Rebuttal: Can Eating Fish Make Kids Smarter?

<https://consumer.healthday.com/kids-health-information-23/adolescents-and-teen-health-news-719/can-eating-fish-make-kids-smarter-729613.html>

Articles involving promoting healthy lifestyles or aggressive suggestions on how to raise your children are rarely devoid of statistical misrepresentations – and this article is no exception. The institution healthday.com starts off questioning the age-old myth that fish improves brain functionality in growing kids – only to jump immediately to the conclusion that this myth is true. Once the reader ventures further into the article they soon realize that this may be a misrepresentation.

This article begins claiming that children who eat fish at least one time per week will, on average, score 5 IQ points higher than the control while also maintaining a healthier sleep cycle. While this may not seem to be an unbelievable fact the article ventures on to begin casting doubt on its own claim. The first sentence in the third body paragraph provides a concrete counter-argument to any North-American reader questioning their children’s diet – that this study was only performed on Chinese children. My mentioning of this is not to suggest that this refutes the main claim that eating fish promotes intelligence or a healthy sleep pattern – but only to suggest that perhaps the journalist who crafted this article may be peddling this headline to the wrong crowd. Since this is an article written in English and marketed towards a western crowd one should expect that the evidence backing this claim was pulled from a sample of people with a similar background – however this is not true. Had the article claimed (in the headline) that eating fish amongst children with Chinese decent increased brain functionality and healthy sleep patterns I may be more inclined to believe it.

Beyond the sample bias displayed in their findings, the data collection method leaves a lot to be desired. Firstly – the method the researchers chose to measure the frequency of a child’s ingestion of fish was to directly ask the children what they had eaten in the past week. Having been a child myself I am aware of how prone children are to misrepresenting facts. Had they been provided with a written account from the parents of the children the ingredients of what they had eaten over the past week I might be more convinced.

Additionally – the measure of how the children slept during this test period was to ask the parents their opinion on how they thought their children had slept. Similar to how a child might exaggerate what they had eaten over a week I believe parents have the tendency to being biased more optimistically or pessimistically towards their children’s sleep patterns depending on their mood. So many times I have heard parents say “my kids were up all night” but in reality they slept for a solid 6 hour window. Regardless of how the individual parents lean – the researchers should have constructed a more robust experiment.

This article doesn’t mention whether or not this was a double-blind experiment. Had the parents of these children known why they had been asked questions in regards to the sleeping patterns of their children they may have been biased to answer in favor (or against) the hypothesis of the experiment. Had parents known the reason for the experiment beforehand the results could be subject to the placebo affect – where they start paying more attention to their children’s sleep patterns after eating fish and devising incorrect conclusions based on their perception on how fish will aid their sleep.

The largest issue I observed in this article was the causal inference the researcher made regarding how the presence of omega-3 fatty acids was the promoter of the stimulated brain function. This claim was not a shock to me – as it is clear that the researcher fell victim to selective perception bias. It is a common belief amongst many people that omega-3 fatty acids are a promoter of brain functionality – however the researcher did nothing to attempt to prove or disprove this common conception. Instead they decided to bring their own bias into the scientific process to suggest that it was in fact a contributor to the enhanced intelligence of the children in this study. There are specific scientific methods to determine causality and it does not seem that any were used when deriving these conclusions.

Lets put all these issues aside and imagine a world where in this process the scientific method was followed to a tee and the data was clean and devoid of errors. Let us then imagine that there is a correlation between eating fish and increased brain function, and a correlation between eating fish and having a healthier sleep. To say that eating fish caused those two phenomena is to ignore a number of factors outside the bounds of this experiment that could be influencing the data. In many countries around the world it is quite common for fresh foods to be more expensive than the canned and processed alternatives. Families who eat fish on a weekly basis may have a higher level of disposable income than those who don’t – making the wealth of the children’s family a factor that needs to be considered. From a marketing perspective I can understand why they would leave this factor out: it is much less interesting to claim that the wealth of children’s families contributes to the performance of their children on a standardized IQ test than to say eating fish will make you smarter. Familial wealth is usually garnered by intelligent family members who then go on to have more intelligent kids – this is hardly rocket science. Had they run with the causal inference of wealthy parents being the leading cause of having smart kids there would be far fewer shares of this article on social media.

This scientific process described in this article can be boiled down to the following steps: create a narrow experiment considering criminally few factors, pick a sample that misrepresents the audience, lazily collect data, observe correlations, and finally have biased researchers give their opinions on the root cause. This research did nothing but add to the bandwagon of health “experts” claiming that omega-3 fatty acids stimulate brain functionality and a healthy sleep. I am not claiming that these fatty acids do not help promote good health – I am merely suggesting that this article did nothing to promote this theory.