

EFFECTS ON PRIMARY AND SECONDARY SCHOOL STUDENTS IN CHINA OF VIDEO GAME ON DENGUE-RELATED INFORMATION: A PILOT GROUP-RANDOMIZED CONTROLLED TRIAL

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Abstract. Traditional methods of health education on dengue fever in schools have faced such challenges as finding proper time and place to match students' schedules and training potential lecturers. Using video games to spread health-related knowledge is an innovative method, which not only meet these challenges but also present an effective approach. In order to evaluate the effectiveness of a video game, called "Mosquito Defense" on dengue-related knowledge among primary and secondary school students, 1,311 students from 40 randomly selected classes [primary (3rd and 5th grades) and secondary (2nd and 5th grades)] in 12 schools of Guangzhou, PR China were chosen using a multi-stage stratified cluster random sampling method. Two classes per enrolled grade from these 12 schools were randomly selected and assigned as intervention or control group. Students in intervention group were provided with Mosquito Defense video game and those in control group received reading material containing the same dengue-related knowledge for a 20-minute learning period in school or at home. A quasi-experimental pre-test and immediate or a one-day delayed post-test were employed to compare differences in students' scores using a questionnaire, which assessed dengue-related knowledge and attitudes. Students in intervention groups have significantly higher improvement of scores on dengue-related knowledge than those in control groups ($p < 0.001$), although scores of both groups are significantly increased following access to both types of learning tools ($p < 0.001$ respectively). These results were consistent across different regions (rural or urban) and places of learning (school or home). Students with lower pre-test scores on dengue knowledge or more positive attitudes towards the learning tool were more likely to show greater improvement in post-test scores (OR = 0.95; 95% CI: 0.92-0.98 and OR = 1.05; 95% CI: 1.02-1.08, respectively). Univariate logistic regression analysis indicated students who succeeded in the video game were more likely to have higher improvement in dengue knowledge scores than those who failed (OR = 2.15; 95% CI: 1.08-4.24). The majority (70.7%) of participants would like to learn health knowledge through the medium of video games. Thus, Mosquito Defense video game could be an innovative method for improving dengue-related knowledge among primary and secondary school students.

Keywords: health education, knowledge on dengue, student learning tool, video game

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