The impact of feedback quizzes on academic performance and the student experience in two pharmacokinetics courses

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Background. Pharmacy students do not typically enjoy studying pharmacokinetics because of its mathematical nature and perceived lack of relevance to clinical practice. To improve teaching at our institution, quizzes were introduced into an intermediate and advanced course in this discipline in 2013 and 2014 respectively.

Aims. To retrospectively evaluate the impact of two different approaches, of introducing ‘feedback quizzes’ to enhance teaching of clinical pharmacokinetics, on the experiences and academic performance of undergraduate pharmacy students.

Methods. Formative paper-based quizzes were introduced into tutorials in the intermediate course and summative online quizzes were introduced into the advanced course. Academic performance (based on student marks) and student experience data (based on the proportion of students who agreed or strongly agreed with statements in an institutional evaluation survey) were compared pre- and post-curricular change using a Mann-Whitney-Wilcoxon test and Test of Equal Proportions, respectively.

Results. Statistically significant increases in academic performance were noted in both courses; from 75.0 to 77.0% (p = 0.033) for the median weighted mark in the intermediate course, and from 77.8 to 85.7% (p =0.002) for the median mark in the pharmacokinetic component of the final exam in the advanced course. A non-significant trend towards increased overall course satisfaction was seen in both courses compared with the previous cohort (intermediate 87% vs 78% (p=0.3), advanced 63% vs 50%, (p=0.35)).

Conclusion. Our study demonstrated that quizzes, whether formative or summative, administered in-class or outside class, can enhance learning and lead to modest improvements in students’ satisfaction of two pharmacokinetics courses.