

# **Effect of low-intensity exercise therapy combined with health education on quality of life and blood pressure in hypertensive patients**

## **ABSTRACT**

In this paper, starting from exercise prescription and health promotion of hypertension, the hyperparameters of the XGBoost model are optimized using the Bayesian optimization algorithm, and then the BO-XGBoost blood pressure detection model is constructed. The model can estimate blood pressure from the ECG pulse wave signal of hypertensive patients and understand the patient's blood pressure by PPG signal and ECG signal. For the effect of low-intensity exercise therapy combined with health education on the quality of life and blood pressure of hypertensive patients, experiments of the model and comparative test analysis of quality of life scores were conducted in this paper. From the model detection, the systolic and diastolic blood pressure detected by the BO-XGBoost blood pressure detection model was 118.6 mmHg and 65.2 mmHg, respectively, with an error of 3.03% and 3.83%, respectively, compared with the standard value of blood pressure. In terms of quality of life, the quality of life scores of the control and experimental groups improved by about 14% to 20% after the intervention compared with those before the intervention. This indicates that low-intensity exercise therapy combined with health education can help hypertensive patients improve their blood pressure control and quality of life.