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Integrating AI-Driven Models for Falls Risk Assessment in Older Adults

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Introduction: AI in Falls Risk Prediction

- AI-driven models, utilising machine learning and deep learning, can enhance falls risk prediction (Reis da Silva, 2023a; Reis da Silva, 2024).
- These models use vast datasets to identify patterns and risk factors not immediately apparent through traditional assessment methods (Yousefi, 2023; , Padhan et al., 2023).
- AI models use various machine learning algorithms to analyse data from various sources, including electronic health records, wearable devices, and patient-reported outcomes.
- Deep learning, a subset of machine learning, enhances predictive capabilities by processing complex datasets (Yousefi, 2023; , Padhan et al., 2023).

Ethical Considerations

- Issues surrounding patient privacy, data security, and potential for algorithmic bias must be addressed.
- Ethical frameworks emphasising transparency, accountability, and accountability are essential for the integration of AI in healthcare.
- Yousefi, 2023; , Padhan et al., 2023

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Development of AI-Driven Falls Risk Prediction Models

- Data sources include clinical databases, sensor data from wearable devices, and patient surveys.
- Preprocessing steps include data normalisation and feature selection.
- Model training involves selecting appropriate algorithms and tuning parameters to optimise performance.

Evaluation Metrics for AI-Driven Falls Risk Prediction Models

- Common metrics include accuracy, sensitivity, specificity, and area under the receiver operating characteristic curve (AUC-ROC).
- Real-world application outcomes like reduction in fall incidents and improved patient safety serve as indicators of the model's success.

Promising Results of AI-Driven Falls Risk Prediction Models

- Studies indicate these models can significantly improve predictive accuracy, leading to better-targeted interventions and reduced incidence of falls among older adults.
- Integration of AI into clinical decision support systems has facilitated a more personalised approach to care.

Source: Yousefi, 2023; , Padhan et al., 2023; Hoseini, 2023; , Reddy, 2023

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