

A STUDY OF PHYSIOTHERAPY STUDENTS' SATISFACTION AND PERFORMANCE OF ONLINE TEACHING UNDER COVID-19 PANDEMICS

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Abstract:

The shift to online platforms during the Covid-19 pandemic poses serious challenges to medical education, how effective online learning is for undergraduate students' education remains unknown. This qualitative study aims to compare physiotherapy students' satisfaction and performances shown in an online course to a control group of students who underwent the same course delivered face-to-face in the previous year. Between May and June 2020, a class of second-year physiotherapy students, trained by an experienced clinical educator, had 16-hours online lessons. Students exposed to the same course delivered with face-to-face conventional lessons in the previous academic year, served as a control group. We compared satisfaction with the online course, resulting in no differences between online and face-to-face teaching. We weighted up students' results by comparing their mean performances with the mean performances of the same course delivered face-to-face in the previous year, founding a non-statistical significance in favor of face-to face teaching. Online teaching in entry-level physiotherapy students seems to be a feasible option to face COVID-19 pandemic, as satisfies students as well as face-to-face courses and leading to quite similar performance.

Keywords: students; medical education & training; telemedicine; satisfaction; performance.

Introduction

Clinical education is a key component to learning in the health professions. Universities worldwide were pausing in their attempt to limit COVID-19's spread, cancelling all in-person classes, and switching to virtual teaching[1]. Romania was also affected, with COVID-19 cases soaring at the beginning of March 2020 and lockdowns implemented as early as Mid of March 2020 forcing all the educational to switch to online learning. Within this context, the online teaching was unprecedented for different institutions, as for the second-year students in physiotherapy [2]. With no time for extensive training on online teaching and learning and no possibility to change the course contents, physiotherapy lecturers were faced with the challenge of effectively teaching core skills to entry-level physiotherapy students online, assuring the same competence level gained by their predecessors [3]. In the meanwhile, physiotherapy students, who were already experiencing the impact of the pandemic on their psychosocial wellbeing, had to manage the amplification of the level of negative emotions due to rapid changes in learning habits [4,5]. Even if former systematic reviews reported that distance-online learning arouses the same satisfaction and has the same efficacy as traditional face-to-face teaching in physiotherapy [6,7,8], the protected experimental setting in which the included studies were conducted limits

the external validity of the findings to the ongoing pandemic. Online teaching has played a key role in medical education over recent years, [9,10,11], demonstrated several benefits in enhancing student learning. [12], a recent systematic review suggested that offline teaching and online teaching are equivalent in terms of outcomes of examinations. [13], key drawbacks have also been highlighted, including time constraints to implement effective online teaching. [9] The effectiveness of online learning is influenced by many factors. Some factors create barriers for online learning, such as administrative issues, social interaction, academic skills, technical skills, learner motivation, time and support for studies, technical problems, cost, and access to the internet. Other factors could result in low-quality online learning, for example an ineffective design and arrangement of multimedia materials [14]. This comparative study was developed during COVID-19 pandemic to evaluate quantitatively students' satisfaction and performances after attending online physiotherapy education. Accordingly, the aims of this retrospective case-control study are: (1) to investigate students' satisfaction and performance; and (2) to compare their degree of satisfaction and performance with those reported by students attending face-to-face courses. Improving our understanding of this could help develop physiotherapy school curricula in the future.

Study design

This case-control study was developed using guidance and explanations from the Strengthening the Reporting of Observational studies in Epidemiology (STROBE) guidelines [15,16]. Participation was voluntary, and participants were informed prior to starting the survey that all data collected was non-identifiable and would only be used for research purposes only. [17]. Ethics approval during this pandemic was not required according to the "Ethics and data protection" regulations of the European advisory body and European Commission [17,18,19].

Setting

"Medical gymnastics and Ergophysiology" lectures in second-year students in Physiotherapy have been shifted from a face-to-face to an online course. The lecturer was trained by the University exclusively on the use of the online platform (how to access the system; how to record lectures; and how to upload learning materials. No additional training on how to prepare the online teaching and how to adapt the learning content was provided. The course was delivered online between May and the end of June 2020. Students' attendance was recorded automatically as they accessed the lectures on the Zoom platform. The courses conducted by the same lecturer were organized in 3 sequential phases: (1) PowerPoint presentations uploaded to the University online platform, (2) live video conference lectures on Zoom, (3) asynchronous video recorded lectures were placed on the same platform. The admission to the oral exam was bound to 100 % attendance to the lectures both in the online and face-to-face editions.

Participants

Students attending the course in the 2019/2020 academic year, exposed to online teaching, were considered as the online group (n = 36). Students exposed to the same course taught face-to-face in the previous academic year (n = 40) were considered as a control group.

Data collection and Outcome Measures

Demographics (e.g., age and gender) and course (e.g., number of participants attending the course, number of respondents, number of passed students) characteristics were collected. The primary outcomes of interest were students' satisfaction and performance. The assessment of students' satisfaction was obtained from a standardized 14-item questionnaire and takes place before the final exam. The questionnaire covered various aspects of the course (e.g. clarity of information on the course structure, the use and experience of online teaching during the

COVID-19 pandemic, perceived benefits and barriers of online teaching and satisfaction with the educational experience), with answers allowed upon a 5-point Likert scale (“I don’t know” - value 0, “Strongly disagree” - value 1, “Somewhat disagree” - value 2, “Somewhat agree” - value 3 and “Strongly agree” - value 4). The assessment of students’ performance occurred in July of each year and was obtained through a written and oral exam conducted by the same teacher who delivered the lessons for both face-to-face and online courses. While the online group was assessed remotely using the Zoom platform, the face-to-face group conducted the exam in person at the University. The final exam comprised a set of 30 multiple choice questions followed by open questions and a patient case study aimed at evaluating both the knowledge acquired and the ability to apply it to a clinical scenario. Satisfaction and performances shown by the online group were compared with the face-to-face groups from the previous academic year.

Statistical methods

Descriptive statistics were used to summarize characteristics and outcomes. To report values of the dependent variables Likert scores, continuous variables were reported as medians with interquartile ranges (IQRs) and performances of the oral exams as mean with standard deviation (SD) or 95% Confidence of Interval (CI). For the inferential statistics, the type of teaching (online vs. face-to-face) was considered as the independent variable. Differences in the Likert scores and the performances were explored, using the Wilcoxon rank sum test.

Results

Participants: All students of the online group (n = 36; 100 %) attended the course entirely. Their mean age was 26.8 (SD 2.3) years distributed as 22 females and 17 males. Participants of the face-to-face group were 40. They all attended the course entirely (100%). Their mean age was 24.6 (SD 2.1) years, distributed as 27 females and 13 males. See flowchart (Fig. 1).

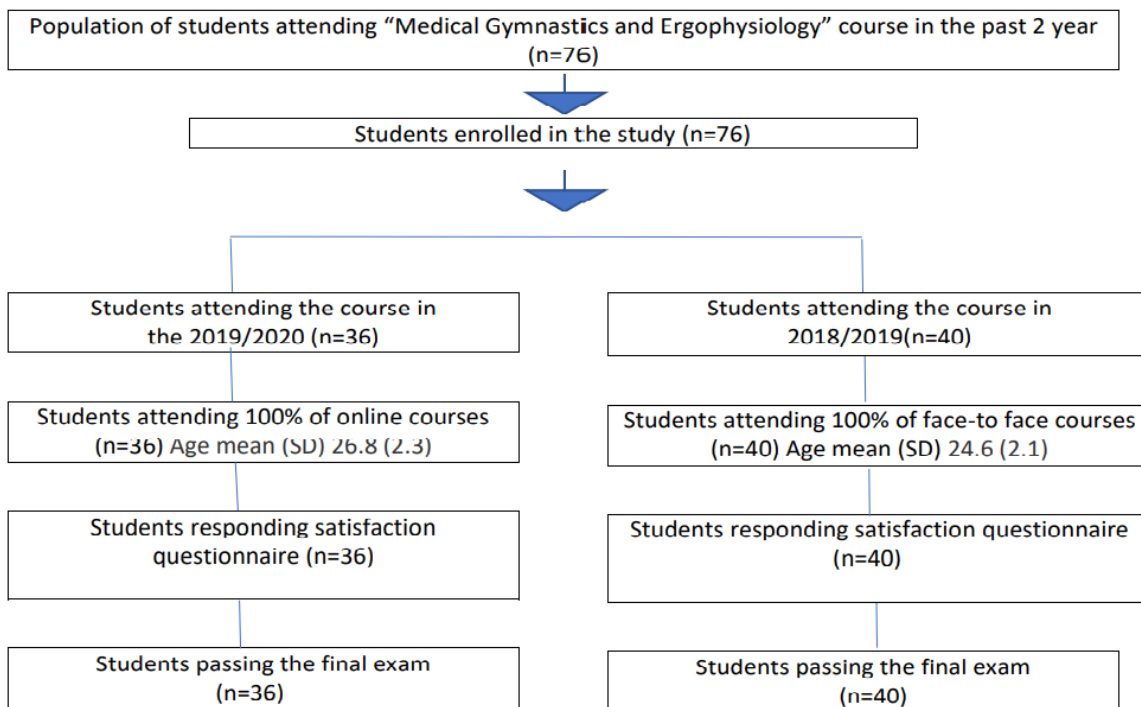


Fig. 1 Graphic representation of participants

Outcomes

Students attending the online course all completed the final online oral exam, with a mean performance of 27 out of 30 (95 % CI 26.1–28.5), with none failing the course. All the students responded to the University quantitative survey about satisfaction, reporting a median Likert score of 4 [IQR = 1]. Students attending the course face-to-face all completed the final oral exam, with a mean performance of 27.2 out of 30 (95 % CI 26.3–28.7), with none failing the course. Each of them (100 %) responded to the quantitative survey about satisfaction, reporting a median Likert score of 4 [IQR = 1]. No difference was observed between the two groups of students in the perceived satisfaction of the course. There was a non-statistically significant difference in the mean performances favorable to the face-to-face group.

Discussion

Key results: With the rise of COVID-19, it is unsurprising that many medical institutions have resorted to online education platforms. However, online education has been used preceding this pandemic. Here, we discuss how this pandemic has shaped the use of online teaching currently as well as its application in the future of medical education. According to the main findings, the second-year students in Physiotherapy showed: (1) no differences in satisfaction whether they attended a face-to-face or an online course; (2) a higher performance in an online course as compared to face-to-face course.

Interpretation

Former systematic reviews, summarizing studies performed before COVID-19 pandemic, found that levels of satisfaction and performances are similar for both distance-online and face-to-face teaching [6,7,8]. Medical schools adapted to the Covid-19 pandemic in a combination of ways with most of the students reporting their medical school to adapting to remote learning through the delivery of live tutorials via online platforms. Our study seems to support these findings, as our online course satisfied students as the face-to-face one. The same degree of satisfaction was expressed by both groups suggesting that students' needs are evolving. Furthermore, most of the students found that online teaching sessions have been interactive, with students finding the opportunity to interact via the chat box or by directly speaking to the lecturer. The main advantages of online teaching appeared to be that it saves students time on travelling, provides some degree of flexibility, the ability for students to learn at their own pace, it is more comfortable and finally it cuts costs. The difference in performance seems to have limited practical meaning, several explanations could justify the slightly higher performance of students in the face-to-face group. For students, learning in clinical contexts would require assimilating the values, attitudes and skills that constitute professional practice; negotiate complex and ambiguous learning situations in hierarchical clinical settings, [20,21,22], facing patients' sleekness and disability, developing manual skills, not entirely applicable through online learning. Alternatively, with exams being open book and with an unrestricted setting, students may be less prone to exam anxiety.

Conclusions

Online teaching in second-year Physiotherapy students seems to be a feasible option to face COVID-19 pandemic, as satisfies students as well as face-to-face courses and leading to quite similar performance. The non-randomized study was voluntary, so individual performance may be influenced by selection bias. However, further studies should be undertaken to cumulate evidence in the field. Universities will have to train lecturers to help them develop appropriate pedagogical skills, and supply suitable support in terms of economic, organizational, and

technological issues, to adapt the physiotherapy school curricula, aimed at guaranteeing a high level of education to their students.

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