

Up to half of kids worldwide and up to third of UK kids consume energy drinks weekly

Consumption on 5+ days of the week linked to health and behavioural issues

Secondary data analysis helps fill evidence gap, but still can't distinguish cause from effect

Up to half of children worldwide, and up to a third of children in the UK, consume energy drinks every week, with a tally on five or more days of the week associated with some health and behavioural issues, finds research published in the open access journal **BMJ Open**.

But while this secondary analysis of the available data helps fill the evidence gap, most of the data are derived from surveys, making it impossible to distinguish cause from effect, caution the researchers.

Energy drinks are marketed as reducing tiredness and improving concentration as well as boosting energy. An average 250 ml energy drink contains a similar amount of caffeine to a 60 ml espresso.

Many of these drinks also contain other active ingredients, such as guarana and taurine (stimulants) and sugar, although sugar-free options are also available.

In 2018, the UK government ran a consultation on banning the sale of these drinks to children, but as only two UK studies were identified among the available evidence, additional UK data was sought, and a secondary analysis of relevant data was carried out to ensure relevance to UK policy.

For this, the researchers wanted to find out what type and how many energy drinks UK teens were getting through. And they wanted to explore the potential impact on young people's physical and mental health, and behaviour.

In July 2021 the researchers updated their original trawl of relevant research from 9 databases carried out in May 2018.

Two further systematic reviews were added to the original 13, covering a total of 74 studies, published in English since 2013: 6 of these 15 reviews reported on prevalence and 14 reported on associations between consumption and health or behaviour.

The additional analysis included data representative of the UK or one of the devolved nations, including information on the levels and patterns of energy drink consumption among children and the potential effects on cardiovascular health, mental health, neurological conditions, academic achievement, substance misuse, or sleep.

The systematic review data revealed that, worldwide, between 13% and 67% of children had consumed energy drinks in the preceding year.

Analysis of the additional UK data indicated that between 3% and 32% of children across the UK consumed energy drinks on at least one day of the week, with no difference by ethnic background.

Frequent consumption, defined as drinking an energy drink on 5 or more days of the week, was associated with poor mental and physical health, and overall poor wellbeing compared with those who didn't consume energy drinks.

Evidence from the reviews indicated consistent associations between energy drinks and self-harm, suicide, hyperactivity, academic performance and school attendance.

Evidence from both the reviews and UK data suggested that boys drank more than girls, with consumption rising in tandem with age; and that consumption was associated with more headaches, sleep problems, alcohol use, smoking, irritability, and school exclusion.

But the application of a quality grading system (GRADE) suggests that the evidence is weak. This is because most of the data for the reviews came from cross-sectional surveys, while none of the additional data included long term information.

And it was impossible to pool the survey data from the reviews because of the differences in design and measures reported.

"These data support the idea that there is a link between drinking [caffeinated energy drinks] and poorer health and behaviour in children, although the cause is unclear," write the researchers.

They conclude: "Based on a comprehensive overview of available systematic reviews, we conclude that up to half of children, worldwide, drink [caffeinated energy drinks] weekly or monthly, and based on the dataset analysis, up to a third of UK children do so."

They add: "There is weak but consistent evidence, from reviews and UK datasets, that poorer health and wellbeing is found in children who drink [caffeinated energy drinks]. In the absence of [randomised controlled trials], which are unlikely to be ethical, longitudinal studies could provide stronger evidence."