

INTISARI

Latar Belakang: Air sangat penting bagi tubuh, mencakup sekitar 55-60% dari massa tubuh orang dewasa dan 75% pada anak-anak. Air sangat penting untuk tubuh karena berperan dalam metabolisme, regulasi suhu, dan keseimbangan elektrolit. Kekurangan air (dehidrasi) bisa mengganggu kognisi, *mood*, dan meningkatkan risiko penyakit kronis. Banyak mahasiswa mengalami dehidrasi meski sadar pentingnya hidrasi, karena tuntutan aktivitas dan stres. Berbagai jenis air, seperti air mineral, alkali, dan isotonis, menawarkan manfaat kesehatan, misalnya, minuman isotonis yang lebih cepat mengembalikan cairan tubuh. Air alkali juga memiliki sifat antioksidan yang bermanfaat. Penelitian lebih lanjut diperlukan untuk memahami peran air dalam mendukung kesehatan mental, *mood*, dan performa fisik.

Tujuan Penelitian: untuk menginvestigasi pengaruh dari status hidrasi dan jenis suplementasi cairan terhadap kinerja kognitif dan *mood* pada mahasiswa di Universitas Gadjah Mada

Metode: Penelitian ini menggunakan metode Quasi Experimental pada 56 mahasiswa Universitas Gadjah Mada berusia 18-24 tahun yang tinggal di Wisma UGM. Subjek diminta puasa cairan selama 12 jam, dengan pengukuran tekanan darah, total cairan tubuh, pemeriksaan urin, serta tes kognitif dan *mood*. Pengukuran kognitif dilakukan dengan *Trail Making Test*, *Digit Symbol Substitution Test*, dan *Stroop Test*, serta profil *mood* menggunakan kuesioner POMS. Partisipan dibagi dalam empat kelompok: kontrol (puasa), intervensi air mineral, isotonis, dan alkali, masing-masing 1 L dalam 15 menit. Analisis data menggunakan pair t-test, ANOVA, dan Kruskal Wallis ($p < 0,05$).

Hasil: Hasil penelitian menunjukkan bahwa pada kelompok air mineral, isotonis, dan alkali terjadi peningkatan status hidrasi yang signifikan dalam warna, volume, berat jenis, dan osmolaritas urin ($p < 0,05$), serta perbedaan warna urin yang signifikan antara kelompok intervensi dan kelompok puasa ($p < 0,001$). Tes kognitif menunjukkan perubahan signifikan antara pre dan post test dalam setiap kelompok, namun tidak ada perbedaan signifikan antar kelompok. Uji post hoc menunjukkan perbedaan signifikan dalam *Total Mood Disturbance* antara kelompok puasa dan isotonis ($p = 0,021$), subskala *Vigor* antara puasa dan isotonis ($p = 0,046$), serta subskala *Fatigue* antara kelompok puasa dan alkali ($p = 0,027$) dan antara air mineral dan alkali ($p = 0,025$).

Kesimpulan: Penelitian menunjukkan adanya peningkatan status hidrasi yang signifikan setelah intervensi, meskipun tidak ada perbedaan signifikan antar jenis cairan. Tidak ditemukan pengaruh berarti pada kinerja kognitif di antara kelompok-kelompok tersebut. Minuman isotonik meningkatkan *mood* dibandingkan kontrol dan rasa semangat (*vigor*) lebih baik. Air alkali paling efektif dalam mengurangi rasa lelah (*fatigue*) dibandingkan kelompok air mineral dan kelompok puasa.

Kata Kunci: Cairan, Hidrasi, Kognitif, Mental, Urin.

ABSTRACT

Background: Water is essential for the body, comprising around 55-60% of adult body mass and 75% in children. It plays a critical role in metabolism, temperature regulation, and electrolyte balance. Water deficiency (dehydration) can impair cognition, mood, and increase the risk of chronic diseases. Many college students experience dehydration despite being aware of hydration's importance due to demanding activities and stress. Various types of water, such as mineral, alkaline, and isotonic, are believed to offer health benefits; for instance, isotonic drinks are known for quickly restoring body fluids, and alkaline water has beneficial antioxidant properties. Further research is needed to understand the role of water in supporting optimal mental health, mood, and physical performance.

Objective: To investigate the impact of hydration status and type of fluid supplementation on cognitive performance and mood among students at Universitas Gadjah Mada.

Methods: This study utilized a quasi-experimental method involving 56 Universitas Gadjah Mada students aged 18-24 years residing in Wisma UGM. Subjects underwent 12 hours of fluid restriction, with measurements taken for blood pressure, total body water, urinalysis, as well as cognitive and mood assessments. Cognitive testing included the Trail Making Test, Digit Symbol Substitution Test, and Stroop Test, and mood profiling was conducted using the POMS questionnaire. Participants were divided into four groups: control (no fluid), and intervention groups with mineral water, isotonic water, and alkaline water, each consuming 1 L in 15 minutes. Data analysis was conducted using paired t-tests, ANOVA, and Kruskal-Wallis tests ($p < 0,05$).

Results : The study results indicated a significant increase in hydration status within the mineral, isotonic, and alkaline water groups, as evidenced by changes in urine color, volume, specific gravity, and osmolality ($p < 0,05$), with a notable difference in urine color between the intervention and control groups ($p < 0,001$). Cognitive tests showed significant changes between pre- and post-test in each group, but no significant differences were found between groups. Post hoc tests revealed significant differences in Total Mood Disturbance between the control and isotonic groups ($p = 0,021$), the Vigor subscale between the control and isotonic groups ($p = 0,046$), and the Fatigue subscale between the control and alkaline groups ($p = 0,027$) and between mineral water and alkaline water groups ($p = 0,025$).

Conclusion: The study demonstrated a significant improvement in hydration status following intervention, although there were no significant differences between fluid types. No substantial impact was observed on cognitive performance among the groups. Isotonic drinks enhanced mood compared to the control group and improved vigor more effectively. Meanwhile, alkaline water was most effective in reducing fatigue compared to mineral water.

Key Words: Fluids, Hydration, Cognitive, Mental, Urine.