot yet be resolved. Another constraint is the distinction in the number of participants across medical schools. The differences of curriculum and instruction or use of technology between medical schools implies that the findings of the study cannot be applied in entirety to final year medical students who will be beginning FY1 in 2020.

Recommendations

- 1) Alternative models of clinical education (which expand on the advantages offered by assistantship) in the last year of study, like the Longitudinal Integrated Clerkship, ought to be investigated for far and wide execution to assist with improving the progression from student to doctor.
- 2) There is a requirement for vigorous rules on proceeding with instructional improvements for clinical students in the event of emergency and future pandemics.
 - a. Medical students' health and safety must not be jeopardized to supplement the health workforce.
 - b. Medical students need to continue their education to ensure they fulfil the learning objectives required to graduate as doctors and satisfy guidelines set out by the GMC.
- 3) The use of online platforms for both education and assessment should be enhanced across medical schools.
 - a) The online platform provides medical schools with a pathway to ensure the continuity of medical education remotely and sustain the students' clinical advancement.
 - b) For the integration of more extensive online summative assessments as a feature of the medical curriculum, robust frameworks should be set up to ensure the viability of these evaluations as set out by the GMC.

- c) The arrangements for completing far off final year examinations remotely need to be put in place should the need arise to switch to online learning once again in the event of a pandemic.

Conclusion

The effect of COVID-19 on final year medical students has been critical in Pakistan. Most of the students feel underprepared for starting work as a doctor, with the current study showing that the disturbances to have adversely impacted readiness. The study found that the participants require support from their educational institutions at this point in time, comprising an understanding on the part of the latter of how COVID-19 has affected student learning and self-efficacy. At the same time, the study showed that the pandemic played an instrumental role in stimulating the potential for elective medical education and assessment methods, including novel online summative assessments. Numerous lessons can be learnt over the course of this pandemic, with instructors being better prepared to act swiftly in order to ensure the future wellbeing and performance of students in the event of interruptions to medical education.

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