Educational module intervention for radiographers to reduce repetition rate of routine digital chest radiography in Makkah region of Saudi Arabia tertiary hospitals: protocol of a quasi-experimental study

ABSTRACT

Background: Repetition of an image is a critical event in any radiology department. When the repetition rate of routine digital chest radiographs is high, radiation exposure of staff and patients is increased. In addition, repetition consumes the equipment's life span, thus affecting the annual budget of the department. Objective: The aim of this study is to determine the impact of a printed educational module on reducing the repetition rate of routine digital chest radiography among radiographers in Makkah Region tertiary hospitals. Methods: A quasi-experimental time series with a control group will be conducted in Makkah Region tertiary hospitals for 8 months starting in the second quarter of 2017. Four hospitals out of 5 in the region will be selected; 2 of them will be selected as the control group and the other 2 as the intervention group. Stratification and a simple random sampling technique will be used to sample 56 radiographers in each group. Pre- and postintervention assessments will be conducted to determine the radiographer knowledge, motivation, and skills and repetition rate of chest radiographs. Radiographs of the chest performed by sampled radiographers in the selected hospitals will be collected for 2 weeks before and after the intervention. A piloted questionnaire will be distributed and collected by a researcher in both groups. One-way multivariate analysis of variance and 2-way repeated multivariate analysis of variance will be used to analyze the data. Results: It is expected that the repetition rate in the intervention group will decline after implementing the intervention and the change will be statistically significant ($P<.05$). Furthermore, it is expected that the knowledge, motivation, and skill levels in the intervention group will increase significantly among radiographers after implementation of the intervention ($P<.05$). Meanwhile, knowledge, motivation, and skills in the control group will not change. Conclusions: A quasi-experimental time series with a control will be conducted to investigate the effect of printed educational material in reducing the repetition rate of routine digital chest radiographs among radiographers in tertiary hospitals in the Makkah Region of Saudi Arabia.

Keyword: Repetition rate; Intervention; Radiographer; Quasi-experiment; Information motivation behavioural skills model