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EFFECT OF THE AMOUNT AND FREQUENCY OF FLUID INTAKE ON MEAN ARTERIAL PRESSURE OF STUDENTS IN GADJAH MADA DORMITORY

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Background: Water is an essential component of the human body and plays a critical role in maintaining homeostasis, metabolism, thermoregulation, and cardiovascular function. Fluid balance is influenced by factors such as age, physical activity, diet, and environment, making adequate hydration difficult to achieve consistently. Dehydration has been shown to impair physical and cognitive performance and may affect blood pressure regulation. Although previous studies report that increased in water intake can raise systolic and diastolic blood pressure, they mainly focus on single intake volume and do not address the effects of different amounts and frequencies of fluid consumption. Mean arterial pressure (MAP) is a sensitive indicator for early cardiovascular changes. Therefore, this study aims to evaluate the effects of varying volumes and frequencies of fluid intake on MAP.

Objective: This study aims to investigate the effect of fluid intake on mean arterial pressure of Gadjah Mada University students.

Method: This is a secondary data quasi-experimental study design with three sample measurements baseline, pretest and posttest. The research was conducted in *DarmaPutera Karanggayam, DarmaPutera Santren, Ratnaningsih Sendowo, Ratnaningsih Bulaksumur, Ratnaningsih Kinanti 1, Ratnaningsih Kinanti 2&3*.

Results: There was no significant difference in mean arterial pressure (MAP) changes among the groups ($p > 0.05$). Different fluid intake interventions did not significantly reduce MAP compared to the control, although 250mL x 4 intervention showed the greatest tendency toward reduction.

Conclusion: Fluid supplementation with different volumes and frequencies did not have a significant effect in reducing mean arterial pressure (MAP) after 12 hours restriction.

Keywords: fluid consumption, mean arterial pressure, hydration

ABSTRAK

Latar Belakang: Air merupakan komponen esensial dalam tubuh manusia yang berperan penting dalam menjaga homeostasis, metabolisme, termoregulasi, dan fungsi kardiovaskular. Keseimbangan cairan dipengaruhi oleh faktor usia, aktivitas fisik, pola makan, dan lingkungan, sehingga pemenuhan hidrasi optimal tidak selalu mudah dicapai. Dehidrasi terbukti dapat menurunkan performa fisik dan kognitif serta memengaruhi regulasi tekanan darah. Meskipun beberapa penelitian melaporkan bahwa peningkatan asupan air dapat meningkatkan tekanan darah sistolik dan diastolik, kajian tersebut umumnya hanya menilai satu volume asupan dan belum mengevaluasi pengaruh variasi jumlah serta frekuensi konsumsi cairan. Tekanan arteri rata-rata (MAP) merupakan indikator sensitif untuk mendeteksi perubahan dini fungsi kardiovaskular. Oleh karena itu, penelitian ini bertujuan untuk mengevaluasi pengaruh variasi volume dan frekuensi asupan cairan terhadap MAP.

Tujuan: Mengetahui pengaruh asupan cairan terhadap tekanan arteri rata-rata pada mahasiswa Universitas Gadjah Mada.

Metode: Penelitian ini menggunakan desain kuasi-eksperimental dengan data sekunder dan tiga kali pengukuran, yaitu *baseline*, *pretest*, dan *posttest*. Penelitian dilaksanakan di DarmaPutera Karanggayam, DarmaPutera Santren, Ratnaningsih Sendowo, Ratnaningsih Bulaksumur, Ratnaningsih Kinanti 1, Ratnaningsih Kinanti 2&3.

Hasil: Tidak terdapat perbedaan yang signifikan pada perubahan tekanan arteri rata-rata (MAP) antar kelompok ($p > 0,05$). Intervensi asupan cairan dengan variasi volume dan frekuensi tidak menunjukkan penurunan MAP yang bermakna dibandingkan dengan kelompok kontrol, meskipun intervensi 250mL x 4 menunjukkan kecenderungan penurunan terbesar.

Kesimpulan: Suplementasi cairan dengan variasi dan frekuensi tidak memberikan pengaruh yang signifikan dalam menurunkan tekanan arteri rata-rata (MAP) setelah restriksi cairan selama 12 jam.

Kata Kunci: konsumsi cairan, tekanan arteri rata-rata, hidrasi