STUDIA UBB BIOETHICA, LXV, 1-2, 2020 (p. 77-86)
(RECOMMENDED CITATION)
doi:10.24193/subbbioethica.2020.06

ONLINE MEDICAL LEARNING AND ETHICAL BEHAVIOUR DURING THE COVID-19 PANDEMIC

MAGDALENA IORGA[1,2], RALUCA IURCOV[3*], BEATRICE-GABRIELA IOAN[4]

ABSTRACT. The practice of unethical behaviours has been shown to be closely related to previous experience in adopting such behaviours. Many studies have identified that the observation of unprofessional behaviours in peers by the lack of reaction from teachers encourages students to adopt such behaviours that will be maintained throughout life. That is why the need for ethical training of medical students is necessary, especially since the adoption of online activity during COVID-19 pandemic that facilitates unethical behaviours, such as simulating attendance at classes, cheating the assessments, etc., which are much more difficult to prove.

Keywords*: medical students, ethics, medical education, COVID-19, pandemic, teachers, university.*

REZUMAT. ***Învăţământul medical online şi conduita etică în timpul pandemiei Covid-19*****.** Practicarea comportamentelor lipsite de etică s-a dovedit a fi strâns legată de experienţa anterioară. Multe cercetări au identificat faptul că observarea, participarea la unele comportamente neprofesionale sau asistarea la practicarea lor de către colegi dublate de lipsa de reacţie din partea profesorilor încurajează studenţii să tolereze şi chiar să adopte astfel de comportamente care se vor menţine de-a lungul vieţii. De aceea este absolut necesară formarea etică şi morală a studenţilor, mai ales în perioada particulară a restricţiilor determinate de pandemia de COVID-19. Studiile arată că activitatea online facilitează practicarea comportamentelor lipsite de etică precum simularea prezenţei în timpul cursurilor, trişarea evaluărilor etc, comportamente neetice care sunt mult mai dificil de dovedit.

Cuvinte cheie*: studenţi medicinişti, etică, educaţie medicală, COVID-19, pandemie, profesori, universitate.*

[1] Behavioral Sciences Department, Faculty of Medicine, University of Medicine and Pharmacy "Grigore T. Popa" - Iasi, Romania
[2] Faculty of Psychology and Education Sciences, "Alexandru Ioan Cuza" University - Iasi, Romania
[3] Dentistry Department, Faculty of Medicine and Pharmacy, University of Oradea – Romania
[4] Department of Legal Medicine, Faculty of Medicine, University of Medicine and Pharmacy "Grigore T. Popa" - Iasi, Romania
* Corresponding author: Iurcov Raluca, PhD, Lecturer, University of Oradea,
Email: raluirimie@yahoo.com

Introduction

The unique context of the COVID-19 pandemic caused major changes in healthcare system and in medical education in universities all over the world and determined important processes of restructuring and reorganization of activities. In a noticeably short period of time, the educational activity had to adapt to the new conditions imposed by the pandemic, to ensure social distancing and prevention of COVID-19 infection. According to UNESCO, by the end of April 2020, a number of 186 countries have implemented nationwide closure, affecting about 73.8% of the total enrolled learners. (UNESCO, 2020)

Medical students did not have access to medical clinics to carry out their internships and interact with patients. They have enlisted as volunteers in various clinics to work with the medical staff and offered supplementary medical support for patients in the fight against Coronavirus infection.

Across many countries and many medical specialisations (general medicine, dental medicine, nursing, or pharmacy) medical education programmes have been disrupted. The continuous spread of the pandemic, strict isolation measures, interruptions and then, delays in starting schools, across the countries were expected to influence the mental health of medical students and their professional activity. There have been reports on the psychological impact of the pandemic on the public, patients, medical staff, children, and older adults, in general. (Yang et al, 2020)

For some countries, this disruption of medical education is not a new experience. Some studies already presented the experiences of doctors during SARS pandemic. Separate medical units have been specially set up to work with infected patients. (Jervis & Brown, 2020) Medical personnel were relocated to ensure continuity in these units. On the one hand, intensive work, and overwork due to the large number of seriously ill patients and the number of working hours have overwhelmed the medical system and staff. The stress created by the fear of becoming infected, transmitting the infection to family members, or dying from the disease has led to high burnout scores among health workers, influenced by the high mortality rate of medical staff. For example, in a study conducted by Rambaldini et al (2005) in three University-affiliated hospitals in Toronto, Canada during the SARS outbreak in 2003 it was showed that fear was present among healthcare providers because many workers became ill as a result of occupational exposure and some later died. Fear was doubled by the fact that, as the authors explained, SARS was unique in the challenges that it posed to the health care system such as the paucity of the available information about the aetiology and transmission of the infection.

Fear of infection in the academic environment

Data collected in medical schools identified high rates of stress and anxiety related to the possibility to get infected, also, regarding the medical education. The most affected students seemed to be those in final years of their studies. Among the very recent studies conducted during the first months of COVID-19 pandemic, those lead by Cao et al in 2019 in China, showed that epidemic has brought not only the risk of death from infection but also unbearable psychological pressure in the medical universities. Authors found that 0.9% of the respondents were experiencing severe anxiety, 2.7% moderate anxiety, and 21.3% mild anxiety. Living in urban areas, having a stable family income, and living with parents were protective factors against anxiety. Moreover, having relatives or acquaintances infected with COVID-19 was a risk factor for increasing the anxiety of medical students. (Cao et al, 2020)

The pandemic period forced medical schools to rethink their pedagogy and to find new ways of teaching. Medical educators decided to continue with clinical training in the absence of "live patient" contact replacing them with actors, videotaped vignettes and student volunteers, video-taped interviews with patients, the use of mannequin simulators, webcasting and online chatrooms, which were successfully adopted by medical schools during the SARS outbreak. (Lim et al, 2005)

Online learning vs face-to-face traditional learning

While some countries suspended in-person classes from March/April 2020 until further notice, in other countries the universities were less restrictive, where the advices were to reduce face-to-face academic activity and to replace it with online solutions as much as possible. Some other institutions postpone the restart of the activity. Exclusively online activity was considered unacceptable for many medical universities due to its specificity and need to have a student-patient contact, as in nursing schools, medicine, or dentistry.

COVID-19 represents again a crossroads for educators. They must adjust their teaching to be professionally delivered online, to adopt the critical thinking and to encourage individual work, to find ways to objectively evaluate and to support students in their academic achievement. In virtual education the challenge is to "redesign almost everything". (Hall et al, 2020)

Students and teachers should prove digital skills. "Digital competence is the group of skills, knowledge and attitudes needed when using ICT and digital devices to perform responsibilities, such as problem solving, information

management, collaboration with respect to effectiveness, efficiency and ethics". However, some studies showed that almost 25% of the students never participated to an online class before COVID-19 pandemic. (Ferrari, 2012)

The outbreak of COVID-19 resulted in a digital revolution in the higher education system in many countries, due to the long period of confinement. Online lectures, teleconferencing, digital open books, online examination, and interaction in virtual environments have been used. (Kumar, 2020) A significant positive impact of pandemic on academic education was also reported related to learning efficiency and performances by adopting online learning strategies (Gonzalez et al. 2020) and the majority of students reported being involved in online activities since the beginning of COVID-19 pandemic. However, some researchers showed that medical students complained that online learning sometimes fails to provide timely feedback and response compared with traditional learning and do not offer sufficient time to each of them. (Li et al, 2019) On the other hand, it was proved that students can get effective feedback in time when it comes to online tasks. Using both learning systems - a blended learning - was reported to improve the performance skills but not improve knowledge. (Kaveevivitchai et al., 2009)

However, the online mode of the teaching-learning process is often discriminatory to the students with a low socio-economic level and to the marginalized ones. For example, hearing-impaired students or people with visual impairments face difficult challenges in online learning. Socio-economic problems can also be decisive for students' involvement in online practical activities. Not all students live in Internet coverage areas or have a personal laptop at home. The facilities they have at the university are not identical to those at home. The lack of permanent Internet connectivity or of a high-performance personal device (not only a smartphone) is an impediment for attending the online courses and for the good performance of academic activities.

Muthuprasad et al (2020) conducted a study in India and showed the pros and cons of online activity among students with a low socio-economic level. Over half of the participants agreed with the statement that online learning considerably improved their technical skills and was less effective when it comes to communication with the teacher as compared to face-to-face classes.

Barriers in online learning were also identified by Baticulon et al (2020). The authors identified five categories: technological, individual, domestic, institutional, and community barriers. Among the most frequent were mentioned: difficult adjusting learning styles, having to perform responsibilities at home, and poor communication between educators and learners.

Online learning - Fear of academic failure. Concept of self-regulated learning (SRL) and performance in higher education and the practice of unethical behaviours

A metanalysis carried out by Pei and Wu (2019) showed that there is no evidence that offline learning works better than online learning. Online learning has advantages to enhance undergraduates' knowledge and skills. The authors concluded that it can be considered as a potential method in undergraduate medical teaching.

Another study conducted by O'Doherty et all, in 2018, found that, when analysing articles from databases regarding the impact of online learning in medical education, findings showed that the key barriers which influence the development and implementation of online learning included many factors such as time constraints, poor technical skills, inadequate infrastructure, absence of institutional strategies and support and negative attitudes of all involved. The authors also identified some solutions such as: improved teacher skills, incentives and reward for the time dedicated to the development and delivery of online content, improved institutional strategies and support and positive attitude amongst all partners involved in the development and delivery of the online content to medical students.

One of the greatest challenges is to have an accurate and objective evaluation in medical schools, in terms of both theoretical and practical knowledge. In order to have a fair process of evaluation and to give equal chances to all students, teachers must adapt their strategies.

One of the most used ways of learning is the individual one – autonomous learning – meaning that the students must learn under the supervision of a teacher, of course. For many students, especially those from final years of studies, individual preparedness of the works and thesis could be stressful. Teachers should find ways to stimulate them to work and to provide quick answers to guide them adequately. In the beginning of pandemic, the consequences of university closure extended to the end of the academic year generated many questions concerning grading and evaluation of progress that rapidly became a significant policy challenge. (Gonzalez et al, 2020)

Online evaluation, as Gonzalez et al (2020) explained recently, has become one of the most concerning concepts in the education during recent pandemic of COVID-19 because of two reasons. First, academic teachers should adjust their lectures and homework, redesigning teaching and evaluation to meet distance evaluation requirements. Some of the theoretical disciplines are more easily to be managed, but in case of clinical stages, the information is fractioned and delivered with difficulty. Second, it is still unclear and need more

research to identify the manner in which we can ensure that all students follow the instructions and do not adopt unethical behaviours during their online evaluation tests, like plagiarising, cheating, using of supplementary sources, sharing information with colleagues etc. (Gonzalez et al, 2020)

Jovanovic et al (2019) showed that management of learning resources is essential for a correct self-management of learning strategies of students. Therefore, many authors highlighted the importance of self-regulation learning processes among higher-education students to achieve their academic goals during pandemic period and online activities. Self-regulated learning (SRL) refers to "the active and constructive processes that are driven by thoughts, feelings, and actions toward reaching one's personal goals". (Zimmerman & Schunk, 2011) As the authors explained, the low level of achievement in school is related to SRL that induces stress and dissatisfaction. Many researchers describe SRL as the ability of students to function academically on their own, to be motivated and to achieve their goals and consider it extremely important for life-long learning.

"In an era when these essential qualities for lifelong learning are distressingly absent in many students, teaching self-regulated learning processes is especially relevant", as stated by Zimmerman (2002). Zimmerman presented the model of SRL as a process model that use a cyclical structure. From this social cognitive perspective, the strategies of SRL are defined in phases of *before*, *during* and *after* learning, having three phases: *forethought*, *performance*, and *self-reflection* (pre-action phase, action phase and post-action phase). Thus, students involved in online activities (as the many of them during pandemic period) had to deal with individual work and self-management, under the supervision of a teacher, As Zimmerman said "self-regulated learning refers to how students become masters of their own learning processes. It is not a mental ability or a performance skill but rather is the self-directed process through which abilities are transformed into task-related skills in diverse fields." (Zimmerman, 2008)

In front of the new challenge – studying by themselves – students must prove their abilities to deal with this new status. As Zimmerman and Schunk presented in their different studies, the component skills include: (a) setting specific proximal goals for oneself, (b) adopting powerful strategies for attaining the goals, (c) monitoring one's performance selectively for signs of progress, (d) restructuring one's physical and social context to make it compatible with one's goals, (e) managing one's time use efficiently, (f) self-evaluating one's methods, (g) attributing causation to results, and (h) adapting future methods. A students' level of learning has been found to vary based on the presence or absence of these key self-regulatory processes (Schunk & Zimmerman, 1994; 1998).

If students are not aware of their learning goals and if they do not have a clue on how to reach them, they will be more prone to adopt habitual learning strategies. Thus, they will be tempted to avoid adapting or making up new strategies that may not be appropriate for processing a learning task instead of creating new ones. The SRL process model and the related learning strategies and techniques are used to guide the learning process.

Moral competencies and ethical practices are among the desired outcomes of academic training in different types of specialisations. Nevertheless, academic dishonesty, unethical behaviour and misconduct are reported by universities across the world with high rates among medical students. Self-reported unethical practices identified scores between 2% in a study conducted in United Kingdom and 99% in Croatia. But generally, the scores are high and reflect a habitual behaviour encouraged by institutional rules, teachers' reaction, colleagues' behaviour, and personality traits.

A recent study of Yadav et al (2019) showed that most medical students (83%) have admitted that they practiced academic dishonesty, 12% have copied from the record books of others, 5% of the students revealed forging a teacher's signature in their record or logbooks.

Many studies have shown that there is an important correlation between practicing unethical behaviours during university studies and previous unethical experience. Also, studies conducted on resident physicians have shown that those who practiced unprofessional behaviours also practiced unethical behaviours throughout university studies. That is why many policy makers in medical universities have introduced ethics and ethics courses. But, on the other hand, various studies show that the level of knowledge about professional moral behaviours does not influence the behaviour itself. Not only the practice of unethical behaviours influences the professional practice later but also the fact that students witness such behaviours exhibited by their colleagues and the lack of reaction on the part of teachers encourages them to adopt such behaviours as well. (Seif-Farshad et al, 2016; Papadakis et al, 2005)

When comparing student's success in online classes and in face-to-face traditional classes, the results obtained by different authors proved that students' performance is worse in online courses. Students in online education underperform, particularly the underprepared and disadvantaged ones. McLaren (2004) mentioned that regular teacher-student interactivity is an important key of quality in online education and has a positive impact on student satisfaction. As Gefen and Straub (2004) showed, face-to-face discussions are usually more effective than electronic means because social presence influences information-sharing behaviour. A less developed relationship between teacher and students, a

less motivated involvement in the academic activity, a low level of self-control will determine poor outcomes. Being afraid to fail in online classes, student is more tempted to cheat.

Due to the extreme importance of professional training and the need for a practical evaluation in the field of medicine, it has been observed that online activities are preferred in the case of basic subjects, while clinical disciplines are carried out face to face. (Ruiz, Mintzer & Leipzig, 2006)

Conclusion

Online activities in the university field are more and more challenging for both students and teachers. Unethical behaviour among students is known to affect their practice over the years. That is why online education should not neglect ethics and professionalism while training medical students. Students and teachers are discovering new ways of using online teaching methods and evaluation tools and sometimes the attractiveness of high grades is determining the learners to find ways to obtain them. Providing trainings, establishing guidelines and promoting ethical behaviour among online university activity will help both actors- student and teacher- to collaborate better during restrictive times of pandemics.

REFERENCES

Baticulon, R.E., Alberto, N.R.I., Baron, M.B.C., Mabulay, R.E.C., Rizada, L.G.T., Sy, J.J., Tiu, C.J.S., Clarion, C.A. and Reyes, J.C.B., (2020). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *medRxiv,* https://doi.org/10.1101/2020.07.16.20155747

Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, Zheng J. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry research*. 2020, doi.org/10.1016/j.psychres.2020.112934.

Ferrari A. Digital competence in practice: An analysis of frameworks. (2012) Technical Report by the Joint Research Centre of the European Commission, *Sevilla: JRC* IPTS, DOI: 10.2791/82116.

Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-Commerce and the importance of social presence: Experiments in e-products and e-services. *Omega*, 32, pp. 407–424.

Gonzalez, T., de la Rubia, M., Hincz, K., Lopez, M. C., Subirats, L., Fort, S., & Sacha, G. M. (2020, April 20). Influence of COVID-19 confinement in students' performance in higher education. https://doi.org/10.35542/osf.io/9zuac.

Hall AK, Nousiainen MT, Campisi P, Dagnone JD, Frank JR, Kroeker KI, Brzezina S, Purdy E, Oswald A. Training disrupted: Practical tips for supporting competency-based medical education during the COVID-19 pandemic. *Medical Teacher*. 2020, pp. 1-6.

Jervis CG, Brown LR. The prospects of sitting 'end of year 'open book exams in the light of COVID-19: A medical student's perspective. *Medical Teacher*. 2020, pp. 1-2.

Jovanovic J, Mirriahi N, Gasevic D, Dawson S, Pardo A. Predictive power of regularity of pre-class activities in a flipped classroom. *Computers & Education*. 2019, 134, pp. 156-168.

Kaveevivitchai, C., Chuengkriankrai, B., Luecha, Y., Thanooruk, R., Panijpan, B. and Ruenwongsa, P., (2009). Enhancing nursing students' skills in vital signs assessment by using multimedia computer-assisted learning with integrated content of anatomy and physiology. *Nurse education today*, *29*(1), pp.65-72.

Kumar G, Singh G, Bhatnagar V, Gupta R, Upadhyay SK. Outcome of Online Teaching-Learning over Traditional Education during Covid-19 Pandemic. *International Journal*. 2020, 9(5), pp. 77014-7711.

Li, C., He, J., Yuan, C., Chen, B. and Sun, Z., (2019). The effects of blended learning on knowledge, skills, and satisfaction in nursing students: A meta-analysis. *Nurse education today*, *82*, pp.51-57.

Lim EC, Oh VM, Koh DR, Seet RC. The challenges of "continuing medical education" in a pandemic era. *Ann Acad Med Singapore*. 2009, 38(8), pp. 724-726.

McLaren, C.H., (2004). A comparison of student persistence and performance in online and classroom business statistics experiences. *Decision Sciences Journal of Innovative Education*, *2*(1), pp.1-10.

Muthuprasad, T., Aiswarya, S., Aditya, K.S. and Jha, G.K., 2021. Students' perception and preference for online education in India during COVID-19 pandemic. *Social Sciences & Humanities Open*, *3*(1), p.100101. https://doi.org/10.1016/j.ssaho.2020.100101

O'Doherty, D., Dromey, M., Lougheed, J., Hannigan, A., Last, J. and McGrath, D., (2018). Barriers and solutions to online learning in medical education–an integrative review. *BMC medical education*, *18*(1), pp.1-11.

Papadakis MA, Teherani A, Banach MA, Knettler TR, Rattner SL, Stern DT, et al. (2005). Disciplinary action by medical boards and prior behavior in medical school. *N Engl J Med*; 353(25): pp. 2673–2682.

Pei, L. and Wu, H., (2019). Does online learning work better than offline learning in undergraduate medical education? A systematic review and meta-analysis. *Medical education online*, *24*(1), p.1666538.

Rambaldini G, Wilson K, Rath D, Lin Y, Gold WL, Kapral MK, Straus SE. The impact of severe acute respiratory syndrome on medical house staff a qualitative study. *Journal of general internal medicine*. 2005; 20(5), pp. 381-385.

Ruiz JG, Mintzer MJ, Leipzig RM. (2006). The impact of E-learning in medical education. *Acad Med*., 81(3), pp. 207-12. doi: 10.1097/00001888-200603000-00002

Schunk, D.H., & Zimmerman, B.J. (Eds.). (1994). Self-regulation of learning and performance: Issues and educational applications. Hillsdale, NJ: Erlbaum.

Schunk, D.H., & Zimmerman, B.J. (Eds.). (1998). Self-regulated learning: From teaching to self-reflective practice. New York: Guilford Press.

Seif-Farshad M, Bazmi S, Amiri F, Fattahi F, Kiani M. (2016). Knowledge of medical professionalism in medical students and physicians at Shahid Beheshti University of Medical Sciences and affiliated hospitals—Iran. *Medicine*, 95(45).

UNESCO. (2020) COVID-19 Educational disruption and response. https://en.unesco.org/themes/educationemergencies/coronavirus-school-closures (Accessed September 2020)

Yadav, H., Jegasothy, R., Ramakrishnappa, S., Mohanraj, J. and Senan, P., (2019). Unethical behavior and professionalism among medical students in a private medical university in Malaysia. *BMC medical education*, *19*(1), pp.1-5.

Yang Y, Li W, Zhang Q, Zhang L, Cheung T, Xiang YT. Mental health services for older adults in China during the COVID-19 outbreak. *The Lancet Psychiatry*. 2020, 7(4), e19.

Zimmerman BJ, Schunk DH. Motivational sources and outcomes of self-regulated learning and performance. *Handbook of self-regulation of learning and performance*. 2011, 5(3), pp. 49-64.

Zimmerman BJ. Becoming a self-regulated learner: An overview. *Theory into practice,* 2002, 41(2), pp. 64-70.

Zimmerman BJ. Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American educational research journal*. 2008, 45(1), pp. 166-183.