Anup Jha, W241 Tuesday 4PM

Confectionery consumption in childhood causes violent behavior in adulthood?

"We are what we eat" is a popular adage. The effect of food on the human body has been a field of study for a long time. In the early days, fat was considered evil and many findings were published on how fat is bad for health. Then came the era of good fat and bad fat and now the focus is on sugar. Sugar has been shown to cause obesity and other myriad of physical malaise. The article in question tries to ascertain the effects of sugar on psyche.

This article was published in the British Journal of Psychiatry in 2009 by Simon C.Moore, Lisa M. Carter and Stephanie H. M van Goozen . The authors claim that people who ate confectionaries in their childhood regularly till the age of 10 were more prone to aggression in adulthood. The researchers employ an observational study of 6942 individuals out of 17,415 respondents born in the week of 5-11 April 1970 in the UK. It was noted by the authors that 69% of the respondents who were violent by the age of 34 years reported that they ate confectionaries everyday during childhood compared to 42% who were non violent. This was reported as statistically significant result. The authors also ran regression analysis on different variables such as gender, parent's attitude towards child, rural area and found that eating confectionary had a significant relationship with the violent activity in all the models. This article was also picked up by many media outlets and published in their monthly publications.

The authors of the article reason that since confectionaries are high in sugar content, it is sugar which is the real culprit. Then a conclusion is made that sugar can be thought of as a gateway drug to violence. According to the article sugar might cause a change in behavior and make people more aggressive. The authors assume that since the binary variable "whether the subject ate confectionaries daily or not in childhood" is strongly correlated with the violent behavior and maintains its strong correlation in models with other variables included depicts that eating confectionaries in childhood on a daily basis causes violent behavior in adulthood.

In my view the study overestimates the effect of eating confectionaries in relation with violent activity. The study tries to include many variables when creating regression model but it is quite possible that there are few confounding omitted variables which are positively correlated with eating confectionary and violent behavior both which will overestimate the effect of eating confectionaries. For example there can be socio-economic factors which can make eating confectionaries more prevalent in childhood and same factors might make an individual more aggressive in adulthood. In this case the real cause of violent behavior is the socio-economic condition and not eating confectionaries. Similarly there might be genetic reason which makes an individual like confectionaries in childhood and same genes might make an individual aggressive and violent in adulthood. There can be neighborhood and peer effect on subjects which can cause them to eat more confectionaries in childhood and the same neighborhood and peers can be the reason for aggressive behavior in adulthood. It has been known that sugar and chocolates are "comfort foods" so there can be some underlying issues of the psyche which can cause children to eat more confectionaries in childhood and same psyche issues might cause violent behavior in

adulthood. These are just a small list of some of the confounding variables but there can be many more which makes this kind of observational study for causal inference useless.
Even if we keep aside the confounding variable issues in this study, the notion of doing observational study linking something done in childhood to adulthood behavior could result in spurious results. There is no control on what happens between childhood and adulthood. There is no randomization of treatment assignment for this observational study. This might result into many covariates confounding the results.

An ideal experiment to determine this causal relationship would be to do a randomized experiment where we choose a random set of children born roughly at the same time. Then from this subset of the children we randomly assign some children to treatment group and others to control group. The children assigned to treatment group would be given confectionaries everyday from age 1 year to 10 years while the children in the control group would not be given any confectionaries while growing up. We can also add a variation in treatment group with some given 1, 2 or 5 confectionaries on a daily basis. Then when the children attain adulthood roughly at the same time we will start measuring their behavior whether violent or not for the next 20 years. The marker of violent behavior can be citing by police or arrests. Survey of subject's family members, friends and coworkers would also be taken to ascertain aggression in the subject . Average treatment effect would be calculated by comparing the rate of violence between treatment group and control group. The average treatment effect would be calculated for all the variations in the treatment group. If indeed treatment has statistically significant effect on violent behavior we can then conclude on causal effect of confectionery on violent behavior.

This ideal experiment would be both ethically and financially challenging. Ethically since in the control group we would not allow children to have confectionaries which is quintessential part of growing up for any child. The treatment group given confectionaries when it might be detrimental to the physical health of the subject is also an ethical conundrum. The study of behavior through family and near ones could also pose a privacy issue. Financially it is challenging as the experiment would span over about 40 years and need to keep track of subjects and their behavior.

References:

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