



# Designing App Interfaces for Risk Communication on Malaria During Pregnancy: A User-Centred Smartphone Design Approach in Western Kenya 2010

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### Abstract

Malaria remains a significant public health concern in Western Kenya, particularly among pregnant women who are at higher risk for severe complications. The study employed a user-centred design approach involving interviews, usability testing, and iterative development sessions with 50 pregnant women. Data were analysed using thematic analysis for identifying patterns of risk communication needs. Pregnant women expressed a preference for interactive maps displaying malaria incidence rates within their communities (direction: high preference), and the app's navigation interface was found to be intuitive (proportion: 85% positive feedback). The app design process identified critical areas for risk communication, leading to iterative improvements in user engagement. Future research should focus on evaluating the app's effectiveness in reducing malaria-related health outcomes among pregnant women. Malaria Risk Communication, Smartphone Apps, User-Centred Design, Pregnant Women, Western Kenya Model estimation used  $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n (y_i - f(\theta(\xi)))^2 + \lambda \|\theta\|_2^2 \}$ , with performance evaluated using out-of-sample error.

**Keywords:** Kenya, User-Centred Design, Mobile App Development, Health Informatics, Participatory Methods, Geographic Information Systems, Spatial Analysis

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