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Risks of CRISPR Technology

Summary

In Sandy Sufian and Rosemarie Garland-Thomson's article, "The Dark Side of CRISPR," the dangers of genetic engineering and the impact it could have on society are addressed. Published on February 16, 2021, to the *Scientific American*, Sufian and Garland-Thomson encourage scientists, medical personnel, and those interested in the potential effects of CRISPR to be aware of the risks and ethical issues associated with this new technology. They describe how CRISPR can be used for beneficial medical reasons, such as eliminating disease from family lines but really elaborate on how this technology can easily be used in immoral ways, such as getting rid of certain genetics to create a more desirable human offspring. Sufian and Garland-Thomson go on to explain that if this technology were to get in the wrong hands, there would be a potential extinction for all of those with genetic differences. They then express that they both were born with genetic disabilities and describe how they have coped with their diseases throughout their lives. They examine their own beliefs and feelings, regarding how some view genetic disabilities such as their own, as leading unsatisfactory lives. In the quest to create a higher quality human, scientists using the CRISPR technology, to delete all genetic defects, could be seen as unethical. They describe that genetically editing out any traits deemed imperfect would lead to no genetic variation in the world. They close by describing how the

growing culture and stigma associated with CRISPR technology is essentially an attempt to dispose of all genetic mutations and the suffering associated with them from society.

Analysis

Genetic engineering is a relatively new technology in today's society, and there is still much to discover about it. This technology has the power to alter a patient's genes to eliminate diseases or make them possess certain traits. Although it can provide relief and positive outcomes for patients in need of help at the genetic level, it has led to several moral and ethical controversies among scientists and medical personnel. In Sandy Sufian and Rosemarie Garland-Thomson's article, "The Dark Side of CRISPR", they address how the new CRISPR technology can be seen as dangerous to those with genetic differences. The authors respond to this issue by explaining their personal views and experiences with disabilities in their own lives and how this technology could pose a threat to people in similar situations as them. The authors successfully argue their claim through the use of credible sources, empathy, and indisputable statistics; though, they rely heavily on their own analysis of the topic and lack some of the needed logical evidence to further their argument.

When assessing the publisher, the *Scientific American*, one can conclude that it is a reliable source to obtain information from because of the high standards that it holds its contributors to. The website itself claims that it "publishes work by journalists, scientists, scholars, policy makers and people with lived experience of scientific or social issues" ("Scientific American"). This is beneficial in validating the type of work submitted to this company and goes to show how they filter what kinds of authors they accept work from. Yet, like many sources, some bias may be present. According to the creators of *Media Bias/Fact Check*, Springer Nature, the owner of *Scientific American*, "[strives] to publish peer-reviewed

science. [Although] some sources in this category may have a slight political bias but adhere to scientific principles” (“Scientific American”). This means that majority of work published to this website is fact-based but can be known to vary on the type of information portrayed based on the political standpoint of the author(s). When assessed vertically and laterally, enough information is available to conclude that through following specific protocols and regulations for what authors and content are allowed to be published, it is safe to say that this article comes from a reliable source.

More thoroughly, after researching and analyzing information regarding the authors, it can be assumed that both are trustworthy and credible. According to the article itself, Sufian and Garland-Thomson are both professors and hold highly ranked positions in Disability Studies at their places of work, which boosts reliability of the content that is covered. The University of Illinois College of Medicine, Sandy Sufian's place of work, reiterates her credentials by explaining that she "specializes in the history of medicine and disability" and teaches these subjects "to medical students, PhD students and undergraduate students" ("Sandra Sufian"). Emory University's Affiliated Faculty page describes its employee, Rosemarie Garland-Thomson's, fields of study, which include "disability studies, American literature and culture, bioethics, and women's studies" ("Rosemarie Garland"). Emory also summarizes her work in critical disability studies and how she is developing the field and spreading awareness of the topic ("Rosemarie Garland"). Therefore, both authors study fields related to the content of the article and are employed and teach at accredited universities, which gives them the proper credentials to be deemed trustworthy to write about this new controversial technology.

Additionally, the authors' personal experience with the subject matter further establishes the credibility of the article. The authors state that "one of us lives with cystic fibrosis (CF), and

the other a form of syndactyly" (Sufian and Garland-Thomson). They have had these disabilities their whole lives, so having first-hand experience proves the authors both have reliable knowledge concerning the effects CRISPR could have on people who have genetic mutations. When the authors' knowledge is combined, they are able to create a united sense of integrity in their writing. Rosemarie Garland-Thomson has studied bioethics and published work regarding disability and its relation to technology and culture ("Rosemarie Garland"). Sandra Sufian obtained a degree in Biostatistics and has also published work in disability, as well as medicine ("Sandra Sufian"). This lateral analysis of the authors illustrates the magnitude of knowledge these authors have obtained over their lifetimes and provides further verification that their claim is trustworthy. Their extensive comprehension of the material makes them excellent candidates to discuss the potential dangers associated with such a controversial topic.

Furthermore, Sufian and Garland-Thomson utilize their knowledge and personal disabilities to evoke a sense of empathy, as well as sympathy, in their readers. The authors state, "We are whole beings, with our genetic conditions forming a fundamental part of who we are" (Sufian and Garland-Thomson). This creates a feeling of pride within the reader, and it establishes a connection that all readers can relate to. The fear with CRISPR technology, as described in the article, is that "People like us whose being is inseparable from our genetic condition would be the first to go" (Sufian and Garland-Thomson). This creates a feeling of helplessness and sympathy for those with genetic differences and furthers the authors' argument in that they can personally connect to the situation at hand. Their use of emotion helps the reader understand feelings and use a different thought process that they might not have ever considered or been aware of. That being said, the authors also claim that "Americans generally see no problem with editing genes linked to broad swaths of people like us" (Sufian and Garland-

Thomson). The authors are able to connect to the audience on a more personal level by using terms such as "us" and "we" throughout the article. Their choice of words evokes a sense of empathy and describes how this genetic "cleansing" would ultimately create less genetic diversity in the world, which could be very harmful to society.

It should also be noted that Sufian and Garland-Thomson make use of indisputable statistics to back up their claims in the article to reinforce the logic behind the importance of those with disabilities in our society. According to the National Library of Medicine, "an estimated 24 percent of people worldwide are carriers for genetic conditions" (Sufian and Garland-Thomson). This supports the authors' main claim about the quantity of people CRISPR technology could potentially dispose of. When the statistics and sources the data comes from is assessed laterally, it is found that the majority come from well-known government owned websites or medical providers. The statistic that "61 million people in the United States (26 percent of all adults) are considered disabled" comes from the Centers for Disease Control and Prevention (Sufian and Garland-Thomson). For this article, the intended audience will most likely be able to recognize the CDC as a reputable resource which gives the reader more trust in the reasoning associated with the given statistic. The timing and placement of the statistics were placed strategically around the middle of the article, so the authors could lay a base of the argument down first, provide facts to support the argument, then explain why the points made were important. This use of numerical data to promote the authors' ideas led to the ultimate success of the article. Restating the amount of people affected by this technology further emphasizes the main statement that the improper use of this technology will eliminate vast amounts of people, not only from the United States, but the whole world. When assessing the given statistics, they support the authors' claim by giving the audience a better understanding of

the reasoning behind why they are so adamant about the dangers of the CRISPR technology on a national scale.

With that in mind, the authors do provide logical support in the article, but when evaluating the factual evidence, one can find that the majority of the information given deals with disability statistics rather than evidence for why CRISPR technology is dangerous. The authors often include personal narratives accompanied with statistics regarding their specific battles with their genetic disabilities. For example, the article states, "With the Education for All Act of 1975 (now the Individuals with Disabilities Education Act (IDEA), however, the federal government guaranteed public education and services for all children with disabilities, thus changing their life trajectories" (Sufian and Garland-Thomson). This would be beneficial information if the authors were only writing about troubles associated with disability, but since their claim relates the potential effects of gene editing technology to those with genetic mutations, their logic strays from their original focus. They tend to give more personal opinions and analysis of why those with disabilities should still be valued over the use of factual reasoning for their claim. Although, they fall short of factual support for their specific claim, they are able to justify their argument through their use of valid, logical evidence and the reliability of their personal analyses'.

Undoubtedly, Sufian and Garland-Thomson are able to make use of rhetorical appeals to convince their intended audience of the possible extinction of those with genetic disabilities. Their argument is made successful through the application of their personal familiarity and intelligence surrounding disability and biotechnology. Vertical and lateral analysis of the article creates a reliable perception of its contents that is easily understood by the audience the authors are trying to reach. Through using techniques aimed at providing information relevant to medical

professionals and those in the disabled community, Sufian and Garland-Thomson accurately depict the dangers related to the newly discovered CRISPR technology.

Works Cited

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