References Summarized And Abstracts:

Erick Martinez-Ríos, Luis Montesinos, Mariel Alfaro-Ponce, Leandro Pecchia,

A review of machine learning in hypertension detection and blood pressure estimation based on clinical and physiological data,

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Abstract: The use of machine learning techniques in medicine has increased in recent years due to a rise in publicly available datasets. These techniques have been applied in high blood pressure studies following two approaches: hypertension stage classification based on clinical data and blood pressure estimation based on related physiological signals. This paper presents a literature review on such studies. We aimed to identify the best practices, challenges, and opportunities in developing machine learning models to detect hypertension or estimate blood pressure using clinical data and physiological signals. Hence, we identified and examined the machine learning techniques, publicly available datasets, and predictors used in previous studies. The feature selection techniques used to reduce model complexity are also reviewed. We found a lack of studies combining socio-demographic or clinical data with physiological signals, despite the correlation of blood pressure with photoplethysmography waveforms and variables such as age, gender, body mass index, and heart rate. Therefore, there is an opportunity to increase model performance by using both types of data for hypertension detection or blood pressure monitoring.

Keywords: Hypertension; Clinical data; Physiological data; Machine learning

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