Impak Sihat: A telehealth system development and feasibility evaluation to empower rural population in Malaysia on the quality use of medicines

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Abstract

The escalating global burden of chronic diseases necessitates innovative approaches to enhance medication adherence and quality use of medicines (QUM), particularly in underserved rural populations. This study developed and evaluated Impak Sihat, a telehealth system tailored to address systemic healthcare barriers in rural Malaysia through a three-phase mixed-methods design. Phase 1 involved qualitative interviews with 15 villagers, revealing smartphone ownership, inconsistent internet connectivity, high social media engagement, and limited critical appraisal of online health information. Phase 2 utilised these insights to create a dual-component system: a public portal with Malay-language educational materials, appointment booking, and a practitioner platform featuring secured patient data management. Phase 3 assessed feasibility via community demonstrations with

77 participants (mean age 53.4±11.8 years), showing high acceptance scores (73–87%) across six domains. Key findings included strong usability (87.0±16.3) and interface design (74.8±23.9), though older adults scored significantly lower on interface design for learnability (ρ=−0.29, p<0.01). The system's offline functionality and WhatsApp integration mitigated rural connectivity constraints, yet challenges persisted in data confidentiality (lowest score: 73.1±26.7). Healthy participants consistently rated the system significantly higher across multiple domains (Interface Design: p=0.003, User Experience: p=0.018, Healthcare Delivery: p=0.002, and Overall Satisfaction: p=0.003). These results underscore the potential of context-specific telehealth systems to bridge urban-rural health disparities while highlighting critical implementation barriers. This work highlights the importance of engaging key stakeholders, such as healthcare providers and community leaders, to ensure system sustainability and scalability. Overall, the study demonstrates that digital health interventions, when appropriately tailored to the specific needs of rural populations, can significantly contribute to reducing healthcare disparities and promoting patient empowerment.

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Abstract

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