Artificial Intelligence in Patient Involvement: A Comprehensive Review

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Abstract : Active involving patients and communities in health decisions can improve both people's health and the healthcare system. Adopting artificial intelligence can lead to more accurate and complete patient record management. This review aims to identify the current state of researches conducted using artificial intelligence techniques to improve patient engagement and wellbeing, medical domains used in patient engagement context, and lastly, to assess opportunities and challenges for patient engagement in the wellness process. A search of peer-reviewed publications, reviews, conceptual analyses, white papers, author's manuscripts and theses was undertaken. English language literature published in 2013– 2022 period and publications, report and guidelines of World Health Organization (WHO) were also assessed. About 281 papers were retrieved. Duplicate papers in the databases were removed. After application of the inclusion and exclusion criteria, 41 papers were included to the analysis. Patient counseling in preventing adverse drug events, in doctor-patient risk communication, surgical, drug development, mental healthcare, hypertension & diabetes, metabolic syndrome and non-communicable chronic diseases are implementation areas in healthcare where patient engagement can be implemented using artificial intelligence, particularly machine learning and deep learning techniques and tools. The five groups of factors that potentially affecting patient engagement in safety are related to: patient, health conditions, health care professionals, tasks and health care setting. Active involvement of patients and families can help accelerate the implementation of healthcare safety initiatives. In sub-Saharan Africa, using digital technologies like artificial intelligence in patient engagement context is low due to poor level of technological development and deployment. The opportunities and challenges available to implement patient engagement strategies vary greatly from country to country and from region to region. Thus, further investigation will be focused on methods and tools using the potential of artificial intelligence to support more simplified care that might be improve communication with patients and train health care professionals.

Keywords : artificial intelligence, patient engagement, machine learning, patient involvement
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