A method for respiratory signal estimation from the pulse photoplethysmographic (PPG) signal is presented. The method is based on combination of three parameters present in this signal: pulse rate variability, pulse amplitude variability and pulse width variability.

Evaluation is performed over a database containing electrocardiographic (ECG), PPG and respiratory signals simultaneously recorded in 17 subjects during a tilt table test, obtaining a respiratory rate estimation error of 0.33±8.39% (1.45±16.44 mHz). These results are comparable or outperform those obtained from other methods which involve the ECG, so it is possible to have reliable respiration estimates from just the PPG.