

Enhancing Secondary Stroke Prevention through Advanced Remote Monitoring Platform

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Introduction - Stroke remains one of the leading causes of disability and death worldwide. Nearly one in four stroke survivors experience a recurrent episode, often with worse outcomes. Despite established preventive strategies, the lack of continuous monitoring and delayed clinical interventions contributes significantly to recurrence. Remote health monitoring technologies have shown success in managing chronic diseases such as hypertension, diabetes, and cardiovascular disorders; however, their use in secondary stroke prevention is still limited. This study aims to develop and evaluate an advanced remote monitoring platform designed to enhance secondary stroke prevention through real-time data tracking and timely intervention.

Methods - A mixed-method approach was used, including literature review, surveys, and focus group discussions with healthcare professionals. The findings guided the development of a web- and mobile-based platform integrated with wearable devices to continuously monitor vital parameters such as blood pressure, heart rate, and blood glucose. The system incorporated automated alerts, medication reminders, and educational modules to improve adherence and promote healthy lifestyle modification.

Results - The survey revealed that 65% of clinicians lacked access to continuous stroke monitoring tools, while 70% emphasized the importance of integrating wearable technology for follow-up care. The proposed system enables real-time monitoring, early detection of abnormal values, and timely communication between patients, caregivers, and healthcare providers.

Discussion - This research demonstrates the feasibility and clinical value of a comprehensive digital monitoring platform for secondary stroke prevention. By addressing major gaps in post-stroke follow-up and adherence, the system promotes proactive care and empowers patients in long-term management. Future work will focus on large-scale validation, cost-effectiveness analysis, and integration with hospital information systems to ensure broader accessibility in low-resource settings.