Food colors and behavior

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In assessing research on artificial food colors (AFCs) in this article [1], Bailer and Adornio say:

Nonetheless, some research can be misleading and mislead the public on the effects of AFCs in children. A 2007 (meta)-controlled study published in the Lancet journal reported that food coloring led to "increased hyperactivity" in the pediatric population in large (1). Yet, despite this study's very attention, the authors' conclusions were descriptive and informative. Not only was the effect size of the studies relatively modest (effect size 0.2), but it was also relatively novel, rather than hyperactivity, that was measured. Therefore, "measured hyperactivity was not an accurate description" (p. 761).

This paragraph refers to our article [1]. The accusations of deception and drawing incorrect conclusions are extremely serious, and they cannot go unanswered.

First, there is a suggestion that we exaggerated the significance of small effects. No evidence for this is given by the authors. In fact, we placed our finding in the context of stimulant treatments for attention-deficit hyperactivity disorder (ADHD) in children: "Children with ADHD and controlled children reported a range of effect sizes from 0.70 (e.g., 0.44-1.01) by teachers and 0.58 (0.04-0.63) by parents". We reported effect sizes that measure about 0.89. Children with ADHD are generally about 2 SD higher than hyperactivity measures than those without disorders. These effect sizes of 0.2 are about 10% of the behavioral difference between them." (p. 1561) This approach in our article presents the effect sizes as modest.

Second, there is a suggestion that we clouded the reader by claiming that there was an increase in hyperactivity, where there was only a change in activity level. In fact, in the Lancet article, we define our terms very clearly and use a specifically operationalized definition of hyperactivity.

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Conflicts of interest

There are no conflicts of interest.

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