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Empowering Patients Through Conversational Agents; An Architecture Approach

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Empowerment in health refers to an individual's capacity to make decisions regarding their own life through informative abilities, self-awareness and health goal management. This research aims to identify the important health empowerment elements, focusing on overall health & wellbeing and propose conversational agent system architecture for implementation. The conversational agent architecture includes health information, query-based interactions, goal setting, and management and encouragement support.

This research adopts the Design Science Research Methodology (DSRM) to address challenges in health empowerment chatbot design. For literature review, PubMed, Embase and Scopus literature databases have been reviewed. The iterative nature of design science helps to craft problem-centric solutions, aligning with the core focus of this research. The findings from literature so far, emphasize three fundamental elements (Understand, Decide, Act) of health empowerment, involving the precise identification of individual needs, personalized health queries, health knowledge, which enhance the "Understand" facet. Moreover, incorporating personalized goal-setting, tracking mechanisms, and motivational reminders in the "Decision" stage, followed by decisive actions in the "Action" phase. The literature shows that most of the implemented CAs are not wellbeing specific, lack of personalized feedback & recommendations due to pre-ruled and defined implemented questionnaire in health conversational agents' architecture. Moreover, lack of health data usage from connected different devices as part of HCAs architecture to give up to date health support for patient centered healthcare technologies. This research aims to focus on these areas to enhance the overall person health empowerment by providing the CA architecture for future implementation as a research output.

Keywords:

Conversational Agents (CAs), Natural Language Processing (NLP), Health Empowerment (HE), Health Empowerment Elements (HEE), Health Conversational Agents (HCAs), and Artificial Intelligence (AI)