

Robotics in Nursing: An Overview

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Introduction

The integration of robotics in nursing is revolutionizing healthcare by enhancing patient care, reducing the workload on nursing staff, and improving efficiency in hospital settings. This paper provides an overview of the current state of robotic applications in nursing, their benefits, challenges, and future directions

Background

The deployment of assistive robotic systems in care settings aims to alleviate the burden on nursing staff. To facilitate the purposeful and inclusive development of these systems, it is essential to have detailed, literature-based insights into current applications, technological advancements, and empirical evidence. This review sought to identify assistive robotic systems and their applications within nursing environments, and to provide a comprehensive overview of existing social and nursing science findings related to assistive robotic systems.

Methods

A systematic literature search was conducted following the JBI scoping review methodology. Between May and August 2020, databases including MEDLINE via PubMed, CINAHL, Cochrane Library, Web of Science, and IEEE Xplore Digital Library were searched. To capture the latest developments and evidence, an additional search using the same criteria was carried out in January 2022.

Results

The review included 47 publications, categorized into 15 studies, 23 technical articles, and 9 opinion-based articles. A total of 39 distinct assistive robotic systems were identified, with 55% in the testing phase and 29% in development. These systems were grouped into six application areas: information and patient data processing, assistance with activities of daily living, fetch and carry activities, telepresence and communication, monitoring, safety and navigation, and complex assistance systems. The findings are discussed in terms of "technology integration and practical impact" and "attitudes and acceptance of elderly individuals towards assistive robotic systems."

Conclusion

The research indicates that the use of assistive robotic systems in care predominantly occurs in the development and testing stages. Beyond issues of usability and acceptance, successful implementation requires incorporating various factors into theory-driven research projects.

