

Health education module based on information–motivation–behavioural skills (imb) for reducing depression, anxiety, and stress among adolescents in boarding schools: a clustered randomised controlled trial

ABSTRACT

Depression, anxiety, and stress (DAS) among adolescents have become a public health concern. The aim of this study was to develop, implement, and measure an IMB-based health education intervention module for reducing DAS among adolescents in boarding schools in the state of Negeri Sembilan, Malaysia. A single-blinded cluster randomised control trial (RCT) was conducted among students with abnormal DASS-21 scores. They were divided into an intervention group (three schools, 62 participants) and a control group (three schools, 57 participants). Participants in the intervention group received IMB-based health education, while participants in the control group underwent the standard care session. To determine the effectiveness of the intervention, the Generalised Linear Mixed Model (GLMM) analysis was conducted. A total of 119 students participated in this study, and no loss to follow-up was reported. Both intervention and control groups showed significantly reduced DAS scores ($p < 0.005$). However, the reduction of these scores was greater in the intervention group. The GLMM analysis revealed that the intervention was effective in reducing depression ($\beta = -2.400$, $t = -3.102$, $SE = 0.7735$, $p = 0.002$, $95\% \text{ CI} = -3.921, -0.878$), anxiety ($\beta = -2.129$, $t = -2.824$, $SE = 0.7541$, $p = 0.005$, $95\% \text{ CI} = -3.612, -0.646$), and stress ($\beta = -1.335$, $t = -2.457$, $SE = 0.536$, $p = 0.015$, $95\% \text{ CI} = -2.045, -0.266$) among adolescents. The IMB-based health education module was effective in reducing DAS among adolescents in boarding schools.