



# Towards a digitally-enabled, community-based responsive health system in Tanzania: a formative study for the *Afya-Tek* digitised health initiative

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## Abstract

**Background** Digital innovation and technologies present vast opportunities in health care and health systems globally, especially in their potential to improve health information management and coordination between health providers. Health care outcomes in child, adolescent, and maternal health in Tanzania, a low-income country, are poor and partly the result of fragmented service provision, lack of clinical guidance to aid decision-making processes, and limited use of data. The *Afya-Tek* initiative aims to digitally link community members with community health volunteers, public health facilities, and private accredited drug dispensing outlets (ADDOs) to improve decision-making processes and quality of care along the continuum of care, and reduce inefficiency in referral systems. In this mixed-methods study, we aimed to investigate how digital innovation can best be integrated into communities and the local health system in the Kibaha urban and rural districts in the Pwani region of Tanzania.

**Methods** We carried out quantitative and qualitative situational analyses of child, adolescent, and maternal health outcomes and related health-seeking behaviour using public health system indicators, alongside participant observations, in-depth interviews, and focus group discussions with community and health systems actors. Additionally, we assessed the perceived need and acceptability of digitally linking community health volunteers, public health facilities, and ADDOs.

**Findings** Between November, 2019, and February, 2020, we conducted 30 participant observations, 191 in-depth interviews, and 26 focus group discussions. Respondents perceived the main disease burdens for children younger than 5 years to be diarrhoea, malaria, pneumonia, and urinary tract infections. Among pregnant women, these included anaemia, back and foot pain, headache, and bleeding, while for post-partum women respondents mentioned dizziness and frequent bleeding. Sick children younger than 5 years were taken directly to a health facility, whereas other community members primarily sought treatment and advice from ADDOs and only attended the health facility for 'serious' health problems. Adolescents preferred family planning services at ADDOs rather than at a health facility for reasons of privacy and stigma. Community members welcomed the idea of a digital health intervention and the possibility of biometric usage did not prompt concern. Workers from within the health system considered that digital technology could improve prompt treatment-seeking, reduce over-dispensing of medication by ADDOs, and minimise double registrations of patients at health facilities. There was a keen interest to use technology to improve care coordination between the three health system actors and assist patients as they navigate through multiple points of care. The inclusion of ADDOs in a digital platform was seen as an innovative approach and also a way to monitor their services.

**Interpretation** There was a general acceptance of community members and health system stakeholders towards, and hope in, the use of digital health interventions to link community health volunteers, public health facilities, and ADDOs. Our findings, including perceived burden of disease and related health-seeking behaviour, will inform the next phases of the *Afya-Tek* project in the co-development of the digital health intervention and its implementation, in order to ensure best practices and sustainable approaches in bringing preventive and curative care closer to communities, especially towards improving related child, adolescent, and maternal health outcomes in Tanzania.

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**Declaration of interests**

We declare no competing interests.

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