Abstract ID: **210**   **Non-clinical**   **ORAL**

Predicting Workplace Fecal Occult Blood Test Screening Uptake using Generalized Estimating Equations: A Sensitivity Analyses

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Introduction: Many studies have shown the effectiveness of educational modules on increasing colorectal cancer screening uptake at individual level but not adjusted for potential clustering effect such as workplace. Longitudinal studies on workplace colorectal cancer screening require a series of analysis under different conditions due to heterogeneity of workplace population. To achieve this, a sensitivity analysis based on Generalized Estimating Equations was conducted to determine the robustness of the predictive performance of health education module in increasing screening uptake. **Materials and Method:** A parallel, single blind, cluster randomized trial was conducted among 15 organizations in Kuantan, Pahang. Intervention group received a complex Health Education Module comprising of group education, practical session on fecal occult blood test usage and WhatsApp group follow-up, while control group received standard colorectal cancer screening brochure. Sensitivity analyses using intention to treat analysis with interaction term, compatibility term, behavioral intention term and key assumption term were performed. Data were imputed and analysed using generalized estimating equation with IBM SPSS version 23. Pooled adjusted odds ratio was calculated using random effect model with inverse variance weighting using RevMan version 3.5. **Results:** A total of 166 participants from 15 organizations were recruited in the study. Intervention and control group were comparable at baseline (P>0.05). Health Education Module given in intervention group significantly increased the uptake of FOBT by nearly 5 times compared to control group in sensitivity analyses (pooled adjusted OR=4.60, 95% CI=2.65-7.99, I^2=47%, P<0.001). **Conclusions:** Health Education Module was robust in facilitating fecal occult blood test uptake in different predictive models. Health Education Module should be implemented as a workplace health promotion program to improve colorectal cancer screening for early detection and prompt treatment.