

Behind the Scenes of “To Catch a Predator”

Uncovering the environmental and genetic factors that lead to the development of pedophilia

In Mark 9:14-19 a father brings his son to Jesus. He cries, “Teacher, I brought you my son, who is possessed by a spirit that has robbed him of speech. Whenever it seizes him, it throws him to the ground. He foams at the mouth, gnashes his teeth and becomes rigid. I asked your disciples to drive out the spirit, but they could not” (Mark 9:14-19, New International Version). In response to these cries Jesus revives the son by calling the demon out of him. These symptoms are now associated with epilepsy, a common neurological disorder.

Today we refer to scientific experts rather than exorcists to inform our understanding of the world around us. As a result, epilepsy is considered a medical condition as opposed to demonic possession. Nevertheless, there is an alarming parallel between society’s response to epilepsy in biblical times and society’s response to pedophilia in the 21st century. Modern science informs us that we are a product of our environment and biology. The justice system, however, punishes rather than treats those who do not win the genetic and environmental lottery. Scientific research transformed the climate around epilepsy; yet despite recent efforts to change how we view pedophilia, misconceptions surrounding this condition still exist. The public sees pedophilia as a conscious choice when in reality it is a complex condition which develops from a host of environmental and genetic factors that need to be analyzed to inform the public and our justice system.

Pedophilia is a condition where a person is aroused, for a period of six months or more, by fantasizing or engaging in sexual behavior with a prepubescent child (Reviewed by Tenbergen et

al., 2014). Given the various taboos surrounding this topic in our society, there are many barriers in determining the percentage of people with pedophilia. At this time experts believe the highest possible prevalence of pedophilia in males is 3-5% of the population. They are uncertain about the percentage of females with pedophilia, but it is likely small in comparison to males with this condition.

To better investigate this issue we need the right vocabulary. The first distinction must be made between a pedophile and a child sex offender. A child sex offender is a person who has a history of sexually offending children. "Pedophile" is related but distinct from "child sex offender." A pedophile is a person who is sexually aroused by prepubescent children (Psychology Today, 2017). One does not need to act on her, his, or their desires to be a pedophile. Therefore a child sex offender is a pedophile, but the reverse is not necessarily true. Secondly, there is a difference between having a pedophilic sexual interest and having a pedophilic disorder (Reviewed by Tenbergen et al., 2014). A pedophilic disorder arises when the sexual attraction causes psychological impairment or distress. Without a history of sexual offending or psychological difficulties one can maintain having a pedophilic sexual interest without having a pedophilic disorder. But as a result of shows like "To Catch a Predator," many of these terms are confused in society.

Regrettably, these misconceptions constrain many efforts to investigate pedophilia. What we do know at this time is that there may be genetic factors which play a role in the development of this condition. Specifically, studies suggest that there is a familial pattern of inheritance and specific genes associated with the development of it. A small study conducted in 1984, which surveyed family history, found that 10.3% of 33 pedophilic patients had a male first-degree

relative with the condition (Berryessa, 2014). A second study from 2012, which utilized genograms over many generations of five families, also found evidence for familial transmission of pedophilia. Unfortunately the researchers were unable to differentiate between the influence of the subjects' shared environment and genetics. Regardless, evidence of familial transmission is an important preliminary step in the study of genetics surrounding pedophilia.

The literature also supports the idea that there are specific genes associated with the development of pedophilia. One important gene is the *Progranulin* gene (Rainero et al., 2009). The *Progranulin* gene is involved in many processes such as tumor proliferation and neurodegeneration. It is highly expressed in the neurons of the cerebral cortex, the hippocampus, and in the cerebellum. Although little is known about its function in the central nervous system, recent studies on animals do suggest that this gene has a function in establishing sexual dimorphic behavior in developing and adult brains.

Besides being involved in neurons, *Progranulin* could also affect sexual behavior. This is seen in androgens. Androgens are a group of hormones which primarily influences the male reproductive system. They evoke an increase in *Progranulin* expression in the hypothalamus, a region of the forebrain. In one experiment on male rats several methods were used to disrupt the normal expression of the *Progranulin* gene. As a result, the male rats experienced several abnormalities in sexual behavior.

Although there is not much research on abnormal sexual behavior in humans connected to this gene, there is one Italian case study that suggest that a R177H mutation of the *Progranulin* gene caused an older male with frontotemporal dementia to have a yearlong attraction to his 9-year-old daughter. Because he had frontotemporal dementia, a spinal tap was

performed to analyze the sequence of his *Progranulin*. The point mutation R177H was discovered. Since this point mutation, which is a mutation that affects a small number or a single nucleotide in a genetic sequence, seems to have changed the behavior of the patient we can hypothesize that this mutation was successfully translated from the nucleic acid language to the amino acid language. This translation changed the structure of the protein, and therefore its function, and thus the behavior of the patient. Unfortunately, although a first-degree relative was informed, he refused to undergo any genetic testing, therefore this study was limited.

Another study from 2014 associates the development of pedophilia with a reward deficiency (Brassen et al., 2004). One possible mutation which contributes to this deficiency is the A1 allele (an allele is one of two or more different expressions of a gene resulting from a mutation that are located at the same part of the chromosome) on the gene that codes for the dopamine D2 receptor. Alternative genes are translated into alternative amino acids which change the structure and thus the function of the proteins produced. This mutation of the dopamine receptor enhances one's susceptibility to a range of compulsive and addictive behaviors. The disruption leads people to act in ways that will amplify the release of dopamine, a neurotransmitter involved in pleasure. As such, pedophilia may be a phenotypic manifestation of a reward deficiency, where children are the mode for abusing this disrupted reward system. Therefore this study suggests that pedophilia is a compulsive disorder, like pathological gambling, which is associated with urges, mental occupation, and loss of control. This research implies that we could use treatment for other compulsive disorders as a guide for treatment of a pedophilic disorder. Thus a bifurcated plan consisting of medication and therapy could be the key. This may include cognitive behavioral therapy, which is a type of psychotherapy, along

with antidepressant medications to assist the patients in beginning to control their pedophilic obsession.

Pedophilia, however, arises out of a combination of both genetic and environmental influences. Current data suggests that there may be a link between being a victim of abuse and becoming a perpetrator (Reviewed by Glasser et al., 2001). While experts disagree on the degree of influence, there is still widespread belief in the victim-offender cycle as a cause of the development of pedophilia.

A 2009 study, which included 747 males, found a positive correlation between reporting victim experiences and being a perpetrator (Reviewed by Glasser et al., 2001). The rate of being a victim was 35% for perpetrator and 11% for non-perpetrators (Cohen and Galynker, 2009). Other experts believe there is a connection between having multiple events of sexual contact during childhood and becoming a perpetrator. A 1994 study found that men who were sexually abused as children were around 40 times more likely to have sexual contact with prepubescent children than men who were not sexually abused. Experts believe that 40% to 100% of pedophiles have suffered sexual abuse as children.

Although there is evidence of the cycle, conclusive information is still sparse given the differences in methodology and definitions between studies. For example, the majority of the research is based on retrospective recall by adults from the United States. Information on the difference between being sexually abused and having a pedophilic preference versus becoming an abuser is either unclear or not present in many of the studies. Additionally, there are few studies that have statistically relevant amounts of female perpetrators—many do not include

women at all. Despite the many shortcomings in the research, though, this is not a sign that there is no connection, but that there is a need for more funding and further research on these topics.

Undoubtedly, the findings above need to be cautiously interpreted given the small sample sizes of the studies and the limited literature of the topic, but the general conclusion remains that pedophilia is more complex than popular culture affords it—and it is dangerous to assume that it is not so. Although voices in the broader public are shifting around pedophilia, many institutions remain unchanged. We see this in the American criminal justice system. At this time the criminal justice system does not focus on rehabilitation for people with pedophilia (Berryessa, 2014). But with further research into genes, such as those associated with the dopamine receptors, treatment can be a future possibility. Thus a focus on research, especially towards treatment on a genetic level, can have lasting implications for the future of both those who develop pedophilia or children who may be the victim of sexual offenses. A treatment—with research—could be made possible.

Works Cited

- Berryessa, C. M. (2014). Potential Implications of Research on Genetic or Heritable Contributions to Pedophilia for the Objectives of Criminal Law. *Recent Advances in DNA & Gene Sequences*, 8(2), 65-77.
- Brassen, S., Braus, D. F., Dressings, H., et al. (2004). Pedophilia: neuropsychological evidence encouraging a brain network perspective. *Medical Hypotheses*, 63(3), 528-531.
- Cohen, L. J., PhD., & Galynker, Igor, M.D., PhD. (2009). Psychopathology and personality traits of pedophiles: Issues for diagnosis and treatment. *Psychiatric Times*, 26(6), 25-28, 30.
- Glasser, M., Kolvin, I., Campbell, D., et al. (2001). Cycle of childhood sexual abuse: links between a victim and becoming a perpetrator. *The British Journal of Psychiatry*, 176(6), 482-494.
- Psychology Today. (2017, April 4). *Sussex Publishers*, Retrieved from <https://www.psychologytoday.com/conditions/pedophilia>
- Rainero, I., Rubino, E., Negro, E., et al. (2011). Heterosexual pedophilia in a frontotemporal dementia patient with a mutation in the progranulin gene. *Biological Psychiatry*, 70(9), 43– 44.
- Tenbergen, G., Wittfoth, M., Frieling, H., et al. (2015). The Neurobiology and Psychology of Pedophilia: Recent Advances and Challenges. *Frontiers in Human Neuroscience*, 9, 1-344.