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Teaching Tooth Wear Diagnosis, Risk Assessment, and Treatment Decisions Applying Inverted Classroom Combined with Case Presentation Model

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Abstract

This study explored the application of a model for teaching tooth wear diagnosis, risk assessment, and treatment decisions to undergraduates at the UCLouvain, Belgium, based on an inverted classroom combined with case presentations. The aim was to explain its implementation and assess improvement in learning, engagement, and satisfaction. The hypothesis tested was that this model would enhance students' performance. This controlled clinical trial included 29 dental students in the test group and 30 in the control group. All students received instructions and pre-class material for reading via e-mail 2 weeks prior to class time (T0). The test group included students attending the class time (attendance was not obligatory). The control group consisted of students only attending the preclinical training (attendance was obligatory). Both groups assessed three case presentations with no, moderate, and severe erosive tooth wear. The test group assessed the cases at the beginning of the class time (T1). One week later, at the beginning of the preclinical training, the students of the control group assessed the case presentations (T2). In parallel, to measure the contribution of the class time to students' performance, the test group reassessed the cases (T2). This was followed by discussion of each case in which the lecturer presented the benchmark assessments. Students' perception of their learning experience was recorded. The generalized linear mixed regression model showed that for the overall assessments of cases, students in the control group were significantly less likely to agree with the benchmark than students in the test group (OR = 0.62; $p = 0.006$). Students' satisfaction was higher in the test group than in the control group but only significantly regarding the quality of the cases presentations (Fisher test $p < 0.01$). The class time contributed significantly to students' improvement in learning in the test group (linear mixed model; $p < 0.01$). In conclusion, the model applied improved significantly in performance, learning, and to some extent satisfaction. However, the motivation strategy applied resulted in only half of the students adhering/engaging to the complete interactive model of teaching. Further motivation strategies should be implemented to make the complete model more widely accepted by students. © 2022 S. Karger AG, Basel. All rights reserved.

Author Keywords

Case presentation; Dental; Education; Inverted classroom; Tooth wear; Undergraduate

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