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Artificial Intelligence Meets mHealth: PASYENTE Mobile for Dengue Symptom Monitoring and Early Detection

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Abstract

Dengue remains a public health concern in the Philippines, especially in the Davao Region, where cases exceed the epidemic threshold. Despite the local government units' preventive efforts, management and monitoring remain limited due to reliance on patient-recorded data. Thus, dengue's true burden remains underestimated. PASYENTE Mobile, a patient-centered mobile health (mHealth) application, seeks to address this gap by improving the positive health-seeking behavior of Filipinos. The application leverages artificial intelligence and mobile application development technologies to provide accessible dengue pre-assessment and monitoring for outpatient cases. Through a consultative approach with domain experts and stakeholders, the prototype application was developed. Users can log fever history and other symptoms for evaluation. A supervised machine learning model approach was implemented to predict the clinical classification of the dengue onset based on user input. Additionally, the application provides healthcare facility recommendations based on the pre-assessment result and user preference regarding cost, distance, and waiting time. PASYENTE Mobile continuously monitors the outpatient's condition by prompting symptom updates, ensuring better patient care. The application has undergone multiple iterations of alpha tests to ensure accuracy, usability, and reliability before advancing to the validation phase. The research team is currently preparing for validation testing. For future studies, exploring alternative machine learning models could enhance classification prediction. Expanding the study to other dengue hotspot districts would further enhance application usability and provide more comprehensive data for model training.