ABSTRAK

Tekanan darah merupakan salah satu indikator penting dalam memantau kondisi kesehatan seseorang dan penggunaan tensimeter digital semakin meluas karena kepraktisannya. NIBP Simulator yang berguna untuk mengukur/menguji tekanan darah yang dihasilkan oleh tensimeter digital memiliki mode pengukuran internal *cuff* dan external *cuff*. Penggunaan mode pengukuran internal *cuff* dan external *cuff* dapat menghasilkan nilai tekanan darah yang berbeda-beda sehingga penting dilakukan analisis untuk mengetahui keakurasian, perbedaan hasil pengukuran yang muncul dalam penggunaan mode *cuff* dan dapat diketahui mode *cuff* mana yang mendekati standar. Penelitian ini bertujuan untuk membandingkan hasil pengukuran dan mengetahui keakurasian tekanan darah antara kedua mode tersebut menggunakan alat NIBP Simulator. Metode yang digunakan adalah kuantitatif dengan mengambil data hasil pengukuran tekanan darah pada 12 alat tensimeter digital kemudian dianalisis menggunakan uji normalitas *(Shapiro-Wilk)* untuk melihat data terdistribusi normal kemudian dianalisis menggunakan uji T-Test dua sampel berpasangan *(paired samples test)* untuk melihat hasil perbandingan dan keakurasian antara kedua mode tersebut. Hasil uji normalitas menunjukkan bahwa data terdistribusi normal dan hasil uji T-Test *(paired samples test)* menunjukkan tidak terdapat perbedaan yang signifikan antara mode internal *cuff* dan external *cuff* pada tekanan sistolik dan diastolik dari 80/50 mmHg hingga 150/100 mmHg. Namun, pada tekanan 200/150 mmHg terdapat perbedaan signifikan antara hasil pengukuran internal *cuff* dan external *cuff* dengan nilai signifikansi masing-masing sebesar 0,021 dan 0,038 (*p-value* < 0,05). Hal ini menunjukkan bahwa meskipun secara umum hasil pengukuran kedua mode sebanding tetapi perbedaan mulai muncul pada tekanan tinggi. Kemudian tingkat akurasi berdasarkan hasil uji T-Test *(paired samples statistics)* tekanan sistolik dan diastolik 80/50 mmHg sampai 200/150 mmHg menunjukkan nilai rata-rata *(mean)* internal *cuff* cenderung lebih mendekati terhadap nilai standar. Oleh karena itu, dapat disimpulkan bahwa tingkat akurasi mode internal *cuff* lebih akurat atau lebih mendekati nilai standar dibandingkan mode external *cuff*.

Kata Kunci : NIBP Simulator, Tensimeter Digital, Internal *Cuff*, External *Cuff*

ABSTRACT

Blood pressure is one of the key indicators in monitoring a person's health condition, and the use of digital sphygmomanometers is increasingly widespread due to their practicality. The NIBP Simulator, which is used to measure/test the blood pressure produced by digital sphygmomanometers, has two measurement modes internal cuff and external cuff. The use of internal cuff and external cuff measurement modes can produce varying blood pressure values, making it important to conduct an analysis to determine the accuracy, the differences in measurement results between cuff modes, and to identify which cuff mode most closely aligns with the standard. This study aims to compare the measurement results and determine the accuracy of blood pressure between the two modes using the NIBP Simulator. The method used is quantitative by collecting blood pressure measurement data from 12 digital sphygmomanometers, which were then analyzed using a normality test (Shapiro Wilk) to check if the data were normally distributed, followed by a paired samples T-Test to assess the comparison and accuracy between the two modes. The results of the normality test showed that the data were normally distributed, and the paired samples T-Test showed no significant difference between the internal cuff and external cuff modes for systolic and diastolic pressures ranging from 80/50 mmHg to 150/100 mmHg. However, at a pressure of 200/150 mmHg, a significant difference was found between the internal cuff and external cuff measurements, with significance values of 0.021 and 0.038, respectively (p-value < 0.05). This indicates that although the measurement results of both modes are generally comparable, differences begin to appear at higher pressures. Furthermore, the accuracy level based on the paired samples statistics test for systolic and diastolic pressures from 80/50 mmHg to 200/150 mmHg showed that the mean values of the internal cuff were more closely aligned with the standard values. Therefore, it can be concluded that the internal cuff mode has a higher level of accuracy or is closer to the standard value compared to the external cuff mode.

Keywords: NIBP Simulator, Digital Sphygmomanometer, Internal Cuff, External Cuff