

Hundreds of Psychology Studies are Wrong

One hidden factor means that hundreds of studies are completely useless

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Let me introduce the problem with an example. In a recent article from *The Conversation*, researchers from the University of Queensland describe a study in which they observed families during hospital visits and measured the anxiety and distress of both parents and children. Measures of children's anxiety and pain were positively associated with parents' distress levels. The researchers interpret the role of the parents' distress during the visit as **causal**, arguing that parents who are more anxious and distressed are less able to support their child during the procedure. This seems like a rather sensible and intuitive conclusion to draw; however, the researchers should have absolutely no confidence in doing so.

Anxiety sensitivity (i.e. how susceptible an individual is to feeling anxious, ranging from completely normal to pathologically desensitize/hypersensitive) is substantially genetic. In fact, nearly half of the **variation** (i.e. the differences between people in the population) in anxiety sensitivity is likely to be genetic. The researchers therefore have no way to distinguish whether the children are responding to their parents' distress or simply share their anxious disposition for genetic reasons, or more likely some combination of the two.

In another instance, the *New York Times* published an article titled, "Yes, It's Your Parents' Fault" in which they quote research from the last 50 years to argue that if you have intimacy problems then your parents are to blame because of their attachment behavior. They're right, just for the wrong reasons. Attachment styles are genetically conferred from parent to child, meaning it's just as likely the genes you have inherited from your parents as their behavior that make you insecure as an adult. Consequently, genes confound any study correlating parents' behavior with their child's attachment, even in adulthood, making this data essentially useless in understanding how parenting affects our development.

1 What is the claim, the main focus argument, of this article?

Predict what the conclusion will be.

2 Here, the author compares and contrasts an age-old psychology question: **are we created by our genes or our environment?** What does the author say is the difference, and how does this complicate research conclusions?

3 Re-read the underlined sentence. Explain your own words what this means and why it matters.

Now, I know what you're thinking: Sure, genes are important, but the environment is too and you're not wrong. The problem is that without measuring the impact of genes first, it's impossible to say how important the environment is, or even which bits of it are responsible (e.g. parents, school, diet, learning). This is because the genes that influence our parents' behavior, and therefore our environment, can be passed to us. We can inherit the same genes that make our parents aggressive, rash, or impulsive and the influence of these genes can be easily confused with the environment that we're reared in. Without taking genes into account, it is impossible to determine if the environment is doing anything at all.

This is quite simply a problem of correlation being mistaken with causation.

For example, it was long thought that the absence of a father could cause daughters to become sexually promiscuous at an earlier age. However, using a genetically informative sample, researchers have now shown that the same genes that influence fathers' tendency to leave the home also **predispose** their daughters' to early promiscuity, perhaps via a trait like novelty seeking. Conversely, the influence of the family environment is far less important than previously thought.

Researchers are able to disentangle the relative contributions of genes and environment because of the natural experiment provided by identical and non-identical twin pairs. By comparing similarity between identical twins who share all the same genes and non-identical twins who only share on average 50% of their genes, scientists can model how important genes are for any given trait. If identical twins are more alike than non-identical twins, then genes may be important and researchers can use complex **statistics** to generate an estimate of the relative importance of genes and the environment.

Unfortunately this body of literature has been ignored by a lot of psychologists, particularly those favoring environmental explanations for behavior, and consequently, the history of the field is replete with examples of scientists erroneously attributing a causal role to parents' behavior.

1 Summarize this paragraph into a well-written, 15 word sentence that captures all the main ideas. DO NOT simply copy sentences from the text.

2 What words in this section help you to understand the relationship between correlation and causation? How? Why?

3 Why is it so detrimental (negative) that psychologists ignore the basic role of nature/nurture in their studies? Explain why this misinformation matters to the public.

One particularly damaging case comes from the 1940's when Leo Kanner undertook a case study of 11 children with autism and noted that "one other fact stands out prominently. In the whole group, there are very few really warmhearted fathers and mothers." The frosty nature of the parents was later forwarded as a cause for their children's disorder, a position that was furthered in several later papers from Kanner, and became widely accepted within the medical community. As a result, the phrase 'refrigerator mother' was coined as a label for parents of autistic children who suffered enormous stigma and were held responsible for their child's disordered behavior.

Similarly, the households of schizophrenics have been found to have higher expressed emotion and for a long time were **presumed** to have contributed to the formation of the disease. Moreover, the behavior of the parents of obese children is frequently claimed to cause the child's weight gain.

Yet, autism spectrum disorder is highly **heritable**. Schizophrenia is highly heritable. Obesity is highly heritable. In fact, most traits ever studied are heritable to some degree, from intelligence to how religious you are. In all of these instances, genes need to be considered when making causal claims about correlated variables such as parenting and children's' behavior.

Now, none of this is to say that parenting doesn't matter and you can mistreat children and they'll turn out okay - far from it. The damaging effects of parental neglect and abuse are all too well established.

The problem is that when it comes to human behavior, scientists are studying the **cumulative** effects of genes and environment: neglecting one source of influence means that it's impossible to quantify the impact of either. This produces results that are uninterpretable. It is as simple as that. This is bad science, and bad science is at best useless, and at worst dangerous, not to mention expensive. Moreover, any interventions that are developed off the back of such research are unfounded and likely to be unhelpful, if not harmful.

2 Explain the cause/effect chain of events that Kanner's study sparked, including the outcomes that affected the parents of autistic children.

1 What does "heritable" mean, and why does the author repeat it multiple times in this paragraph?

3 What implications do "bad science" have for the past and future of psychology? What part of the scientific method are these psychologists ignoring? Is there sufficient evidence to overturn their findings?

Perhaps the reluctance to acknowledge this position comes from a sense of **resignation** that the involvement of genes invokes. When people hear that genes have a causal role in establishing our character they assume this is shorthand for unchangeable or **immutable**. With the exception of a few rare and particularly cruel diseases, this is not the case. We are not **automatons** programmed from birth by a few small molecules. The journey from genes to tissue is complex enough to have defied our understanding despite rigorous inquiry for hundreds of years— let alone the marvelously sophisticated transition from physiology to thoughts, words, and actions. Genes are not the codex by which the rich tapestry of human achievement can be demystified— they are but one **constituent**. Genes may be more important than other influences in establishing some traits, and less important for others, but at almost all levels they provide some guiding principle of organization, small hands nudging here and there in **confluence** with the **miasma** of our lived experience. To assign them total responsibility and throw our hands in the air in defeat would be as **futile** an approach to understanding our history, and indeed our future, as denying them any role at all. The truth, as it is often want to, lies somewhere between the two. To the extent that we **obfuscate** this with wishful thinking or outright denial, we **hamstring** our potential to uncover the truth of the world around us.

What are the implications from this article.. how should it change the behaviors of psychologists from here on out?

1 "We are not automatons programmed from birth by a few small molecules." What does this mean, and which side of the argument does it support— nature or nurture?

2 Cite evidence to help you understand what it meant by the phrase, "Genes are not the codex by which the rich tapestry of human achievement can be demystified — they are but one **constituent**."

3 "The truth, as it is often want to, lies somewhere between the two." What does this mean to you, and to psychologists everywhere?