ABSTRACT

Background: Semantic interoperability is defined as the ability of information systems to interpret exchanged linguistic information in meaningful and consistent ways using medical terminologies and nomenclatures. Although international digital health terminology standards exist to facilitate semantic interoperability, these standards are generic; thus, they may not suit the context of Uganda's health system's unique needs. Yet, there is no documented process for using the standards in national health information systems (HIS).

Aim: This research aimed to design a process for contextualising international digital health terminology standards to support the semantic interoperability of Uganda's HIS.

Methodology: The research study adopted the pragmatism information systems research philosophy and various methods, including descriptive cross-sectional, qualitative case study and design science, to answer the research questions. Study participants were purposively sampled. Data were collected using survey, key informant interviews, document reviews and workshops, and they were analysed using descriptive statistics, content analysis, and thematic analysis.

Findings: The research findings indicate scanty implementation of the international digital health terminology standards in Uganda's HIS; this is attributed to limited expertise in digital health terminology standardisation, a deficit of human resources trained in terminologies and unmatched national terminologies to international digital health terminologies. Accordingly, requirements were derived to guide the design of the contextualisation process of the international digital health terminology standards. The derived contextualisation process entails six phases: assessing the national HIS context, extracting data elements in the national HIS, mapping existing national data elements to international terminologies, identifying and coding unmatched data elements, validating the contextualised terminologies, and digitising the validated terminologies.

Conclusion: This research demonstrates how Uganda can contextualise the international digital health terminology standards to meet the semantic interoperability of HIS with unique health system needs. The study recommends research on developing a data dictionary for Uganda's HIS and implementing the contextual terminology standards.