

Quality of Kelantan drinking water and knowledge, attitude and practice among the population of Pasir Mas, Malaysia

ABSTRACT

Objectives: Information about the quality of drinking water, together with analysis of knowledge, attitude and practice (KAP) analysis and health risk assessment (HRA) remain limited. The aims of this study were: (1) to ascertain the level of KAP regarding heavy metal contamination of drinking water in Pasir Mas; (2) to determine the concentration of heavy metals (Al, Cr, Cu, Fe, Ni, Pb, Zn and Cd) in drinking water in Pasir Mas; and (3) to estimate the health risks (non-carcinogenic and carcinogenic) caused by heavy metal exposure through drinking water using hazard quotient and lifetime cancer risk. **Methods:** Information on KAP was collected using a standardized questionnaire. Heavy metal analysis of drinking water samples was performed using graphite furnace atomic absorption spectrophotometry. **Results:** The population of Pasir Mas has good knowledge (80%), a less positive attitude (93%) and good practice (81%) towards heavy metal contamination of drinking water. The concentrations of heavy metals analysed in this study were found to be below the permissible limits for drinking water set by the Malaysian Ministry of Health and the World Health Organization. The HRA showed no potential non-carcinogenic and carcinogenic risks from the intake of heavy metal through drinking water. **Conclusion:** By investigating the quality of drinking water, KAP and HRA, the results of this study will provide authorities with the knowledge and resources to improve the management of drinking water quality in the future.

Keyword: Attitude; Drinking water; Health risk assessment; Heavy metal; Knowledge; Practice