Annotated Bibliography

Chelsea Conn
Psychology 1010 4D
Edie Sample
Due Date: 18 February 2010
References


An experiment is conducted on children of rural villages in China, comparing a control group drinking water with low concentrations of both fluoride and arsenic to two experimental groups of high concentrations of arsenic/low concentration of fluoride and high concentrations of fluoride/low concentration of arsenic, respectively. Standardized IQ tests and growth tests followed, which yielded the following results: The mean IQ scores were the lowest in the high arsenic group, second lowest in the high fluoride group, and highest in the control group. The high-fluoride group had the most negative affect on height, while the high-arsenic group had the most negative affect on weight. The document concludes that both children’s intelligence and growth can be negatively affected by both arsenic and fluoride exposure in drinking water – arsenic moreso than fluoride.

This study is a very credible resource by nature. The methods provided show that the experiment was very well-controlled. The children were tested for IQ by the Combined Raven’s Test – The Rural in China Method (based on the Raven’s Standard Progressive Matrices and Color Progressive Matrices, a widely accepted IQ test in China), which shows that children were offered a fair test of their knowledge. However, it was not a double-blind study, and the subjects were not asked what other sources of water they were drinking at the time, implying that further research must be conducted or meta-analyzed before warranting
the conclusion that arsenic and fluoride are both dangerous substances in drinking water.


Marijuana use of seventy people from the ages 17-20 are studied through self-reporting and urinalysis. Current IQ was compared with IQ obtained 9-12 years before initial use of marijuana. Differences were then compared among heavy users (5 joints per week or more), light users (less than 5 joints per week), former users (not smoking for at least 3 months), and non-users (never smoking more than once per week). Results showed that marijuana use was negatively correlated with IQ as age declines. Another interpretation followed, however, showing that the negative effect on IQ was only evident in the people who currently smoked more than 5 joints per week (heavy users). The negative effect was not mirrored in former heavy users, so it was concluded that marijuana use does not have a long term effect on intelligence. It was, however, stated that the memory and attention aspects of marijuana use have yet to be studied.

By its nature, this study needs a closer look before trusting the evidence. A mere seventy-four adults were studied, and the conclusions are only presented as a correlation. There were not control or experimental groups, although to conduct an experiment like so would be considered unethical, because of the potential effects of marijuana. Nonetheless, the participants had their IQs measured by the reliable WAIS IQ test. The conclusion on the other hand, needs further data to support it. The results prove to be potentially promising for politicians discussing the safety of medical marijuana, but only if more studies are conducted with more than 74 participants.

Autistic traits and IQ were tested in 45 twins in Nagoya, Japan. Children were between the ages of 4 and 6. The Childhood Autism Rating Scale was used to measure autism severity. IQ was measured using the Tanika-Binet test (Japanese version of the Stanford-Binet). Genetic correlations between IQ and autistic traits were found to be high regardless of gender. On the other hand, individual environments were also shown to have a moderate effect on IQ. Cholesky structural equation models were used to arrange the correlations into genetic and environmental factors, which were also taken a step further down to sex-specific factors.

This study only looked at the analysis of 45 twins, making it the smallest sample shown thus far. It is very often difficult, however, to obtain a large sample size of pairs of twins in which only one has a disorder, especially given only one country or city to research. Similar to the marijuana study, its results are in the form of a correlation between IQ and autistic traits, which cannot necessarily be taken as a causation. However, the methods were sound, and the research used advanced models to measure autistic traits; the IQ test given is known for high reliability. There simply needs to be more research conducted in order for it to be taken as reliable evidence, which is clearly outlined in the discussion section of the study, showing that the researchers were objective and unbiased.


A dietary supplement called creatine that is often advertised as a muscle builder was
shown to enhance working memory and intelligence in a 6-week trial. This substance has been found to vary in carnivores depending on the type and amount of the meat that they eat, so five milligrams of the substance or a placebo was fed to 45 young adult vegetarians in Australia. An assortment of tests was then given to the subjects of both groups, on which those given creatine scored better. The article concludes that while creatine may give subjects improved brain function, unwanted side effects such as blood sugar imbalance may impose a threat. For this reason, the experiment excluded those with diabetes. Animal studies have also shown that creatine may help in the treatment of stroke.

This short article is simply a summary of a more scholarly article in a scientific journal. It states comprehensively what was studied and the results of that study, but it does not show the methods, so it cannot be determined exactly how credible the ascertains are. On the other hand, the sample size is given so one can say that more evidence is needed based on its very small size. Also, it does not give other factors which may have led to increased performance on the test, such as types of food consumed and other supplements the people were taking. The article obviously shows confirmation bias in how positive the last statement is, neglecting the fact that creatine may also cause sugar imbalances. It would be more useful to read the original article sourced from a scholarly journal.

All but one of these articles is complete and from a scholarly journal. The first was very promising, showing the most objective and controlled data, leading to a logical conclusion; the second was objective but was not as controlled, resulting in a more simple correlational study; the third was also correlational, however the research was more objective and controlled, using reliable tests to compare data; the fourth and final article was a simple magazine article, summarizing a more scholarly one for the general public. All of these articles have merit in different forms – even the magazine article is somewhat credible given
that it cited its resource. However the most credible was the study of the children in China on drinking water, given that it was the only study to have an experimental and control group.

I selected intelligence because I was initially interested on the effects of nutrition on intelligence and other factors. I am also interested in intelligence because it has one of the most subjective definitions of everything that could be studied. I was amazed to find out that marijuana did not have such an effect on intelligence as one would think (although these were not conclusive findings). I was not as surprised with the fluoride and drinking water, and I might use that information to challenge toothpaste manufacturers on whether the amount of fluoride they use is safe, what with all of the fluoride obtained already by drinking water. The findings of the creatine (while not conclusive, given the credibility of the article) also did not surprise me, given that I hold a strong belief that the omnivorous diet is the most nutritionally appropriate. This is something that I realized about a year ago after reading about the similarities of the diets of the very healthy native cultures, which were all omnivorous.