*Psychological Medicine*

**cambridge.org/psm**

## Correspondence

**Cite this article:** Musafia B, Rosenberg G (2022). Attention-deficit/hyperactivity disorder, headache and caffeine. *Psychological Medicine* **52**, 198. https://doi.org/10.1017/S0033291721004979

Received: 8 November 2021
Accepted: 15 November 2021
First published online: 6 December 2021

**Author for correspondence:**
Gilad Rosenberg,
E-mail: g.rosenberg.md@gmail.com

# Attention-deficit/hyperactivity disorder, headache and caffeine

Boaz Musafia[1,2] and Gilad Rosenberg[2]

[1]Cannasoul Analytics Ltd., Caesarea, Israel and [2]Clal Biotechnology Industries, Azrieli Center, Triangular Tower, 45th Floor, 132 Menachem Begin Rd., Tel Aviv, Israel

Letter to Editor re.:

Pan, P., Jonsson, U., Şahpazoğlu Çakmak, S., Häge, A., Hohmann, S., Nobel Norrman, H., … Bölte, S. (2021). Headache in ADHD as comorbidity and a side effect of medications: A systematic review and meta-analysis. *Psychological Medicine*, 1–12. doi: 10.1017/S0033291721004141

Dear Editors,

In their comprehensive review on headache in attention-deficit/hyperactivity disorder (ADHD), Pan et al. (2021) correctly assert that the pathophysiological links between ADHD and headache are currently unclear, and that consequently no evidence-based guidelines for the treatment of headache in ADHD exist. The authors elaborate on several potential pathophysiological mechanisms that may lead to headache in the context on ADHD, including sleep–wake cycle disturbances, genetic factors, and brain iron deficiency. We propose an additional mechanism, which may well have therapeutic implications: caffeine withdrawal-related headache.

Children and adolescents with ADHD consume significantly more caffeinated beverages than their peers without ADHD (Dosh et al., 2010; Jang & Kim, 2012; Walker, Abraham, & Tercyak, 2010). It has been previously suggested that as subjects with ADHD start therapy with a simulant such as methylphenidate, the most commonly used drug in this indication (Storebø et al., 2018), they decrease their caffeine consumption (Musafia & Rosenberg, 2013). Consequently, headaches encountered when methylphenidate therapy is commenced may not be a direct side effect of this drug but rather a symptom of caffeine withdrawal.

Pan et al. (2021) point to the paucity of data on the relationship between the time of exposure to an ADHD medication and the risk of headache. We suggest that future trials not only correlate these two paraments but also examine whether the risk of headache is related to a change in the consumption of caffeinated beverages. Additionally, in order to avoid the development of headaches, patients should likely be advised not to reduce their daily intake of caffeinated beverages too rapidly, although the rate this should be done at remains at present unknown.

## Conflicts of interest

The authors have no conflict of interest related to this publication. This publication has not been funded by any entity.

## References

Dosh, T., Helmbrecht, T., Anestis, J., Guenthner, G., Kelly, T. H., & Martin, C. A. (2010). A comparison of the associations of caffeine and cigarette use with depressive and ADHD symptoms in a sample of young adult smokers. *Journal of Addiction Medicine*, *4*, 52–54. doi: 10.1097/ADM.0b013e3181b508ec

Jang, C-B., & Kim, H-Y. (2012) The relationship between attention deficit hyperactivity disorder, dietary habit and caffeine intake in upper-grade elementary school children. *Korean Journal of Nutrition*, *45*, 522–530. doi: 10.4163/kjn.2012.45.6.522

Musafia, B., & Rosenberg, G. (2013). Methylphenidate therapy, headaches and caffeine consumption. *Journal of Clinical Psychopharmacology*, *33*, 148. doi: 10.1097/01.jcp.0000426192.98855.59

Pan, P., Jonsson, U., Şahpazoğlu Çakmak, S., Häge, A., Hohmann, S., Nobel Norrman, H., … Bölte, S. (2021). Headache in ADHD as comorbidity and a side effect of medications: A systematic review and meta-analysis. *Psychological Medicine*, 1–12. doi: 10.1017/S0033291721004141

Storebø, O. J., Pedersen, N., Ramstad, E., Kielsholm, M. L., Nielsen, S. S., Krogh, H. B., … Gluud, C. (2018). Methylphenidate for attention deficit hyperactivity disorder (ADHD) in children and adolescents - assessment of adverse events in non-randomised studies. *The Cochrane Database of Systematic Reviews*, *5*, CD012069. doi: 10.1002/14651858.CD012069.pub2

Walker, L. R., Abraham, A. A., & Tercyak, K. P. (2010) Adolescent caffeine use, ADHD, and cigarette smoking. *Children's Health Care*, *39*, 73–90. doi: 10.1080/02739610903455186

© The Author(s), 2021. Published by Cambridge University Press

CAMBRIDGE UNIVERSITY PRESS