Knowledge as a shield: Assessing malaria prevention insight in low, medium, and high-risk areas in Kuala Krai and Gua Musang, Kelantan

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ABSTRACT

Introduction: Malaysia has made significant progress towards malaria elimination, but the risk of reintroduction persists due to imported cases. Assessing malaria prevention knowledge across different risk areas is crucial for guiding targeted interventions and sustaining elimination efforts. This study compared malaria prevention knowledge among residents in low-, medium-, and high-risk areas in Kelantan, Malaysia. **Methods:** A cross-sectional study was conducted in Kuala Krai and Gua Musang districts, involving 159 adult residents. Participants were recruited using a multistage sampling and completed a validated 53-item questionnaire assessing malaria prevention knowledge across seven domains. Data were analysed using descriptive statistics, multi-way ANOVA, and post-hoc tests. **Results:** The analysis revealed a significant main effect for risk areas ($F(2, 155) = 8.36$, $p < 0.001$) on malaria prevention knowledge scores after adjusting for gender. Tukey's HSD post hoc tests indicated that high-risk area residents had significantly higher knowledge scores than low-risk residents ($p < 0.001$). Medium-risk residents had significantly higher knowledge scores than low-risk area residents ($p < 0.001$). However, there was no significant difference between medium and high-risk areas ($p > 0.927$), suggesting similar knowledge levels within these groups. The estimated mean score percentage for high-risk areas was 66.0%, followed by medium-risk areas at 64.9% and low-risk areas at 54.7%, reflecting a moderate knowledge score. **Conclusions:** This study highlights that while the residents in high-risk and medium-risk areas had significantly higher scores, there is still room for improvement. Tailored interventions to reinforce malaria prevention knowledge are crucial for sustaining Malaysia's progress towards malaria elimination.

Keywords: malaria, prevention, knowledge, cross-sectional study, risk areas, Malaysia