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Medical education adaptation in South Korea during the COVID-19 pandemic

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Abstract

Introduction: We describe the circumstances and adaptations in the South Korean medical education during the COVID-19 pandemic and discuss areas in need of improvement in preparation of a worsening situation or for similar future public health crises.

Methods: Literature reviews, focusing on research papers about medical educational changes in South Korea during the COVID-19 pandemic were performed. Selective data collected from a nationwide online survey by the Korean Association of Medical Colleges on the status of curricular changes in medical schools during the COVID-19 was presented.

Results: All lectures have moved online, but clinical students continued their hospital placements during the pandemic, except for the first 3-5 weeks during the first surge in 2020. Initial technical naivety of the faculty and lack of technical resources were short-lived and the medical students settled well showing a much higher than expected student satisfaction level over online education. Practical skills sessions which benefit most from onsite hands-on experiences such as anatomy dissection, were delivered through a blended approach in some medical school. Student evaluation is the area of least change, mainly due to the students' lack of trust in online assessments.

Conclusion: South Korea' underwent major changes in medical education brought upon COVID-19 and the readiness of the technology adoption has been much increased. Student evaluation is the area of least transformation. Adoption of a programmatic assessment system should be considered to enhance not only learning but also improve trust among stakeholders of medical schools.

Practice Highlights

- Medical education in South Korea has evolved rapidly due to COVID-19.
- Korea's medical schools moved all its lectures online with positive student responses.
- Clinical placements continued under strict personal protection equipment.
- The readiness of technology adoption in education bore fruit during the current pandemic.
- Assessment is the area of least change, but to prepare for the future, adaptations are necessary.

I. INTRODUCTION

However, from the beginning of December 2020, the daily positive COVID-19 patients have steadily increased reaching the new 1,000 mark by mid-December. The government having raised its social distancing level up to 2.5 in the Seoul metropolitan area, is contemplating raising it to the maximum, which will become akin to the European lockdown with most non-essential businesses and institutions shutting down. At the time of writing this paper in the middle of December the whole country is trying hard to avoid lockdown.

In this paper, the authors described the circumstances and adaptations in the South Korean medical education during the COVID-19 pandemic with some specific examples and discuss areas in need of improvement in preparation of a worsening situation or for similar future public health crises.

II. OVERALL ADAPTATIONS IN MEDICAL SCHOOL WITH SPECIFIC EXAMPLES

On the 30th of January 2020, the Korean government, via the Central Disease Control Headquarters, raised the infectious disease alert level to three out of the four-tier system, and the Korean Association of Medical Colleges (KAMC) produced its first recommendation for its 40 medical schools. This recommendation included advice to medical schools to enhance its infection control measures, augment communication with the students and hospitals, and provide adequate personal protective equipment (PPE) to all students in the clinical hospital rotation. On the 23rd of February 2020, the Korean government raised its infectious disease alert to the highest level. On the 24th of February 2020, KAMC released its second guidance to all medical schools, relaying the advice from the ministry of education on delaying the school opening date for 2 weeks and suspending all clinical rotations.

To explore the overall adaptations in medical schools by the mid-May 2020, KAMC conducted a nationwide online survey which 37 deans out of the 40 medical schools in South Korea participated in. This survey showed that all 37 medical schools had changed to online education for their preclinical courses. Laboratory skills in basic science subjects moved online, but anatomy dissection laboratory varied: online e-Anatomy replaced them in 11 schools, and 14 schools delayed it to the end of semester, and 10 schools proceeded with on-campus cadaveric dissection under strict infection control measures when the government social distancing level decreased to level 2 (the daily new positive COVID-19 patient fell under 100). The early glitches derived from the technical naivety of the faculty and lack of technical resources did not last long, and all students, faculty and institutions adapted rapidly, which resulted in a much higher than expected student satisfaction level on online education. The area of least change was in the student assessment. The student assessment was mostly delayed, and held later in face-to-face format at the end of the semester.

The suspension of clinical rotations varied widely between schools, from the first week of March to the last week of May 2020, with a median of 21 days. 14 schools provided online teaching and one school provided alternative simulation lessons but without patient contact during the closure or delay of clinical rotations. Before making the decision on restarting clinical rotations, there were high tensions between medical schools and students and even parents who were concerned and nervous on the potential infection risk to students that the hospital rotations potentially posed. To reduce this anxiety, medical schools held a series of meetings with student

representatives and after putting in place safeguards against the risk of COVID-19 infection including PPE, the clerkships restarted. KAMC's great efforts in the procurement of masks for medical students was critical for restarting clinical rotations, and medical schools were able to provide five masks per student per week even during the period of extreme masks shortage (Park et al., 2020).

A. *Blended Anatomy Learning: Does Students' Satisfaction Equal Achievement of Intended Learning Outcomes?*

In the authors' medical school, the COVID-19 pandemic forced the anatomy course to change from the traditional large group lectures and cadaveric dissection to blended anatomy courses. The theory lectures were delivered entirely online and the anatomy dissection course, resulted in an inadvertent flipped learning effect. The e-Anatomy® videos (Panmun Education, Seoul, Republic of Korea), and Complete Anatomy® (Elsevier, Amsterdam, Netherlands) online platform were provided to students as home assignment while on-campus dissection sessions were suspended. At the end of April, face-to-face cadaver dissections recommenced following the infection prevention measures guidelines with the use of proper PPE.

Although the students' responses to the online anatomy teaching were remarkably positive, the anatomy department faculty at the authors' school were concerned about the effectiveness of the altered teaching methods in achieving the intended learning outcomes. Therefore, Yoo et al. (2021) examined the educational outcomes of the online and blended learning approach in anatomy, and the results showed the anatomy achievement scores of the blended learning group (the 2020 class) being higher than those of traditional lectures (2019 class). The authors of this study interpreted that in-advance self-study at home using online learning videos before the actual on-campus dissection labs induced a flipped learning effect, and online education let the students to achieve more self-study time and individual tailored learning.

B. *Adaptations in Paediatric Clerkship Education*

As described earlier, most university-based hospital rotations restarted around March 16th with limited patient contact in respiratory and primary community clinics. Although the reduced patient volume which students could come into contact was inevitable, this situation was most serious in paediatric clinical clerkships. Paediatric patients visiting primary clinics and even tertiary university hospitals drastically decreased down in South Korea during the COVID-19

pandemic. In addition, the paediatric parents' refusal or complaints on being seen by medical students worsened and the number of medical students allowed into hospital rotations were restricted in some hospitals.

To overcome the shortcomings of paediatric clerkship education, the authors of the study (Lee, K. D. Park et al., 2020) created an actual patient encounter-based role play. One student within the student group (usually 3-4 students in one group) performed a history taking and physical examination of a hospitalised child with a guardian, who later played the role of the parent, with another student in the same group taking the doctor's role, interacting with each other in front of faculty physicians, residents, and the rest of the peer students. This role play session facilitated the provision of feedback and discussion. The students' responses to the alternative educational approaches were positive, but the students required more discussion, and detailed feedback from the faculty physicians on their performance.

C. Online Medical Education Seminar for Faculty

Although the advantages of webinars in higher education and professional training have already been proven, they have not been widely used in South Korea before the COVID-19 pandemic. However, currently webinars and online academic conferences have almost totally replaced onsite gatherings. The COVID-19 pandemic has forced the Faculty Academy of Medical Education (FAME) seminars at Korea University College of Medicine (KUCM) to go online (Lee, H. Park et al., 2020). The authors of this study reported that FAME was established to enhance the teacher's educational competency and promote a positive educational culture, but the participation of faculty members in this seminar has not been very active. When FAME had to be abruptly changed to online, the authors moved the seminar format online with pessimistic expectations of further decrease in the number of participants. However, such expectations were thoroughly shattered on April 8th by the login attendance of 210 faculty members on the first webinar which was the highest attendance since its inception in 2012. Although the webinar for faculty development was launched successfully and received positive reviews, further studies should follow to examine its educational effectiveness.

D. Medical Licensing Examination

The Korean Medical licensing exam consists of two parts; the written test takes place annually in January and the clinical skills test is held the previous year usually between September and October. During the span of 35 days 3,100 participants are examined in one examination centre. This year, the clinical exam was planned to be held between September 1st and October 27th, at its

usual centre under strict infection control measures. However, another unprecedented crisis was added on the present COVID-19 pandemic in South Korea. In August 2020 Korean doctors held a series of national strikes as the government tried to push new policies amidst a pandemic where healthcare workers have been working tirelessly over the previous half a year to maintain the COVID-19 cases at bay and protecting the public. The doctors' national protest was triggered by a sudden governmental announcement on critical policy changes without any previous discussion or consultation to medical associations or medical education authorities. The policies included the foundation of a 'public medical school' funded by taxpayers' money with a non-transparent admission criterion and an exemption from the standard accreditation process to accelerate its building. This policy only focused on increasing the total number of doctors with the hope to fill the currently essential specialties which residents undersupply without dealing with the core underlying problem.

The national doctors strike resulted in 86% of medical students forfeiting their application for the national licensing exams (Kim & Choi, 2020) with only around 400 students undertaking the clinical exam on site wearing masks. All the stations were carried out as before with only the oral cavity examination being replaced for a verbal explanation.

III. DISCUSSION

Korea has managed the COVID-19 situation relatively well and only the lectures were moved online, whilst exams were carried face-to-face, and almost near-normal clinical practice training ensued in medical education. This double edge sword situation might not have prepared us as a nation in the event of a worse pandemic in the future. Fortunately, we can learn from the published experiences of other countries such as virtual rounds, virtual patient encounters, clinical skills simulations through the use of information technology (IT), and from virtual or augmented reality experiences used in resident skills training.

Remarkable advances in the Korean medical education in recent decades, especially, the readiness of technology adoption in education bore fruit during the current pandemic. More importantly, the experiences gained by educators during COVID-19 have consolidated student-centred education which was previously a concept rather than an actioned need. Nevertheless, student evaluation is the area of least transformation. The main reason for the resistance by the students towards online assessments is the lack of trust in the security and fairness of such method. The students' negative perceptions over online assessments are mainly due to their belief that no

technical method can 100% prevent cheating. Some medical educators pointed out that having to consider using various devices to prevent cheating during online exams is born out of the schools' mistrust towards students, a non-educational behaviour in need of reconsideration. However, in Korea, the distrust among student peers is a bigger issue than the mistrust between the schools and students. To reduce the distrust surrounding examination, we should reconsider the current competitive summative assessment system. We could aspire for a better model, which can promote student learning instead of focusing on achieving good grades only. It is time to discuss a transition to a programmatic assessment and investigate ways on its adaptation and incorporation in medical education.

The authors of this article described major changes in medical education brought upon COVID-19 and the lessons what we've learned in South Korea. Since each country has faced differing levels of the COVID-19 crisis, our experience in South Korea may not be directly transferrable to other countries or contexts. However, sharing eclectic experiences from differing countries the mounting literature that can be tapped into by countries who find themselves in similar situations as ours in the future. Medical educators should actively share their novel ideas, experiences and hardships encountered on medical education through the current health crisis, as such cooperation will prepare us all against the uncertain medical future.

Notes on Contributors

Young-Mee Lee is a professor at the Department of Medical Education, Korea University College of Medicine, Seoul, South Korea, reviewed the literature, developed the methodological framework for the study, performed data analysis and developed the manuscript, gave critical feedback to the writing of the manuscript.

Hyunmi Park, MBChB, FRCS, PhD, is a research professor at the Department of Brain Convergence Research Center, Korea University, Seoul, South Korea, reviewed the literature, analysed the data and was involved in the writing of the draft, review and editing of the manuscript.

Both authors have read and approved the final manuscript.

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Declaration of Interest

No conflicts of interest to declare.

References

Kim, M., & Choi, H. (2020). *S. Korean government to not let over 2,700 medical students another shot at medical licensing exam*. Hankyoreh.

http://english.hani.co.kr/arti/english_edition/e_national/961515.html

Lee, Y. -M., Park, H., Pyun, S. B., & Yoon, Y. W. (2020). Enforced format change to medical education webinar during the coronavirus disease 2019 pandemic. *Korean Journal of Medical Education*, 32(2), 101–102.

<https://doi.org/10.3946/KJME.2020.158>

Lee, Y. - M., Park, K. D., & Seo, J. H. (2020). New paradigm of pediatric clinical clerkship during the epidemic of COVID-19. *Journal of Korean Medical Science*, 35(38), 1–5.

<https://doi.org/10.3346/JKMS.2020.35.E344>

Park, J., Park, H., Lim, J. E., Rhim, H. C., & Lee, Y. -M. (2020). Medical students' perspectives on recommencing clinical rotations during coronavirus disease 2019 at one institution in South Korea. *Korean Journal of Medical Education*, 32(2), 223–229.

<https://doi.org/10.3946/KJME.2020.170>

Yoo, H., Kim, D., Lee, Y. -M., & Rhyu, I. J. (2021). Adaptations in anatomy education during COVID-19. *Journal of Korean Medical Science*, 36(1), e13.

<https://doi.org/10.3346/jkms.2021.36.e13>

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