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The Link between Vaccination and Autism

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Abstract

Vaccination provides individuals with protection against many preventable diseases, yet many claims against vaccination have caused vaccination rates to drop. Vaccination rates have dropped after a claim that vaccines offset autism was published. Although vaccination is necessary in order to prevent the spread of diseases throughout the population and in order to protect individuals who cannot be vaccinated. The claim that there is a link between vaccines and autism has been disproven based on lack of communication between the scientific community and public, discovery of falsified evidence, and further studies which demonstrate there is no link.

The Link between Vaccination and Autism

Vaccines have been highly praised for preventing the spread of major diseases throughout the population, although in recent years several parents have been hesitant to vaccinate their children. This hesitation is due to the ongoing controversy that vaccination leads to autism in children. The belief that vaccination causes autism first began when a research paper written by Andrew Wakefield was published in *The Lancet* claiming there was a link. Vaccination rates had already dropped approximately two percent but after the publication of *The Lancet* vaccination rates continued to drop leading to an increase in unvaccinated children resulting to the spread of measles (Colgrove & Bayer, 2005). The link between vaccination and autism has been disproven due to lack of communication between the scientific community and the public, the discovery of falsified evidence and further studies demonstrate that there is no link.

An experiment was conducted in which a group took a survey in order to observe if highlighting consensus among medical scientists on vaccination could change the public's perception on vaccines. Van der Linden, Clarke, and Maibach (2015) explain that the goal of this experiment was to decrease public concern, decrease misperceptions about discredited autism link and increase support for vaccination. The sample group consisted of 206 American adults which were then randomly assigned to four experimental conditions. Based on the research done by the authors they found that, "people are more likely to remember sticky 'myths' than their 'corrections' as revising pre-existing beliefs in light of new facts demands more cognitive effort" (Van der Linden, Clarke, & Maibach, 2015) indicating that individuals are more compelled to believe false information rather than correct themselves. This explains why many individuals believe that there is a link between vaccination and autism, because these individuals may be unwilling to accept new facts or change their perspective. The results of the study demonstrated

that “highlighting the degree of medical consensus about (childhood) vaccine safety is likely to increase public support for vaccines both directly and indirectly” (Van der Linden, Clarke, & Maibach, 2015) these results explain that public concern is due to lack of awareness about the agreement that medical researchers. This study demonstrates the need for communication between the public and researchers in order to spread the understanding of vaccines.

There is a divide between the public and researchers due to the lack of communication. Communication is necessary in order to educate the public on the necessity of vaccination. Vaccination is necessary because when individuals are unvaccinated it puts themselves and others at risk of spreading preventable diseases. Miller (2015) explains that “vaccine refusal led to the death of two immunocompromised children who could not be vaccinated and therefore contracted the disease” emphasizing the importance of vaccination in order to prevent diseases from spreading not only among the population but among individuals who are unable to receive vaccination. Furthermore the media has a large influence on the public’s view, once reports of this link between vaccines and autism were released “extensive coverage of the unsubstantiated claims of the antivaccine lobby and scant attention to the actual scientific evidence resulted in a critical fall in MMR vaccine coverage” (Miller, 2015) due to the medias influence the public was exposed to false claims of the effects of the MMR vaccine rather. Exposure to antivaccine influence caused the public to reject vaccines, although there was little to no coverage on the scientific evidence that these claim were false. As Van der Linden, Clarke, and Maibach (2015) have found highlighting consensus about vaccines educates the public in a positive manner whereas Miller (2015) has found that “emphasizing the dangers of not vaccinating may be counterproductive” educating the public requires bringing awareness in a positive, informative manner.

There is also a lack of evidence to support the link between vaccination and autism. A study known as the Early Autism Risk Longitudinal Investigation (EARLI) plans to diagnose autism in children before the age of three (“Diagnosing Autism,” 2009). Although this could lead to false diagnosis because the child’s brain is still developing, yet many individuals believe that this increase in autism among young children is due to vaccination. Although the scientific community disagrees that a link exists between vaccination and autism. In 2009, a lawsuit was filed against the Federal Government in which three families with autistic children claimed there was a link but due to lack of evidence to support this claim the judge ruled against this lawsuit (“Diagnosing Autism,” 2009). Furthermore these claims that vaccines offset autism are due to the claims made by Andrew Wakefield whose evidence was falsified. Rao and Andrade (2011) explain that Wakefield and his colleagues “were held guilty of ethical violations (they had conducted invasive investigations on the children without obtaining the necessary ethical clearances) and scientific misrepresentation (they reported that their sampling was consecutive when, in fact, it was selective”. Based on these investigations Wakefield’s study was rejected because it only demonstrated selective results, was unethical, and had a small sample size (Rao & Andrade, 2011). Misleading evidence led the public to believe that vaccines and autism have a link, causing vaccination rates to drop and led to an outbreak of the measles after the release of Wakefield’s study.

While investigations were done to reject the claim that there is a link between autism and vaccination further studies were conducted to support that there is no link. In the study conducted by DeStefano, Price, and Weintraub (2013) focused on the relationship between thimerosal, a mercury based preservative in vaccines, and autism spectrum disorder (ASD). Thimerosal is the subject being studied because many individuals believe that this preservative offsets autism. In

order to study the effects of thimerosal in vaccines vaccination histories of children were tracked and “found no statistically significant associations between number...of vaccine doses received between birth and age 2 years and any of the ASD outcomes” (DeStefano, Price, & Weintraub, 2013) indicating that in this study no link was found. DeStafano, Price, and Weintraub (2013) also determined in their study that the number of vaccines received in a single day “are not supported in terms of an increased risk of autism,” as too many vaccine injections in a single day also causes parents to fear vaccinating their children. This study further supports that there is no link between vaccination and autism, and also that the number of vaccinations in a day does not cause autism.

Vaccination is necessary in order to prevent the spread of diseases among the population, yet the fear of vaccines leading to autism has caused a drop in vaccination rates. As vaccination rates drop the spread of preventable diseases increases. Yet this link has been disproven due to lack of communication between the scientific community and the public, the discovery of falsified evidence, and studies demonstrating that there is no link. Van der Linden, Clarke, and Maibach (2013) explain that consensus about the safety of vaccines must be increased to educate the public about vaccines and Miller (2013) has found that lack of communication has led media to focus on antivaccine publications rather than evidence that there is no link. The discovery of falsified evidence disproves the claim by Wakefield that there is a link because his study was unethical and overall went against the scientific method. Furthermore this claim was disproved by Destefano, Price, and Weintraub (2013) whose study found that vaccines and the number of injections do not lead to autism in children. While many individuals continue to fear vaccination the scientific community has done extensive research to disprove that vaccines exist. Vaccines

continue to be supported in order to protect children from preventable diseases but to protect the population.

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