A Blood Pressure Monitoring Prototype for Preeclampsia Management in Antenatal Care in Kenya

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Abstract:

The health of women is a critical public health concern in public health as it impacts the personal well-being, family reproduction, and societal development. Globally, it has been noted that a significant number of women die as a direct result of pregnancy and childbirth complications such as haemorrhage, infection, and high blood pressure, among others. This study focuses on the specific challenge of high blood pressure in pregnancy known as preeclampsia. The condition develops during pregnancy, threatens the life of both the mother and child and has the potential to persist after delivery. The condition is fairly well managed in developing countries where a robust healthcare system complemented by the availability of technology aids in the detection of blood pressure fluctuations in expectant mothers. However, the situation in developing countries is not as supportive due to poor health systems and lack of affordable technology. This study therefore, sought to develop a blood pressure monitoring prototype for preeclampsia management in antenatal care in a developing country setting. A mobile application was developed and integrated with a blood pressure smart wrist band to help in reading real time data and sending alerts to care giver in case of an emergency and where data can be stored for analysis. The Actor Network Theory was adopted in guiding the study while functional decomposition and rapid prototyping approaches were adopted during the implementation. The prototype was successfully developed and taken through an alpha test. This paper documents the features of the prototype and their potential in addressing the challenge of pre-eclampsia detection and management in developing countries.

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