“Am I being observed?”: Medical students’ perceptions about remote proctoring

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ABSTRACT

The COVID-19 pandemic obliged medical educators to embrace technology and to search for innovative and viable solutions for administering safe but academically integral high-stakes medical exams. By looking for solutions outside the realm of medical education, remote proctoring has gained medical educators’ interest to facilitate high-stakes exam administration, while reducing the chances of cheating. To evaluate whether remote proctoring could offer a viable solution, we aimed to explore medical students’ perceptions about remote proctoring during an online high-stakes medical exam. Specifically, we utilised remote proctoring to remotely administer a high-stakes proficiency-testing exam for admission to the Flemish Postgraduate General Practitioner’s Training. We used a survey comprising 6 closed-ended and 2 open-ended questions to explore medical students’ perceptions. We used an exploratory factor analysis and thematic analysis respectively to analyse the data. In total, 472 students took the proficiency-testing exam remotely using the remote proctoring software. Out of 472, 304 filled in the questionnaire, 213 women and 91 men. Our findings indicate that students’ perceptions are ambiguous regarding remote proctoring. Increased text anxiety but also feelings of reassurance are indicative of students’ mixed feelings about remote proctoring.

EXTENDED SUMMARY (max 1000 words)

Aims Global disruption caused by the COVID-19 pandemic has had tremendous impact on different aspects of education. Educational practices had to adopt and adapt in an online

format(Fuller et al., 2022). Assessment practices have also seen difficult challenges. In medical assessment, high-stakes exams were profoundly affected by the pandemic, since this type of assessment was mainly administered in traditional face-to-face classroom assessment settings(Fuller et al., 2022). Maintaining academic integrity during high-stakes medical exams is highly important to discourage cheating (Langenfeld, 2020). Guarantying academic integrity constrained to assess medical students using on-site human proctors, and deterred using online alternatives. Nevertheless, the COVID-19 countermeasures imposed physical distance among students per exam resulting in logistical challenges for organising traditional classroom high-stakes exams. The COVID-19 pandemic compelled medical educators to embrace technology and to look outside medical education for alternatives(Munshi et al., 2020). Remote proctoring in an online assessment environment could offer an innovative and viable alternative for medical high-stakes exams. However, for the administration of medical high-stakes exams remotely and online to be a viable and accepted pedagogy, it must be accepted by the students (Milone et al., 2017). Therefore, this study aimed to explore medical students' perceptions about remote proctoring during an online high-stakes exam.

Methodology This study took place within the setting of the Flemish Postgraduate General Practitioner's (GP) Training, in Belgium. Four Flemish Universities (KU Leuven, University of Ghent, University of Antwerp, and VUB) collaborate and provide an interuniversity curriculum for the GP Training across Flanders. The interuniversity curriculum stipulates that medical students wishing to follow the GP Training should take a machine-assisted, multicomponent, high-stakes proficiency-testing exam. Given the great number of prospective GP students (≥ 900), we built a comprehensive and interactive online assessment platform. To respect both the COVID-19 countermeasures and to adhere to the original format of the proficiency-testing exam, we developed a proctoring software that allowed to track and trace students' behaviour remotely through students' personal camera during the exam.

The remote proctored proficiency-testing exam took place in June 2020. Students could choose between taking the proficiency-testing exam remote or on-site. For students choosing the remote choice, we engaged an experienced proctoring team of six staff members. The human proctors were able to send online notifications or warnings to candidates who were showing suspicious behaviour.

To collect data about students' perceptions about remote proctoring, we administered a post-test survey in the form of an online questionnaire. Only students that took the proficiency-testing exam remotely were asked to fill in the questionnaire. Filling the questionnaire was on anonymous and voluntary basis. The questionnaire comprised 6 closed- and 2 open-ended questions. For the closed-ended questions, students had to specify their level of agreement or disagreement on a 6-point Likert scale. We used an exploratory factor analysis to analyse the 6 closed-ended questions, while we used thematic analysis to analyse qualitative data from the 2 open-ended questions. For quantitate analysis, we used SPSS 26, and, for qualitative analysis, we used QRS International's NVIVO. Ethical approval was granted by the Social and Societal Ethics Committee of the KU Leuven with the following approval number: G-2020-2262-R2(MAR).

Findings In total, 593 students took the proficiency-testing exam. Four hundred seventy-two(79%) chose to take the exam remotely using the proctoring software, while 121 (20%) took the exam on-site. Out of 472 students that took the exam remotely, 304 filled in the questionnaire, 213 women and 91 men.

First, we analysed quantitative data performing an exploratory factor analysis. One question/item had to be omitted because of a communality lower than .40. Sampling adequacy was also guaranteed by applying the 10:1 rule of thumb subject to item ratio (Costello & Osborne, 2005). From the analysis, two factors were identified with adequate eigenvalues over Kaiser's criterion of 1, explaining 82.46% of the variance. These two factors could be described as, first, students' appreciation of the proctoring software, and, second, as emotional distress because of the proctoring software.

Second, we analysed qualitative data using thematic analysis (Braun & Clarke, 2012). We discerned two themes related to students' emotional well-being during the remote proctored exam. These two themes provided more insights and explanations on our results of the factor analysis. The first theme was increased test anxiety. Students claimed that they felt more anxious because of the proctoring software, and stated that they had an "awkward feeling" and they were "feeling observed" knowing that human proctors were monitoring them through the camera. The second theme was related to other students argued that they had a

"reassuring feeling" knowing that human proctors were monitoring, stating that "someone could help, technical problems arose".

Theoretical and educational significance

The COVID-19 pandemic rendered the necessity of looking for alternative ways of administering safe but academically integral medical high-stakes exams. Remote proctoring could offer a viable solution for facilitating administration of high-stakes exams during a next COVID-19 wave, or potentially a future pandemic. However, our findings clearly indicate that students' perceptions are ambiguous. On one hand, students' responses showed increased test anxiety due to the proctoring software. On the other hand, students thought that a remote proctoring software was reassuring, since human proctors could help them in case of an emergency.

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