Plastic Waste's Effects on American Health

Aani Nagaiah

Plastic use has been leading humans to their demise. Modern society has become ever so dependent on the use of plastic, but its adverse health effects are finally becoming significant. Dangerous chemicals such as phthalates are poisoning the human body through everyday items like baby teethers. Other chemicals in plastic cause underlying issues such as cancer, birth defects, and many more. Plastic has infected hospital processes, food delivery, and even food itself. Microplastics are ingested by every living being on planet Earth. Industries that are meant to protect and assist humans are often the main perpetrators of plastic overuse. The United States must start taking plastic pollution seriously and work towards reducing the reliance on single-use plastics. Changes should be made to the current state of plastic use on a governmental level to slow down and eventually eliminate the health problems humans face from plastic pollution.

With human dependence on plastic increasing every day, the adverse environmental effects of plastic have become crystal clear. First, animals have been facing the harsh reality of plastic. An article featured in the *New York Times* collection by the author Iliana Magra reported that a pregnant Italian whale was found dead with 48 pounds of plastic (Washburn 150). Deaths of prominent animals in the food chain could quickly cause havoc. This event should serve as a cautionary tale for the potential consequences of continued reliance on plastics. Additionally, a factoid from Jennie Romer's *Guide to Better Recycling* states that plastics will outweigh fish by 2050, due to the high amounts of plastic smog and degrading microplastics in the ocean (83). This issue is a worrying fact that highlights the magnitude of plastic pollution in the oceans. Plastic waste has been a growing problem for many years, with single-use plastics like bags and bottles leading the way. The prediction that plastic will outweigh fish in less than 30 years is outrageous. It should serve as a wake-up call for everyone to take action and realize the problem at hand. However, who is to say that the oceans are the only ones facing the harsh reality of plastic overuse? This issue not only affects the health of marine creatures but also has a significant effect on the entire ecosystem, including humans who rely on seafood as a source of food. The far-reaching consequences of plastic affect humans in every single way. According to the *Plastic Health Coalition*, microplastics can be found in every single human's bloodstream, due to how often they are consumed. Microplastics are defined as 5mm particles of plastic found in everything from seafood to honey to salt (Plastic Health Coalition). They are also found in countless skincare products; anti-aging creams can leave up to 90,000 plastic particles on one's face after usage (Plastic Health Coalition). Microplastics pass through the gut barrier and are found in every organ. They cause extensive DNA damage, oxidative stress, inflammation, and more (Plastic Health Coalition) The dangers of microplastics continue to haunt generation after generation. Not only are there literal plastics found in humans nowadays, but there are also countless chemicals humans are exposed to because of them (Plastic Health Coalition). *Plastic Panic* by Lauren Kern, featured in a collection of *New York Times* news articles called "Plastic: Can The Damage be Repaired" recalled that "95 percent of 450 plastic items tested — ranging from baby bottles to deli packaging — released estrogenic chemicals when exposed to real-world stresses like microwaving or dishwashing or even sunlight" (Washburn 213). These statistics highlight the widespread problem of plastic pollution and its impact on human health. Estrogenic chemicals can interfere with the hormonal balance of living organisms and have

been linked to a variety of health problems, including cancer, infertility, and developmental disorders. All these are just a slight inkling of what horrors plastic can do to the human population. Not even babies can be safe from the travesties of plastic poisoning. A report from the 15th volume of the *Indian Journal of Occupational and Environmental Medicine* showed that harmful phthalate esters are used in teethers, soft figures, and inflatable toys (Rustagi et al.). These chemicals can be released by chewing and teething, the primary way children deal with toys. This should be a huge concern to anyone, as it creates a major problem for the youth. The adverse outcomes of phthalate interaction include but are not limited to: “increased adiposity” (more fat accumulation), insulin resistance, “decreased anogenital distribution in male infants” (birth defects), a decreased sex hormone level, and an overall harmed reproductive system in males and females (Rustagi et. al). Phthalates are so incredibly harmful to future generations in the long run, and they leave lasting effects. With irreversible defects occurring in children, they reduce the overall quality of life for everyone on the planet. At the end of the day, there will be nobody else to blame as more children suffer from the cruelty of plastic usage. Beyond that, more main chemical perpetrators cause harm. A study by Navami Jain and Desiree LaBeaud of the *AMA Journal of Ethics* emphasized the power of the chemicals PCH, DDT, and DDE. These chemicals have been known to cause cancer, endocrine disruption, and developmental and reproductive effects. Although these chemicals have been banned or restricted after extensive usage in the past, they still left a profound impact on human health. Their persistence in the environment has led to the widespread contamination of soil, water, and wildlife. Nothing has been left untouched. In light of these discoveries, it is very necessary that chemicals are to be used safely and responsibly, especially with the proper knowledge. Plastic’s unfortunate effects can be seen everywhere, and for this reason, there must be a solution for the trauma it causes.

Next, the costs of plastic waste are extraordinary. With money-making industries like healthcare increasingly depending on plastic, it is almost as if society is moving backward. In the United States, the health industry has been subjected to ruin by plastic usage. Jain and LaBeaud report that healthcare accounts for a great deal of waste production, especially since Covid-19 struck. Organizations like the FDA have been extra careful in times of Covid-19 and even encouraged using more single-use plastics. As the pandemic scare dies down, unused medical supplies have simply been discarded without a care. The irony of the healthcare industry being one of the worst perpetrators of plastic overuse is truly unfathomable. Not only is it costly money-wise, but the fatalities that occur from plastic ingestion and pollution are countless. The journal also shows that “between 400,000 and 1 million lives are lost each year in low and middle-income countries” (Jain and LaBeaud). The people that are fragile money-wise suffer the harshest consequences. Lives continue to be lost due to countries dealing with plastic pollution in atrocious ways. Additionally, freak accidents are commonplace. An article from the *New York Times* collection by Michael Corkery mentioned a giant plastic factory’s pipeline exploding near a house, which burnt it in turn (Washburn 220). The article also stated that even though the original pipe exploded, a new one would be placed just 800 feet from the same house. This event shows just how little corporations care about citizens’ well being, and how money hungry the industry has turned into. One short Google search shows that there have been fatal plastic plant explosions as early as the 1980s. This problem only continues to get worse as time goes by. Horrific accidents like these can easily be avoided by cutting down the usage of plastic. Fracking (unconventional oil rigging) from the same factory has also been happening at local parks (221). This harshly disrupts one’s day-to-day life, as one

could assume. Too much industrialization has become an increasing problem, and the reliance of plastic has many worried for the unfortunate future of the planet.

Although plastic wastage affects every nation, America has been one of the least effective ones dealing with it. David E. Sanger reported in the *New York Times* that Japan's population was plagued with methyl mercury-tainted fish. This issue led the government to instill new recycling policies that helped the public and mitigate the problem (256). This serves as an example of how important it is for the government to take proactive measures to protect public health and the environment. It shows that a combination of governmental action and public awareness can lead to a positive change. Other countries have succeeded in amplifying the policies regarding indestructible trash. For example, the *Indian Journal of Occupational and Environmental Medicine* mentioned Thailand's usage of a "Waste for eggs campaign", in which people can exchange thirty pieces of waste for 5 eggs (Rustagi et al.). While the concept itself may seem simple, it will end up making a huge impact in the future. Not only will it assist the local population, it will also clean up the environment while doing it. Public awareness of issues that are often overlooked is necessary, especially in times where everyone in the equation is affected. These remarkable ideas must be amplified and utilized more often in other countries. Additionally, the same text highlighted a policy change by the Bureau of Indian Standards, which stated that "no foodstuffs will be allowed to be in packet or recycled plastics or compostable plastics" (Rustagi et al.). One could consider this a huge step forward for any country. The dangers posed by both recycled and compostable plastics, especially when it comes to food packaging, are well-known. The amount of harmful chemicals and microplastics that are already in humans' systems do not need more of an addition. By prohibiting the use of these materials in food packaging, the Bureau of Indian Standards is taking a proactive step towards protecting public health and even the environment as a whole. A policy similar to that would be unfathomable in America. There has been only one recent monumental legislation in America, according to Jessica Romer's guide. She remarked that the 2021 Break Free From Plastic Pollution Act (BFFPPA) was a road map for how to address the plastic pollution problem in the US (76). The targets it sets for reducing single-use plastic waste promotes the development of more sustainable and environmentally friendly alternatives to help enforce the legislation. More specifically, it regards a holistic approach and how to navigate the life cycle of plastic. Plastics are brought to fruition by the one and only manufacturers, and this legislation that addresses the crux of the issue highlights the fact that the US government is finally taking the threat of plastic pollution seriously. Jain and LaBeaud also state that it is imperative that manufacturers must be held accountable, and more national guidelines must be set up in every country. Costs need to be managed better and Extended Producer Responsibility Laws are needed, worldwide. EPR laws would require manufacturers to take full responsibility for the environmental impact of the products they produce, from raw materials to disposal. With these laws, it would encourage the manufacturers to be more mindful of what they produce and to adopt more environmentally friendly and sustainable practices. In totality, the US needs to take inspiration from other countries' successes in managing plastic waste and direct their focus towards manufacturers in order to effectively address the problem.

At this point, it should be common knowledge to declare the adversities of plastic wastage as a public health issue. There is "tremendous opportunity to remove unnecessary plastic in health care" (Jain and LaBeaud). For example, the United Nations' Obligation to Do No

Harm at the 2021 COP26 conference specifically tackles healthcare's overuse of single-use plastic. It has been signed by 50 countries and it is deeply concerning that the United States is not one of them. One would think that even in times like this with immense amounts of evidence, there would be some movement in America. Producing and disposing is practically in the US' DNA. To combat the health industry's abuse, Jain and LaBeaud also suggest institutionalized education programs for clinical staff. By doing so, the staff will be better equipped to handle and dispose of medical waste in a responsible manner. Another suggestion was that medical staff should distribute unused medical supplies to low income areas. Distributing unused medical supplies to low income neighborhoods can help reduce waste while also providing resources to those who may not have access to them otherwise. This way, it tackles the issue of lower-income communities facing heavy fatalities from the issue as well. Overall, the United States' government must have public health as one of its major concerns as the problem of plastic waste becomes more prominent.

As technology advances, there are many ways that people can utilize the internet to benefit themselves in the topic of plastic waste. Users can protest, educate themselves, and take action against plastic waste with the click of a button. With the increasing popularity of social media and the internet as a whole, it has become a major tool for activism. Online protesting plays a crucial role in raising awareness for anything, let alone the adversities of plastic waste. It provides a vast array of individuals with a platform to voice their concerns and unite towards the greater good. For example, PS #6 foam has been a major contaminant in McDonald's packaging since its opening. Online protests and petitions against PS #6 foam caused McDonald's to cease its manufacture of it to appease the public (Romer 221). This emphasizes the potential for online protesting to bring about incredible tangible changes on levels that could not be achieved before in regards to addressing plastic waste and similar issues. In the education sector, there are countless websites which allow users to identify specific ways they can help in the long run. Specifically, the *Plastic Health Coalition* has a feature on its website that allows a user to customize a "plastic diet" in which they personalize which areas in their life that they can cut down plastic usage. From gardening to bathing to traveling, the website tackles every way a singular person can make a difference in the topic of plastic waste. It presents itself as a short quiz system, making it incredibly easy to navigate. If every person were to follow a "plastic diet", it could make a remarkable difference. All things considered, social media and the internet as a whole should be utilized more often in order to create change in the plastic industry.

On a similar note, the rapid rise of e-commerce and the resulting increase in single-use packaging has greatly contributed to the plastic waste issue. In fact, trash from food packaging has often been regarded as one of the biggest causes of plastic pollution, especially with the introduction and popularization of food delivery services (Washburn 118). With the convenience of having every meal of the day delivered right at one's doorstep, it is quite easy to forget the true environmental cost of all the single-use plastics that come with it. Factors like Covid-19 forced consumers to stay indoors and caused an obvious influx in plastic usage. At the end of the day, a significant amount of the plastic ends up in landfills, partly due to uneducated people recycling incorrectly. With this information in mind, recycling must be held at a higher standard, there is simply no other option. Alas, when it comes to the topic of recycling, people disregard it often. Nevertheless, relying solely on recycling is not a comprehensive solution to the problem

of plastic waste. Working people must also clean up and use affordable and sustainable alternatives to plastic. It is essential for individuals to not only engage in recycling efforts but also make an effort to cut off plastic from their lives. Any average person can engage in beach and harbor cleanups occasionally. An example of this is the Surfrider Foundation, which focuses on source reduction (Romer 206). Harbor cleanups are more effective, as they tackle the plastic before they reach the ocean. There are truly so many things an individual can do to assist in the journey of tackling plastic waste. All in all, individuals play a crucial role in reducing the impact of plastic by cleaning up and being mindful of proper recycling practices.

As plastic becomes a more tangible issue to the plain eye, people have been scrambling to find ways to destroy it entirely. There is not a specific way to destroy plastic on a large caliber with no adverse effects. Large scale processes like incineration use fuel oil contribute to climate change with its usage of greenhouse gases (Rustagi et. al). This is a major issue as it highlights the lack of effective and environmentally friendly ways to get rid of plastic. It also emphasizes the urgency to find alternative methods. The death of plastic can be designed by new materials that are durable and degradable. The *Plastic Health Coalition* cautions the reader by pointing out the vicious cycle of natural materials slowly being replaced by plastic. This eventually leads to high usage of plastic and more of its negative side effects. The solution to this issue lies in the development of new materials instead of plastic and also sustainable ways to destroy plastic. Luckily, scientists have found some small-scale methods. According to Xiaojhi Lim from the *New York Times*, there should be more destruction methods using light. His article reports how researcher Adam Feinberg successfully brought the plastic graphic of a t-shirt back to its molecular form with heat and a white light. Lim specified that the molecular form that Feinberg found has incredible building capabilities because of its “synthetic polymers” (Washburn 102). New innovations are key in the process of dealing with plastic’s plague. It is more effective to take the plastic humans have and reshape it to fit the current needs. At this point, the large amount of plastic in the planet needs to just be used for something else. However, this raises the question on what materials can and cannot be reused. Materials that are recyclable must have the ability to be converted into another item, and 60% of the material must be able to be processed through existing infrastructure (Romer 16). One would expect that if machinery can only categorize 60% of materials for recycling, humans should be able to categorize much less efficiently. Unfortunately, this is exactly the case and people who recycle often do it wrong. For example, food containers must have no food particles on them to be properly recycled (Plastic Health Coalition). This is just one example of the somewhat tedious rules when it comes to recycling. These rules add up, and Americans and people in general often ignore them. The term “wish-cycling” refers to individuals who simply toss items in the recycling bin, unbeknownst to the rules (Romer 18). While recycling is a wonderful process in theory, it is often not followed properly by individuals. Wish cycling is a counterproductive process, as it contaminates the actual recycling process and creates extra problems. In the long run, because of this, recycling yields worse results. It is reported that a measly 268 pounds of recyclable material are gathered every year (36). This data proves furthermore that most Americans have no proper knowledge on how to recycle. It is more effective to simply state what people should do. Overall, things like reusing bags, and containers, and having better habits while dealing with plastic are just a few things an individual can do in their daily life.

Plastic pollution has become a critical issue that must be addressed by the public and the government. The adverse health effects caused by plastic have been well documented over the years, and are increasing as time passes. No amount of recycling can cover the amount of plastic waste on the planet. Measures must be taken to reduce the amount of plastic usage and promote the development of new sustainable alternatives. The government of the United States must take into consideration the policies of other countries who are successfully reducing plastic waste. Since the birth of plastic mass production, dangerous chemicals have been seeping into people's bloodstreams and will likely do the same to future generations. Humans consume microplastics like water. Society's obsession with e-commerce has been sending the world's health in a downward spiral. The remnants of single-use plastics like utensils, packaging, containers, bottles, bags, and countless more will continue to haunt the world for centuries to come. It is a necessity for action to be taken with regard to this issue. Self-education on the topic is key in a world where the internet is king. Change can be made to the way plastic is manufactured and distributed, with online protests and petitions. Individuals have a responsibility to protect the environment that they inhabit, and the time to act is now. The future generations depend on it.

Works Cited

Jain, Navami and LaBeaud, Desiree. “How Should US Health Care Lead Global Change in Plastic Waste Disposal?” *AMA Journal of Ethics: Illuminating The Art of Medicine.* vol. 14, no.24, Accessed 10 Nov. 2022. 10.1001./amajethics.2022.986.1801011

Plastic Health Coalition. Plastic Soup Foundation, 2022 www.plasticheathcoalition.org. Accessed 6 Nov. 2022.

Romer, Jennie. Can I Recycle This?: A Guide To Better Recycling, and How To Reduce Single Use Plastics. Penguin Random House 2021.

Rustagi et al. "Public Health Impacts of Plastics: An Overview.” *Indian Journal of Occupational and Environmental Medicine.* vol 15, no.3, 2011. https://www.ncbi.nih.gov/pmc/articles/PMC3299092/. Accessed 16 Nov. 2022.

Washburn, Hanna, editor. *Plastic: Can The Damage be Repaired?* New York Times, 2020.