

Chapter 3

Driving Patient Data With AI for Patient Care Path Optimization: A Theoretical Framework

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ABSTRACT

Background: Patient data and artificial intelligence are widely explored concepts for improving healthcare services. However, little is known about the application of lean thinking to quantify these two elements. Objective: The aim of this study is to

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develop a theoretical framework combining patient data and artificial intelligence, aimed at optimizing the care pathway by identifying the theories to be mobilized to address this issue. Methods: A systematic review of the literature was carried out. Inclusion criteria were that the article should focus on optimizing the patient's care pathway. Twenty articles were included. Results: The proposed framework can be used to create an overview of the potential of driving patient-related data with AI for optimizing the patient care pathway. Further research is needed to investigate the use of patient-related quantifications of this data. Conclusions: This research paper analyzes the application of artificial intelligence in data science to optimize patient care pathways.

1. BACKGROUND

The fact that more and more people need healthcare, combined with a lack of staff to help them, creates a big problem that could become even more difficult in the years to come. (Wallin et al., 2019). But there are ways of overcoming these difficulties by using simpler methods that are better suited to patients' needs. The idea of “improving the care pathway” means trying to organise and use resources more intelligently and efficiently. This can help build trust between health professionals and patients. (Scholz et al., 2021). Healthcare is changing rapidly, with an increasing emphasis on creating personalised care pathways tailored to the needs of each individual. Studies show that care coordinators play an important role in identifying patients with complex needs, helping them to understand their options and assessing their medical and social care needs.(Vijverberg et al., 2022). This just goes to show how important it is for all healthcare professionals to work together, putting the individual at the center of their concerns, and for there to be well-organized managers to ensure the smooth running of support and care coordination services. Furthermore, the work of Vanasse et al. highlights a crucial aspect of healthcare: every patient is unique, and it is essential that care is personalized to meet their specific needs.(Vanasse, s. d.). By taking into account different individual and environmental factors, we can not only better understand care pathways, but also significantly improve patient outcomes. This paves the way for a real breakthrough in the organization of healthcare services, making our system more efficient and more humane. In addition, the concept of care trajectories can offer an enriching perspective on patients' healthcare pathways. Indeed, this approach, which links different clinical episodes by common themes, provides a global vision of the care provided (Alla et al., s. d.). (Laveault-Allard, 2022). In addition, the integration of artificial intelligence into digital medicine is transforming our approach to healthcare. By personalizing treatments through in-depth analysis of patient data, we have the

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