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PROFIT OVER PRIVATE EQUITY'S GR

By Stan

Life's very nature is transactional, and it is this "something in return" mentality that has given birth to capitalism. Under our economic system, ample time, exploited resources, and cheap labor have enabled organizations to boast wealth on par with the gross domestic product of select countries. To make matters worse, greed, the exaggerated cousin of transactionality, has permitted these very organizations to chase profit in a new industry: healthcare.

Healthcare institutions are differentiated based on whether they are either "private" or "public." Public institutions, funded by their stock, can manipulate their medical practices to produce profit. But while both federal law and government agencies heavily regulate public, investor-owned health institutions, private healthcare is absent from this conversation.

Administrative intervention wasn't considered necessary in the realm of private equity even a decade ago. What was once a haven for physicians or small groups of investors to use their funds to support organizations spreading their practice to more people has malformed into a cesspool of avarice.

Over the past decade, private equity in healthcare has drastically transformed. Acquisitions in private healthcare rose sixfold over a decade, with 484 deals completed in 2021, largely attributed to the vast sums of money that large organizations can splurge on their spending sprees. Simply put, the "original" investors in private equity are simply not able to keep up financially with profit-hungry conglomerates.

And, if not already apparent, these private equity firms are often indifferent to the implications of their acquisitions as long as they guarantee their profit. The Commonwealth Fund characterizes three destructive outcomes following the sudden surge in private equity, all of which are connected by the transformation of healthcare from a service into an asset. One such result leads firms in search of a greater profit to use their newly acquired healthcare institutions as extra collateral to their endless cycle of taking out and repaying loans. Occasionally, acquired healthcare institutions are stripped of their capital resources, leaving private equity firms with full wallets and healthcare institutions scrambling for capital. Moreover, healthcare institutions are

acquired to be prepared for sale, requiring profit maximization at all means necessary: cutting costs, raising prices, increasing the number of services provided, and decreasing quality of care.

Healthcare is undoubtedly a business. The right to life may be a basic human right, but helping people isn't necessarily mutually exclusive to making a profit. Doctors don't spend four years in undergraduate, four years in medical school, and three to seven years in residency out of sheer benevolence. The problem lies not in the commercial nature of healthcare but rather in the commercialization of healthcare. In other words, the purpose of healthcare has lost its meaning: what once was an opportunity to save lives from diseases has become an opportunity to save firms from bankruptcy.

Moreover, trends in private equity have infringed on this very right to life via its deliberate deterioration in the quality of service provided by healthcare institutions. Take emergency services. As an essential and insurance company-free operation, the ER is a lucrative industry for private equity. Forbes estimates that anywhere around 25 to 40% of ERs are staffed by private

ER PATIENTS: TRIP ON HEALTHCARE

Cho '25

equity firms. When confronted by the high-stakes scenarios often correlated to cases in the ER, the medical field has gone from a “we have a limited opportunity to save this patient” to “we have ample opportunity to make money.”

Despite legal attempts to restrict out-of-network billing, private equity continues to ensure its profits in ERs through methods such as over-testing. This isn't merely an issue of monopolization; this is an issue of moral infringement.

The inefficacy of legal intervention of private equity in healthcare stems from the influence held by private equity firms. The first step to unraveling their power is to ensure the transparency of private equity firms. Compelling these firms

to operate in accordance with the law, strengthening disclosure requirements with context, and imposing strict reporting requirements can help monitor private equity firms.

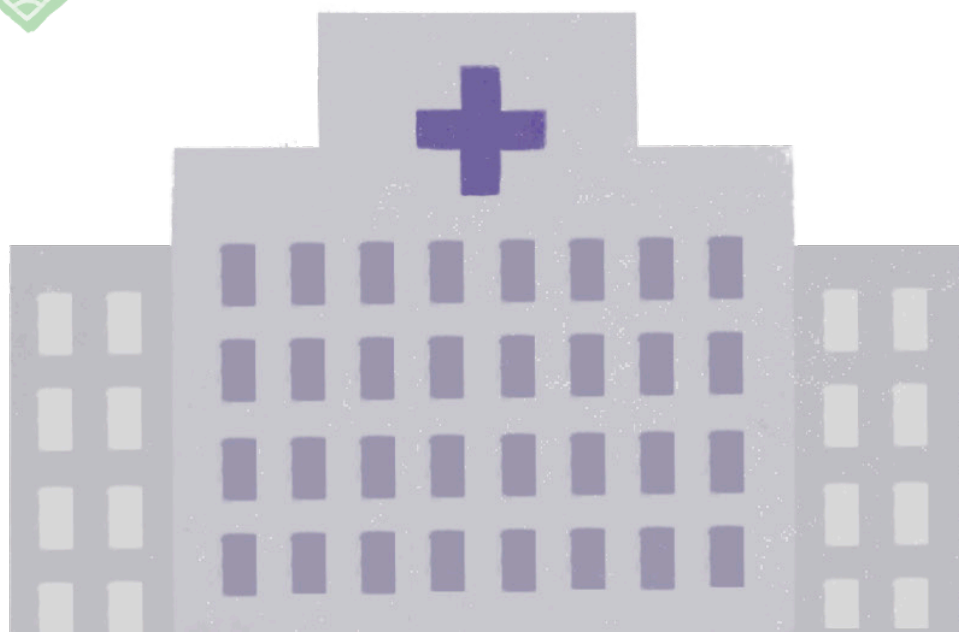
And yet, legalities are only met with loopholes. One potential long-term solution to the grasp that private equity wields on healthcare is a cultural shift. Policymakers must mandate measures to punish those who exploit and transgress to ensure a precedent of penalty is set and to encourage ethical practice. Most important is a return to form, allowing healthcare to assume its inceptive purpose of saving lives instead of cashing in.

It would be remiss to blame private equity for all of the faults in America's deeply flawed insurance

system. Still, it is impossible to neglect the grave impact that private equity has had on medical treatment, and current trends emphasize the desperate need for change.

Sources

1. Pearl R. Private Equity And The Monopolization Of Medical Care. Forbes. Published February 20th, 2023.
2. Medifind. 8 Major Problems with the U.S. Healthcare System Today. MediFind.
3. Blumenthal D. Private Equity's Role in Health Care. Commonwealth Fund. November 17th, 2023.
4. Shmerling R. Is our healthcare system broken? Harvard Medical School. July 13th, 2021.





PESTICIDES: A C

By Sarina Fernand

Gluten-free: this word can elicit a multitude of responses. For most, it is a fad diet or an intolerance, but for 1% of the population, it is more than a diet—it is their life. Celiac disease is an autoimmune disease that affects more than two million individuals in the US alone. It involves an immune reaction to the protein, gluten, which can be found in wheat, rye, and barley, as well as some other foods. If left untreated, repeated reactions can damage the lining of the intestine, limiting nutrient absorption and causing many additional symptoms. Luckily, celiac can be entirely resolved with a gluten-free diet.

While gluten-free diets are praised for being “healthy,” it is actually much more healthy to eat gluten and the whole grains that come with foods containing wheat, barley, rye, etc. A gluten-free diet is only healthy, then, if medically necessary, and individuals with celiac disease must be mindful to not only avoid gluten but also to maintain a good balance of all major food groups. Given the overlap of symptoms of Celiac disease with many oth-

er autoimmune diseases, it can be challenging to distinguish between them, and blood tests and other panels are required to make specific diagnoses. As a result, without widespread education on celiac and the many other types of autoimmune diseases, a lot of celiac cases are swept under the rug. This is seen in an almost 83% combined misdiagnosed and undiagnosed rate of celiac disease today.¹

Throughout history, celiac has been thought to be caused almost entirely by genetics. Two genetic variants in particular cause celiac disease: HLA-DQ2 and HLA-DQ8. Yet despite 30% of the population exhibiting these gene variants, only 3% have celiac.² However, today, it is known that genes aren’t the only cause of celiac disease or gluten sensitivity. Environmental factors can play a significant role as well. A study conducted by New York University’s Grossman School of Medicine found shocking results relating an increase in pesticides containing dichlorodiphenyl-dichloroethylene (DDE), to increased rates of gluten intolerance and celiac disease: Young

adults and children with high levels of these pesticides in their blood were twice as likely to be diagnosed with celiac disease or non-celiac gluten sensitivities.³ There were notable gender differences as well. Women were more likely to get celiac disease or non-celiac gluten intolerances from high levels of pesticides, with elevated blood levels increasing the likelihood of celiac disease/gluten intolerance by eight times.³ Furthermore, Perfluoroalkyls (PFAs) which can be found in nonstick products like Teflon, caused a 5-9 times higher likelihood of celiac disease in women, according to the study.³ Men are more affected by elevated levels of fire-retardant chemicals in their blood. Polybrominated diphenyl ethers (PBDEs) double the likelihood of celiac disease in men.³ Jeremiah Levine, MD, a pediatric gastroenterologist at NYU Langone, and an investigator on the NYU study said “Our study establishes the first measurable tie-in between environmental exposure to toxic chemicals and celiac disease.”⁴ This study marks an important change in the study of pesticides

ELIAC CULPRIT?

dez-Grinshpun '25

and disease. Until now, pesticides have been closely linked with diseases such as cancer, but not to gastrointestinal diseases. As one of the first environmental factors to be distinctly linked with celiac disease, the increase in pesticides could hint at why the rates of celiac disease have been increasing over the last century.

In addition to increasing the likelihood of having celiac disease, pesticides can also cause celiac/wheat intolerance-like symptoms. This can further be attributed to the increased perceived occurrence of celiac disease as well as wheat and gluten intolerances. ATI's, or amylase triptin inhibitors, which are found within wheat plants, act as a natural pesticide and have been shown to cause colon inflammation.⁵ Scientists are currently researching whether they can cause other gastrointestinal issues, including wheat sensitivities. Similarly glyphosate, a pesticide frequently used on wheat crops, can cause symptoms very similar to celiac, which can explain why people who might not be genetically

predisposed to celiac can get gastrointestinal issues from consuming wheat products.⁵

Pesticides play a much larger role than initially predicted by scientists in the development and risk for autoimmune diseases, specifically celiac. Considering that all of the chemicals mentioned (DDEs, PFAs, and PBDEs) are known for being hormone disruptors, it is not a reach to assume that they would also impact the immune system. The recent NYU study confirms this potentially causal, yet present relationship between pesticides/chemicals and celiac disease in addition to non-celiac gluten intolerances. This relationship is a likely contributor to the recent increase in celiac disease prevalence. Although not as devastating as the other diseases caused by pesticides, the additional occurrence of autoimmune diseases due to pesticides is most definitely something that needs to be weighed when considering increased pesticide use or the purchase of organic produce.

Graphic by Melody Qian '24

Sources

1. Celiac disease. (n.d.). Mayo Clinic. Retrieved January 26, 2024, from <https://www.mayoclinic.org/diseases-conditions/celiac-disease/symptoms-causes/syc-20352220>.
2. Richards, L. (2024, January 22). Is celiac disease hereditary? Medical News Today. Retrieved January 26, 2024, from <https://www.medicalnewstoday.com/articles/is-celiac-disease-hereditary>.
3. NYU Langone Health / NYU School of Medicine. (2020, May 12). Celiac disease linked to common chemical pollutants. ScienceDaily. Retrieved January 24, 2024 from www.sciencedaily.com/releases/2020/05/200512134512.htm.
4. Burkhart, A. (n.d.). Pesticides In Wheat: Their Connection To Gluten Sensitivity. The Celiac MD. Retrieved January 26, 2024, from <https://theceliacmd.com/pesticides-in-wheat-gluten-sensitivity/>.
5. Zerbe, L. (2021, February 11). Is It Wheat the Problem? Or Is It Pesticides? A Surprising Factor in Celiac Disease. Thomas Volck. Retrieved January 26, 2024, from <https://www.drthomasvolck.com/post/pesticides-in-wheat>.



THE POST-PANDEMIC COVID-19'S IMPACT ON

By Eliana

As the COVID-19 pandemic gradually subsides, lasting impacts on the elderly community in America emerge. "I've been struggling a lot," says Mary Cole, an elderly woman living in Bristol, Virginia. Today, more than 8 million senior citizens in America are relying on scarce resources to make ends meet. Approximately one-third of senior citizens grapple with economic instability and have incomes below 200% of the Federal Poverty Level (\$14,580 per year for a single person in 2023).

During the initial stages of the COVID-19 pandemic, poverty rates temporarily declined due to stimulus payments. However, these benefits were scaled

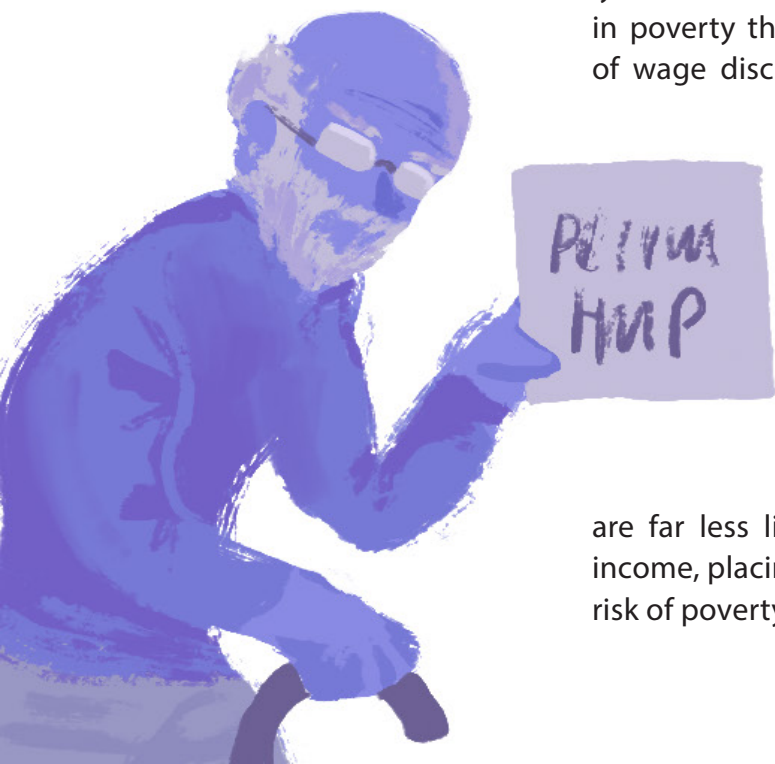
down after the conclusion of the public health emergency. As those payments and benefit increases ended, inflation rose exponentially, leading to a notable spike in poverty rates among senior citizens. In comparison to several other countries, including Canada, France, and Australia, senior citizens in the United States have suffered the most economically from the COVID-19 pandemic, whether it is by losing their jobs or using up their savings. Challenges such as unaffordable housing, health conditions, and the loss of a spouse further contribute to socioeconomic challenges for senior citizens. Furthermore, elderly women are more likely to live in poverty than men as a result of wage discrimination and the

need to take time out of the workforce for caregiving responsibilities. Elderly people of color are also less likely to receive private retirement benefits and

are far less likely to have asset income, placing them at a higher risk of poverty.

Enrolling more people in existing retirement programs could have a significant impact on this issue. As of 2023, over \$44 trillion has been set aside to assist senior citizens facing various needs. Social Security alone lifted 20 million people over age 65 above the poverty level last year, according to census data. Supplemental Nutrition Assistance Program (SNAP), housing subsidies, and Supplemental Security Income (S.S.I.) prevented another 1.6 million seniors from sinking into poverty. Medicare Saving Programs, federally funded programs to help cover Medicare premiums, have also helped over 64 million Americans. Programs including Reverse Mortgage Program and Social Security Disability Insurance have also provided additional support.

However, "this increase [in poverty rates] shines a glaring spotlight on the fact that Social Security and Medicare, the bedrock of retirement security for so many, are not sufficient to lift all older adults above poverty," said Ramsey Alwin, president and CEO of the National Council on Aging. "For seniors, there [also] tends to be a lot of stigma, and unfortunately that stands in the way of people seeking help," said Josh



ACADEMIC WORLD: ON SENIOR CITIZENS

Ma Li '26

Protas, vice president of public policy at AMAZON. “They may think [that these resources are] not for them but for someone else who’s more in need,” continued Alwin. Less than half of eligible seniors are enrolled in these various programs, leaving approximately \$30 billion worth of food stamps, a key resource that covers essential needs including food and medicine, unclaimed every year.

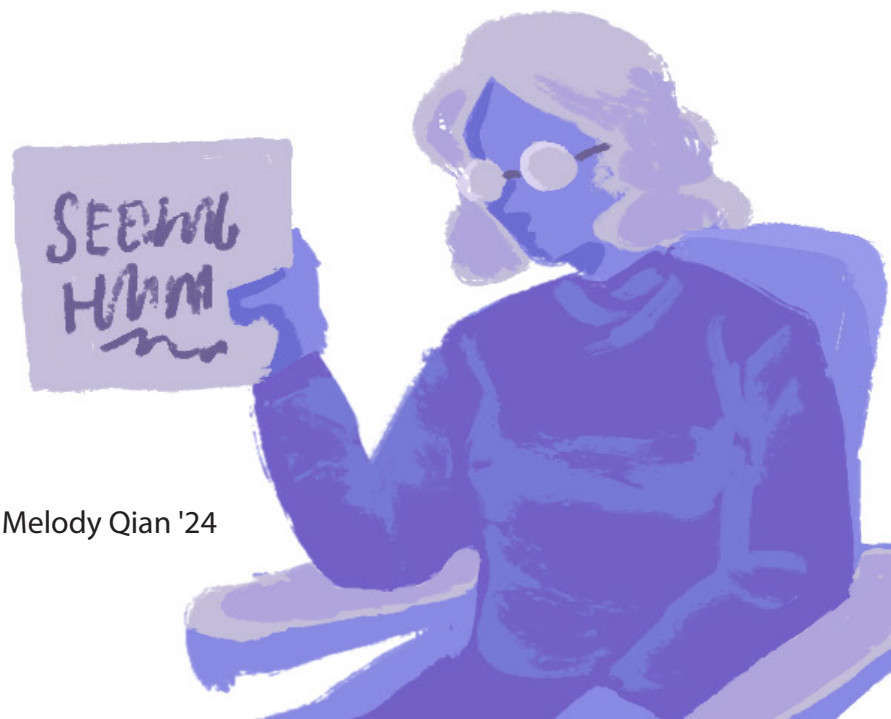
The Elder Index, which measures senior citizens’ cost of living, also shows that it costs about \$1,000 more for a senior citizen to afford daily costs than the average Social Security retirement benefit, which is \$1,670 per month. Economists and advocates have proposed several solutions to this problem, including raising the minimum Social Security benefit, increasing Social Security payments for those age 85 and older, and improving S.S.I. benefits for older adults and people with disabilities.

The aftermath of the COVID-19 pandemic has unveiled a new reality for the elderly communities in America. As we transition beyond the pandemic, society must recognize and address these struggles. What follows should be

a collective effort to aid senior citizens, particularly with the various financial resources already available to them.

Sources

1. Newman K. (2019, May 24). Retirement should not mean hardship – but many older Americans live in poverty. The Guardian; The Guardian. <https://www.theguardian.com/us-news/2019/may/24/elder-poverty-america-hardship-retirement-economics>.
2. The National Council on Aging. (2024). Ncoa.org. <https://www.ncoa.org/article/get-the-facts-on-economic-security-for-seniors>.
3. SENIOR POVERTY - Justice in Aging. (2023, July 12). Justice in Aging. <https://justiceinaging.org/get-involved/senior-poverty/>.
4. “Close to the Line”: Why More Seniors Are Living in Poverty. (2024). The New York Times. <https://www.nytimes.com/2023/09/30/health/seniors-poverty-social-security.html>
5. The Impact of COVID-19 on Older Adults. (2021). Common-wealthfund.org. <https://doi.org/10.26099/mqsp-1695>.



Graphic by Melody Qian '24

ROE V. WADE & THE ABORTION PILL

By Kara Wang '24

In the wake of the Supreme Court decision to overturn *Roe v. Wade* on June 24, 2022, the United States has witnessed a rise in the purchase of abortion pills across various states.¹ Now the question remains: How will state and federal legislation respond to this increase in abortion pill purchases? What are the implications of this growing demand for abortion pills on demographic disparities?

To understand the responses to these questions in regards to the rise in abortion pills, it is imperative to understand why the demand for abortion pills has increased in the first place. According to a research letter published by JAMA internal medicine, abortion medication providers, specifically the telemedicine provider Aid Access, saw a ten-fold spike in requests in May 2022.² This surge in demand notably coincided with the leak of a document suggesting the imminent overturning of *Roe v. Wade*, prior to the Supreme Court's formal decision. The spike in abortion pill purchases was largely driven by a widespread sentiment among fearful women to "ensure personal health and choice" in

"preparation for possible abortion restrictions" Following the June 24th decision, this precautionary action led to tens of thousands, including non-pregnant women, purchasing abortion pills for future protection.

In regards to abortion through medication, there are two specific pills most commonly used: mifepristone and misoprostol. Mifepristone is the first pill prescribed, and it blocks the secretion and production of the progesterone hormone necessary for pregnancy.³ Misoprostol, taken 24-48 hours later, induces cramping and bleeding to empty the uterus.³ The Federal Drug Administration (FDA) has sanctioned and supported the use of these pills up to ten weeks into pregnancy. Since December 2021, the FDA has also expanded access to include mail delivery and pharmacy purchases.⁴

However, following the overturning of *Roe v. Wade* and the corresponding increase in abortion medication purchase, policy conflicts have emerged, targeting FDA approval of mifepristone. Restrictions were placed on medical pill abortions in various states, eventually bringing the legal bat-

tle to the U.S. supreme court.³ For instance, 32 states mandate that only physicians can administer abortion medication, despite other medical professionals being qualified to manage abortion care.⁴ The limited accessibility of abortion is furthered by the shortening of the time period in which it is legal to take the pill, prohibition of telemedicine, and required trips to the clinic.⁴ In response to this, on April 21, 2023, the Supreme Court preserved the broad availability of mifepristone but paused FDA efforts to enhance access to the medication.³

The rise in abortion pills is also paralleled with an increasing demographic disparity in health care. Data from JAMA collected in September 2021 through to April 2023 reveals that the majority of women requesting for abortion pills were white and childless, living in neighborhoods with lower poverty rates than the national average.¹ Furthermore, the specific orders that were being made were advanced provision requests, where an individual is able to order abortion pills before they get pregnant as a "safety" that can be obtained immediately if needed in the future.¹ This

trend demonstrates a disparity where the poor, and many people of color, are unable to access these pills.⁵ Furthermore, it indicates how lower income communities might be less-aware of the different medicinal options for abortion, one of them being advanced provisions.⁵

In the end, the rise in demand for abortion pills following the overturning of *Roe v. Wade* was an almost inevitable outcome. This trend, prompted by the precautions of women in securing some semblance of control over their bodies in the future, has led to the continued legal battle over abortion—one that simultaneously reveals the hidden aspect of health-care disparities in the process.

Sources

1. Belluck, P. (2024, January 2). More women who are not pregnant are ordering abortion pills just in case. *The New York Times*. <https://www.nytimes.com/2024/01/02/health/abortion-pills-advanced-provision.html>.

2. Robledo, A. (2024, January 3). *Scotus' leaked Roe v. Wade opinion led to near tenfold increase in abortion pill demand, study shows*. USA Today. <https://www.usatoday.com/story/news/health/2024/01/02/abortion-pills-mifepristone-order-increase/72088237007/>.

3. Lee, C. (2023, April 21). The fight over the abortion pill mifepristone and the financial impact of Abortion Access. *Public Broad-*

casting Service. <https://www.pbs.org/wgbh/frontline/article/abortion-pill-mifepristone-financial-impact/>.

4. Jones, R. K., Guttmacher Institute, Nash, E., Cross, L., Philbin, J., & Kirstein, M. (2023, September 12). Medication abortion now accounts for more than half of all US abortions. *Guttmacher Insti-*

tute. <https://www.guttmacher.org/article/2022/02/medication-abortion-now-accounts-more-half-all-us-abortions>.

5. Alfonseca, K., & DiMartino, J. (2022, June 24). *ABC News Network*. <https://abcnews.go.com/Health/abortion-restrictions-disproportionately-impact-people-color/story?id=84467809.w>



Graphic by Evelyn Kim '25

DOGGY FLU NEW THREAT ON

By Deyi M

You wake up one morning, and find that familiar ball of fluffiness next to you, yet something is off. Your best companion is tired, sick, and refuses to eat any food. The recent spike of Canine Infectious Respiratory Disease Complex (CIRDC) in the United States is reminding the public that dogs are not exempt from diseases.

Respiratory illnesses in dogs are not novel; illnesses such as kennel cough are quite common, but the latest disease falls upon the severe side of the spectrum of kennel cough symptoms. Common symptoms include coughing, fever, lethargy, and a loss of appetite which can lead to pneumonia, and even death. The recovery period increased from one to three weeks to six weeks or more with this new canine disease. Furthermore, many dogs are unresponsive to antibiotics for treatment, and many have tested negative for the pathogens that commonly cause kennel cough.

Despite the severity of the issue, it is unclear how widespread or serious the problem is in the U.S. currently. Even though there have been hundreds of cases across more than a dozen of states, there is no harmonized system for veterinarians to report cases of CIRDC,

and no official case count; in fact, the American Veterinary Medical Association (AVMA) has stopped providing a list of affected states. In an effort to combat this recent disease, many places have kept well-organized documentation of the illness, such as Oregon's Department of Agriculture, which has logged more than 200 cases since August of 2023. Trupanion, an insurance company, has noted that canine respiratory-related claims in Colorado spiked in August 2023 at 132. On a more positive note, Dr. Scott Weese, an infectious diseases veterinarian at the University of Guelph in Ontario, said, "I don't think there's a huge North America-wide outbreak. We've got some areas where we've seen spikes" (Anthes, 2023).

The cause of the recent illness is still unknown, yet a variety of theories were proposed. There is the possibility of the emergence of a new pathogen. Scientists at the University of New Hampshire

have recently discovered a new bacterium present in sick dogs, which is absent in healthy dogs and stored tissue samples of dogs from five years ago. "The data keeps building slowly toward me really feeling that this is something new" (Anthes, 2023), Dr. Needle, a senior veterinary pathologist at the New Hampshire Veterinary Diagnostic Laboratory of the University of New Hampshire said, who was part of the research team. "And that it is certainly associated with some proportion of what could be called atypical canine infectious respiratory disease complex" (Anthes, 2023). However, not all sick dogs



U MYSTERY: R OLD TRICKS?

Meng '26

were found to carry this bacterium, and the function of this particular bacterium is rather ambiguous. “The current disease patterns don’t really fit with emergence of a new highly transmissible pathogen” (Nolen, 2023), Dr. Weese says.

Another possible reason is the period of isolation during the Covid-19 pandemic. While humans quarantined, so did their pets. This led to a decrease in interaction between animals, which could have reduced immunity. Furthermore, with less socialization and difficulty scheduling veterinary appointments, owners were less likely to vaccinate their dogs. As such, it is

quite possible that this recent disease is just a surge in the common illnesses we see in dogs, such as kennel cough. Although many dogs recently have tested negative for the pathogens of kennel cough, it is important to note that oftentimes testing occurs only after symptoms are severe; by that time the virus may no longer be detectable.

As for owners who have been noticing these symptoms in their dogs recently, there is no need to panic. However, it is necessary to remain vigilant if these symptoms worsen, or if the dog is old, very young, short-nosed, flat-faced, or pregnant, a visit to the vet is recommended. Questions have also been raised about the zoonotic potential of this disease. AVMA President Rena Carlson says, “In general, the risk of people getting sick from dogs with canine infectious respiratory disease is extremely low. However, because we don’t know yet exactly what agent

or agents is or are causing the current outbreak, it’s a good idea to thoroughly wash your hands after handling your or other dogs” (Nolen, 2023). Lastly, keeping up with vaccinations is essential to maintaining overall health by boosting immunity; an annual vaccine against Bordetella, a canine adenovirus type 2 vaccine, and a canine parainfluenza vaccine are all recommended.

Sources

1. Anthes, E. (2023, November 22). 'Mystery' dog illness may not be a mystery at all, experts say. The New York Times. <https://www.nytimes.com/article/dog-respiratory-illness.html>
2. Canine COVID? New mysterious respiratory illness in dogs. (2024, January 2). News4Jax. Retrieved January 26, 2024, from <https://www.news4jax.com/news/local/2024/01/02/canine-covid-new-mysterious-respiratory-illness-in-dogs/>
3. Nolen, S. R. (2023, December 7). Making sense of the mystery illness found across the US. American Veterinary Medical Association. Retrieved January 26, 2024, from <https://www.avma.org/news/making-sense-mystery-illness-found-across-us>



Graphics by Xyla Kiang '26

NOURISHING FOOD, MOOD, AND M

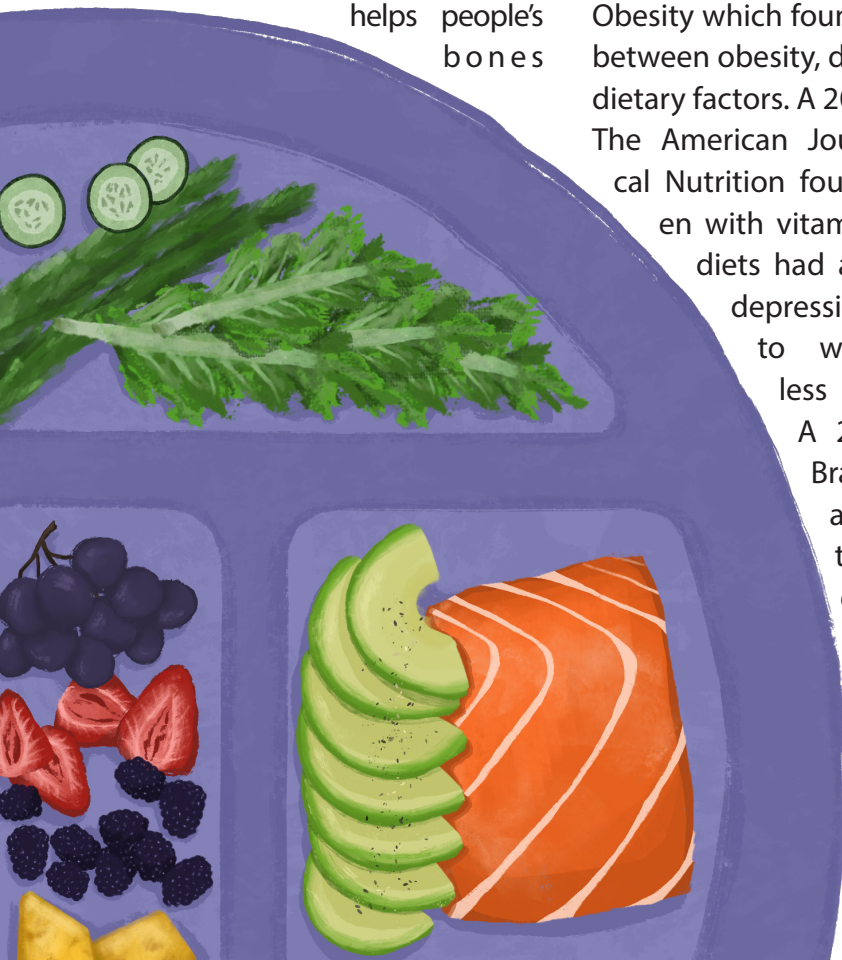
By Sophie

Have you ever wondered if the food you eat goes deeper than just physical health? If you have ever been down and couldn't stop yourself from finishing the ice cream tub, or if you have ever felt "hangry", then you probably have a feeling that food and mood could be interlinked. The food each person eats has different health benefits and is packed with an assortment of nutrients. Some general knowledge surrounding the nutrients in food include: carbohydrates give people energy, vegetables have many vitamins, and milk helps people's bones

grow. However, the food one eats can affect them not only physically but also emotionally.

There have been many studies and papers published on the question of whether or not food has a direct impact on our emotions, yet, none have yielded conclusive results. We can only put together evidence from multiple studies to support the claim that food does have a direct effect on one's mood. One study discussing the topic of food and mood is the 2005 study from the International Journal of Obesity which found associations between obesity, depression, and dietary factors. A 2011 study from The American Journal of Clinical Nutrition found that women with vitamin D-enriched diets had a lower risk of depression compared to women eating less vitamin D. A 2014 study in Brain, Behavior, and Immunity suggested diets consisting of large quantities of red meat, sugar-rich soft drinks,

and refined grains were associated with depression. A 2018 meta-analysis published in the European Journal of Nutrition similarly suggested that people with high red meat consumption could be associated with the risk of depression. Finally, a Motivations for Food Choices questionnaire distributed by the National Institute of Health used linear regression to find the associations between emotional eating behavior and emotional conditions.⁷ BMC Public Health performed a study on first-year college students using mobile ecological momentary assessments to find that the students who were eating more protein reported having more positive emotions while students eating sweets reported having no positive emotions.⁵ Another study conducted by the Research Ethics, Research, and Biosafety Committees of the Centro Universitario de Ciencias de la Salud, Universidad de Guadalajara focused on the emotional eating of people who weren't obese. The study compared obese adults from Spain and physically healthy university students. The results showed that the relatively sedentary adults had a higher BMI and



Graphic by Leah Han '27

THE MIND: MENTAL WELL-BEING

Chung '27

were more emotional eaters. It was also found that a higher percentage of these obese emotional eater adults were women. Overall, all of these studies, analyses, and more reinforce the original claim that the food and nutrients one ingests influence our emotions and mood.

While there is an astounding number of studies and evidence to support the idea that food has a direct impact on mood, the food one eats is not an independent factor of these mood swings. Lifestyle and environmental variables can also play a major role in a person's change of emotion. The risk of depression and other mental disorders can not be independently impacted by one's diet. This is often a combination of genetics and environmental factors. Just as food can not impact one's susceptibility to developing depression independently, environmental and genetic factors can not impact it either. Lifestyle choices such as smoking, physical activity, and dietary choices can again, affect our risk for depression but not independently. So, we must not forget that neither genetics and environmental factors nor diet

can solely affect our mood despite the numerous studies performed. The food each person eats can only affect their mood and emotion so much and neither variable can have consequences on one's susceptibility to mental disorders and mood swings, so each individual must still be cautious with what they eat, remembering that while neither can solely influence mood, the food we eat still has a significant impact.

Sources

1. Food and mood: Is there a connection? (2021, February 15). Harvard Health Publishing. Retrieved January 20, 2024, from <https://www.health.harvard.edu/mind-and-mood/food-and-mood-is-there-a-connection>.
2. Food and mood project. (2023, July 19). SAMHSA.gov. Retrieved January 20, 2024, from <https://www.samhsa.gov/about-us/who-we-are/regional-offices/food-and-mood>.
3. American Heart Association Editorial Staff. (2023, December 8). Food and mood. Heart.org. Retrieved January 20, 2024, from <https://www.heart.org/en/healthy-living/healthy-lifestyle/>

[mental-health-and-wellbeing/food-and-mood](#).

4. Ljubičić, M. (2023, February 17). Emotions and Food Consumption: Emotional Eating Behavior in a European Population. National Library of Medicine. Retrieved January 20, 2024, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9957014/>.
5. Ashurst, J. (2018, May 2). The Association among Emotions and Food Choices in First-Year College Students Using mobile-Ecological Momentary Assessments. BMC Public Health. Retrieved January 20, 2024, from <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-5447-0>.
6. Canetti, L. (2002, December). Food and emotion. Science Direct. Retrieved January 20, 2024, from <https://www.sciencedirect.com/science/article/abs/pii/S0376635702000827>.
7. Betancourt-Núñez, A. (2022, March 25). Emotional Eating and Dietary Patterns: Reflecting Food Choices in People with and without Abdominal Obesity. National Library of Medicine. Retrieved January 20, 2024, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9002960/>.

FROM DIABE THE OZEMP

By Kay

What could Elon Musk, Oprah Winfrey, and nine million other people across the globe possibly have in common? At first glance, this seemingly eclectic group appears worlds apart — a tech mogul, a media icon, and millions of individuals from diverse backgrounds. Yet, they all find a common thread in their engagement with a groundbreaking drug known as Ozempic.

Approved by the Food and Drug Administration (FDA) in 2017, Ozempic was initially developed to treat type two diabetes. It operates by imitating the body's natural digestive process. When humans eat, numerous hormones are released — namely, GLP-1. With an active ingredient known as semaglutide, Ozempic mimics the GLP-1 hormone that's released in the gastrointestinal tract in response to eating. In the pancreas, GLP-1 receptors promote insulin production, which lowers blood sugar levels and glucagon. This aspect of the digestive process is especially important for diabetes patients whose bodies are insulin resistant, and therefore struggle with producing their own insulin. In the stomach, GLP-1 receptors slow gastric emptying, correlating to a longer sensation of fullness. The brain also plays a significant role, as the

hypothalamus suppresses hunger cravings. Hence, the culmination of a wide variety of bodily functions is key to Ozempic's success as a diabetes treatment.

According to the National Institutes of Health, around 42 percent of adults in the U.S suffer from obesity. Furthermore, the Centers for Disease Control and Prevention lists type two diabetes as one of the many health risks associated with obesity. A key distinction to make is that not everyone with type two diabetes is considered obese — but the two are quite closely linked. Even still, doctors recommend patients with diabetes to manage the condition with weight loss. But how did Ozempic go from being a form of diabetes treatment to a blockbuster diet drug?

In 2021, the approach to weight management was dramatically altered when the FDA approved semaglutide to be prescribed at higher doses for weight loss purposes. Ozempic's popularity helped GLP-1 based medications go mainstream, propelling them towards a future of weight management as a sole purpose..

Unfortunately, this surge in popularity has effectively limited the drug's accessibility to patients

in dire need. Without insurance, Ozempic can cost around \$892, and an alternate brand known as Wegovy, can cost up to \$1,300 for a month's supply. Endocrinologist and director of obesity medicine at Northwestern Dr. Disha Narang quotes, "[...] the rise in people using Ozempic off-label may be exacerbating the shortage", after witnessing that patients suffering from obesity and diabetes are struggling to access the drug.

In terms of side effects, Ozempic patients have reported nausea, dehydration, fatigue, malaise, change in bowel movements, and worse. A clinical associate professor Dr. Andrew Kraftson said, "It can be so bad that people go to the E.R. It's no joke. Patients should be monitored while taking these drugs." Experts warn that Ozempic may even cause an increase in the risk of pancreatitis. Above all, malnourishment becomes the greatest health threat. Nonetheless, these risks fail to stop celebrities like Musk and Winfrey from endorsing Ozempic, contributing to its widespread popularity and interest among the general public.

Such negative reviews beg the question of whether or not Ozempic is actually dangerous — and the answer isn't exactly clear cut. The

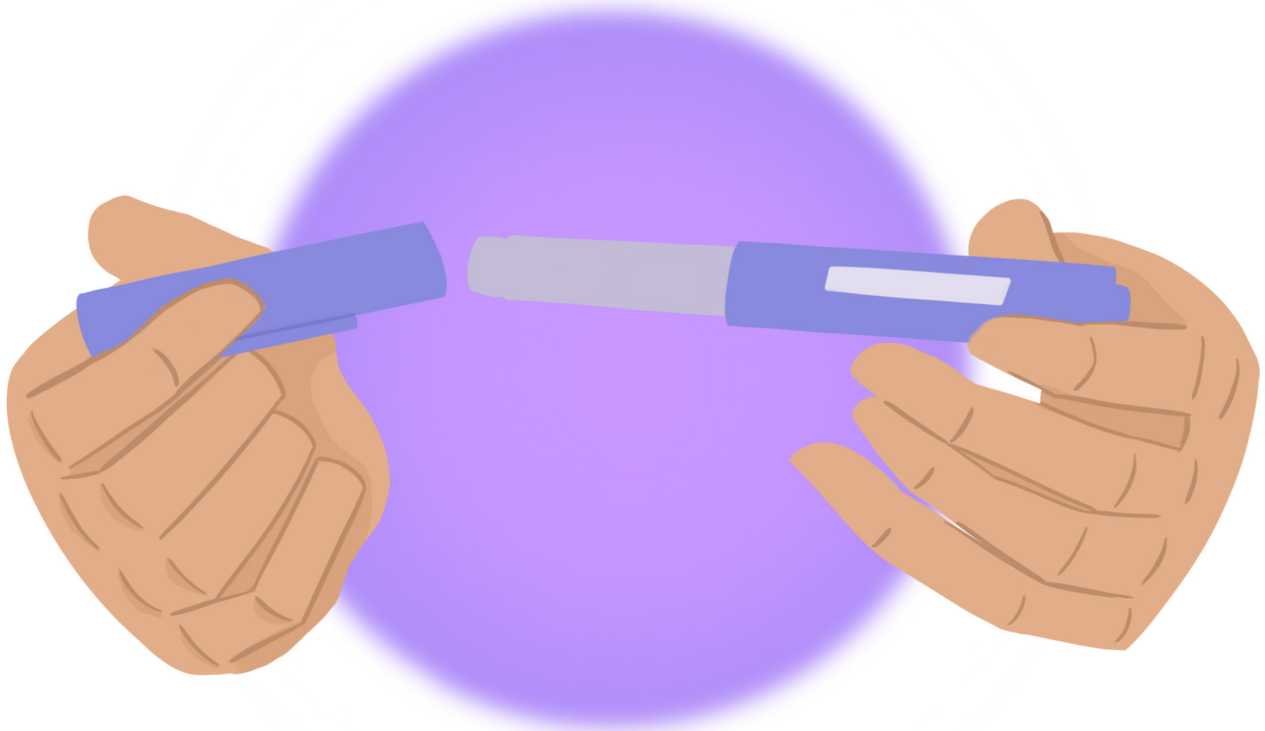
TES TO DIET: IC EPIDEMIC

Lee '25

mixed opinions prompt for important discussions surrounding Ozempic's safety, but the complexity of the issue lies in the lack of comprehensive evidence of individuals taking the drug off-label. The lack of data limits the ability of medical professionals to make definitive claims about the broader implications of using Ozempic for weight loss. In exploring the uncharted territories of Ozempic, emphasizing a cautious approach and informed decision-making is absolutely crucial to minimize possible health hazards.

Sources

1. Blum, D. (2022, November 22). What Is Ozempic and Why Is It Getting So Much Attention? The New York Times. Retrieved January 26, 2024, from <https://www.nytimes.com/2022/11/22/well/ozempic-diabetes-weight-loss.html>.
2. Cody Stanford, F., & Bajaj, S. (2023, November 8). Ozempic Can't Fix America's Obesity Crisis. Time. Retrieved January 26, 2024, from <https://time.com/6332910/ozempic-americas-obesity-crisis/>.
3. Medications Containing Semaglutide Marketed for Type 2 Diabetes or Weight Loss. (2024, January 10). Food and Drug Administration. Retrieved January 26, 2024, from <https://www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/medications-containing-semaglutide-marketed-type-2-diabetes-or-weight-loss>.
4. Vox. (2023, March 14). Ozempic is a game-changer. Here's how it works. [Video]. YouTube. <https://www.youtube.com/watch?v=laPaezEstel>.



Graphic by David Glover-Barr '25

NANOPLASTICS IN BOTTLED WATER

By Alia Rasheed '25

On average, a person in the United States may accumulate an estimated 90,000 particles of microplastics per year just from regularly drinking plastic bottled water (Massive Number, 2024). Even more concerning, modern research shows no escape from harmful micro or nanoplastics within bottled water. Sherri Mason, the director of sustainability at Penn State Behrend, was involved in a 2018 study that found that in 11 different bottled water brands in nine different countries, remnants of micro and nanoplastics were present in 93% of the samples collected (LaMotte, 2024).

Nanoplastics inside plastic water bottles are not new. In fact, these plastics were just as harmful as they were when they first came out in the 1950s, but the methods to detect these contaminants have been improved to increase public awareness on this topic. Present-day technologies such as double-shot pyrolysis collect samples from filters and create chromatograms where the content breakdown of the number of microplastics in a sample can be seen. This assists scientists in their analysis of the concentration of plastic particles that have entered the human bloodstream via water bottles and other processes

(Massive Number, 2024). Another form of identifying nanoparticles in bottled water is the Raman spectroscopy method, which utilizes laser technology to collect the chemical makeup of cells by measuring how molecules move in response to light (LaMotte, 2024). These methodologies have been used to conduct research on plastic bottles made out of polyethylene terephthalate (PET), showing a quantifiable increase in PET plastics after repeatedly subjecting a bottle to heat, opening or closing of the cap, or crushing of the bottle (LaMotte, 2024). With the development of modern technologies in identifying these harmful particles, the corresponding growth of research in this area has revealed an association between nanoplastics and internal risks such as cancer, inflammation, type 2 diabetes, and heart disease (Massive Number, 2024).

Some solutions to the problem of nanoplastic consumption can be quite simple. Contrary to popular belief, tap water from public water systems is safe to drink and can be a solution for many worried about dangerous exposure to nanoplastics found in plastic water bottles (Cleveland Clinic, 2023). To

alleviate these concerns about tap water, there are many procedures that can be taken to ensure the tap water is safe for drinking. For starters, home water testing kits are available online for purchase to find out the initial baseline results for tap water. Other steps to decrease contaminants in tap water include boiling water for at least one minute, using glass and stainless steel bottles, and regular cleanings of the aeration screen of the faucet for tap water that captures dangerous debris (Cleveland Clinic, 2023). Numerous scientific studies have revealed that tap water contains lower microplastic levels than bottled water, leading scientists to hypothesize that tap water has fewer nanoplastic levels than bottled water as well (LaMotte, 2024). Currently, scientists are conducting more research about the detrimental effects of nanoplastics on human health and their link to plastic water bottles. With each new finding and technological development, the correlation between health hazards and bottled water increases, turning tap water into a promising answer to bodily buildup of microplastics.



COMBATING MATE

By Erin

Maternal mortality is defined as the number of deaths due to complications before, during, and after a pregnancy.⁷ According to Dr. Jamie Daw, assistant professor of Health Policy and Management at Columbia University, "The postpartum period has long been overlooked and we understand very little about, and have taken very little action, to address the social and medical needs of mothers after birth."² Because of the lack of understanding and research into postpartum care, the maternal mortality rates have doubled in the last two decades, especially affecting areas with scarce resources and poor health care systems. Another aspect of pregnancy that is overlooked is that mothers can be emotionally affected during pregnancy. According to the World Health Organization (WHO), "10% of pregnant women and 13% of women who have just given birth experience a mental disorder, primarily depression."⁶

According to the National Center for Biotechnology Information (NCBI), the prevalence of postpartum depression in mothers in the United States is 17% and prenatal depression can be as high as 40%. Depression rates during pregnancy have been reported to be as high as 7.4% in the first trimester, 12.0-12.8% in the second and third trimesters, and even higher rates in the first year after giving birth. NCBI also claims that clinical depression is most common in mothers who have experienced depression prior to their preg-

nancy or even with family members who have experienced depression. The New York Times says that the the risk of suicidal behavior is three times higher for sisters with perinatal depression. In some cases, clinical postpartum depression can be just another emotional symptom to pregnancy but in some cases, the clinical depression can lead to suicide and substance use. A study published by JAMA Network Open found that women with perinatal depression have a higher risk of suicidal behavior than any other women. This behavior can be classified as attempted or completed suicide. Another study published by The BMJ discovered that women with perinatal depression were over six times more at risk of committing suicide to those without perinatal depression. The number of suicides was small to the total population of pregnant mothers, but was significant among the women who were diagnosed with perinatal depression. The study showed that 149 out of 522 (28.5%) women with perinatal depression committed suicide. These suicides have increased over the past few years and have contributed to the total maternal mortality rate. Not only have suicide rates contributed to the total maternal mortality rates but also physical issues that a postpartum mother faces.

Professor Pascale Allotey, the director of sexual and reproductive health and research at the WHO, stated, "Many postpartum conditions cause considerable suffering in wom-

en's daily life long after birth, both emotionally and physically, and yet they are largely underappreciated, underrecognized, and underreported." Throughout a woman's pregnancy, they deserve to have affordable and accessible health care services. According to WebMd, over 5.6 million women in the United States don't have access to birthing hospitals and don't have access to resources for postpartum treatment. As a result, many of these mothers experience health complications during and before their pregnancy. In fact, pain during sex (35%), low back pain (32%), anal incontinence (19%), urinary incontinence (8-31%), anxiety (9-24%), depression (11-17%), perineal pain (11%), fear of childbirth (6-15%) and secondary infertility (11%) were all complications that were found in mothers within six weeks of birthing a child.⁴ Many of these mothers going through complications affect-



ERNAL MORTALITY

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ing their pregnancy are located in low or middle-income countries, where high-quality health care and support are not able to treat 40% of 32 pregnancy conditions. Perinatal mothers deserve to have access to safe environments with high-quality health care available, as well as access to nutritious food throughout their pregnancy. Most mothers are not able to reach this type of lifestyle and treatment due to scarce resources and not being able to afford healthcare. This then leads to a harder postpartum journey for the mother where they can experience health symptoms that can be as small as a headache to more serious symptoms that lead to death.

The lack of attention to maternal mortality globally explains why 121 out of 185 countries' maternal mortality rates have failed to progress over the past two decades. The lack of attention in this field has affected over 5.6 million

women worldwide and 350,000 births in the United States. Many people tend to overlook the side effects of a woman's pregnancy because of the attention drawn to the actual birth of the child. The neglectance of perinatal care can be both emotional and physical but either way, it has been noted that both effects have had significant tolls on maternal mortality rates. Whether it's therapy or regular doctor visits, pregnant women deserve to have accessible health care to ensure a healthy pregnancy journey.

Sources

1. Belluck, P. Women with depression during or after pregnancy face greater suicide risk, even years later. The New York Times. Published January, 2024. Retrieved January 23, 2024, from <https://www.nytimes.com/2024/01/10/health/perinatal-depression-suicide.html>.

2. Berger, S. Shining a light on the health of American moms in the year after birth. Columbia Public Health. Published November 6, 2023. Retrieved January 23, 2024, from <https://www.publichealth.columbia.edu/news/shining-light-health-american-moms-year-after-birth>.

3. Croft, J. (n.d.). Millions of American women lack access to maternity care. Web MD. Retrieved January 23, 2024, from <https://www.webmd.com/baby/news/20230801/millions-of-american-women-lack-access-to-maternity-care>.

4. Gregory, A. A third of new mothers worldwide 'have lasting health issues after childbirth'. The Guardian. Published December 6, 2023. Retrieved January 23, 2024, from <https://www.theguardian.com/society/2023/dec/06/a-third-of-new-mothers-worldwide-have-lasting-health-issues-after-childbirth>.

5. Hang, Y. Perinatal depression and risk of suicidal behavior. Jama Network Open. Published January 9, 2024. Retrieved January 23, 2024, from https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2813745?utm_campaign=articlePDF&utm_medium=articlePDFlink&utm_source=articlePDF&utm_content=jamanetworkopen.2023.50897.

6. Keenan, L. More than a third of women experience lasting health problems after childbirth, new research shows. World Health Organization. Published December 7, 2023. Retrieved January 23, 2024, from <https://www.who.int/news/item/07-12-2023-more-than-a-third-of-women-experience-lasting-health-problems-after-childbirth>.

7. Maternal mortality. Unicef. Published February, 2023. Retrieved January 23, 2024, from <https://data.unicef.org/topic/maternal-health/maternal-mortality/>.

Muacevic, A. (2021, August 13). Untreated depression during pregnancy and its effect on pregnancy outcomes: A systematic review. National Library of Medicine. Retrieved January 23, 2024, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8448270/>.





SOCIAL MEDIA & ADHD AWARENESS

By Rielle Reyes '27

With an increasing focus on mental health in recent years, Attention Deficit Hyperactivity Disorder (ADHD) has become a prevalent topic. ADHD diagnosis in the United States increased from 0.4% of the population in 2019 to 0.6% in 2022, according to data from Epic.³ There is a growing belief that changes in our society have contributed to a surge in ADHD cases. With technology becoming more accessible, awareness about this disorder has increased, leading to a decrease in the stigma surrounding mental health.¹ ADHD has always been a prevalent condition, but people have only recently become mindful of its symptoms. In the past, mental disorders were often stigmatized and shameful. However, today's society is more supportive and understanding, providing assistance rather than discrimination.

However, the spike in ADHD diagnoses cannot solely be attributed to an increased awareness of the condition. The recent COVID-19 pandemic and the growing popularity of platforms like TikTok have contributed to what some call the "Perfect Storm".³ According to Time Magazine, the pandemic was the tipping point. It pushed the

world out of its comfort zone and may have worsened many people's symptoms of ADHD. Mild symptoms issues became more severe problems, often requiring professional intervention.

The rise of technology is also one of the main reasons for the increase in ADHD cases. While social media can connect people across the world, it also propagates themes of self-diagnosis and overdiagnosis. A speaker from Times Magazine describes this phenomenon by saying, "Which is the lesser of two evils: giving an incorrect ADHD diagnosis or having somebody who should be diagnosed with ADHD missed?"³ Misinformation through social media is also a significant concern. In 2022, a study revealed that 52% of information related to ADHD was misleading, with only 21% providing accurate information.⁴ This misinformation is a significant threat to the general public's understanding of ADHD.

ADHD is a complex disorder that has become more well-known in recent years. While increased awareness and reduced stigma have contributed to the rise in diagnosis, societal changes, such as the COVID-19 pandemic and the rise of technology, have also in-

troduced certain complexities. It is important to not fall victim to misinformation and self-diagnosis and to seek professional help when necessary. More accurate information and continued research can aid in our understanding and management of ADHD.

Sources

1. Ahmad, S. (2023, February 10). Is ADHD Becoming More Common? Psychology Today. Retrieved January 25, 2024, from <https://www.psychologytoday.com/us/blog/balanced/202302/why-is-the-prevalence-of-adhd-increasing>.
 2. Disorder: A Cross-Sectional Study of Social Media Content Quality. The Free Dictionary. Retrieved January 26, 2024, from <https://journals.sagepub.com/doi/full/10.1177/07067437221082854>.
 3. Ducharme, J. (2023, April 12). What's Driving the Demand for ADHD Drugs Like Adderall. Time. Retrieved January 25, 2024, from <https://time.com/6271049/adhd-diagnoses-rising/>.
- Yeung, A., Ng, E., & Abi-Jaoude, E. (2022, 2 23). TikTok and Attention-Deficit/Hyperactivity Disorder: TikTok and attention-deficit/hyperactivity disorder: A cross-S... (n.d.). <https://journals.sagepub.com/doi/full/10.1177/07067437221082854>.

COOLING THE BURN POSTPONED AMIDST

By Jaidyn

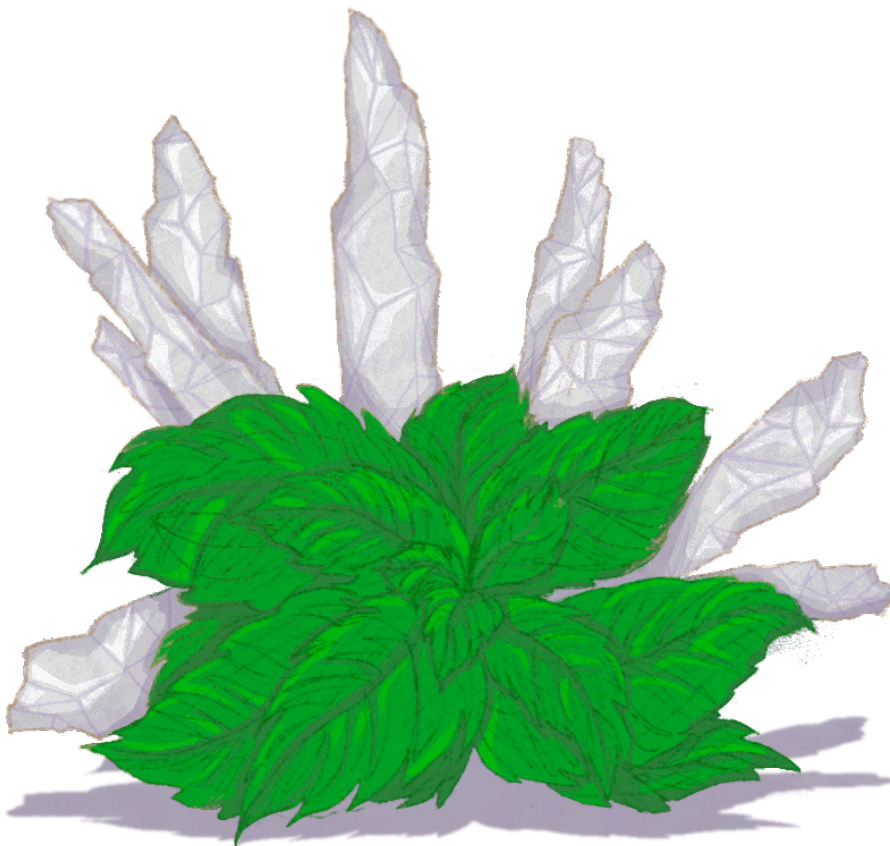
The ongoing debates surrounding the proposed ban on menthol cigarettes has recently taken a new turn, as the Biden administration opts for a postponement in light of growing apprehensions from various stakeholders. This decision has elicited strong reactions from public health professionals who have long advocated for the ban, pointing to the grave health consequences associated with the consumption of menthol cigarettes.

Public health experts have persistently emphasized the dangers of menthol cigarettes, which are known to exacerbate the addictive nature of tobacco. According to the Centers for Disease Control and Prevention (CDC), menthol enhances the addictive effects of nicotine and makes quitting smoking more difficult. This issue is particularly concerning for Black communities, who have been victims of aggressive menthol

cigarette marketing. As a result, a disproportionate number of Black smokers prefer menthol cigarettes, leading to higher rates of tobacco-related illnesses and deaths within these communities.

The reported decision to delay the ban arises amid intense lobbying efforts by civil rights groups, some of which receive funding from major tobacco companies like Big Tobacco. These groups have argued that a ban on menthol cigarettes targets Black smokers, leading to increased policing and criminalization within these communities. This argument extends beyond just a ban on cigarettes; it reflects a broader concern about the intersection of public health policy and racial justice.

On the forefront, Executive Director of the Big Cities Health Coalition Chrissie Juliano emphasizes the critical need to eliminate menthol as a flavor in cigarettes to reduce tobacco use and associated diseases. Yet behind the scenes, anti-tobacco groups fear the rule might never be implemented, pointing to the fact that several groups involved in discussions with the White



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House are sponsored by tobacco companies, raising questions about the influence of industry on public health policy.

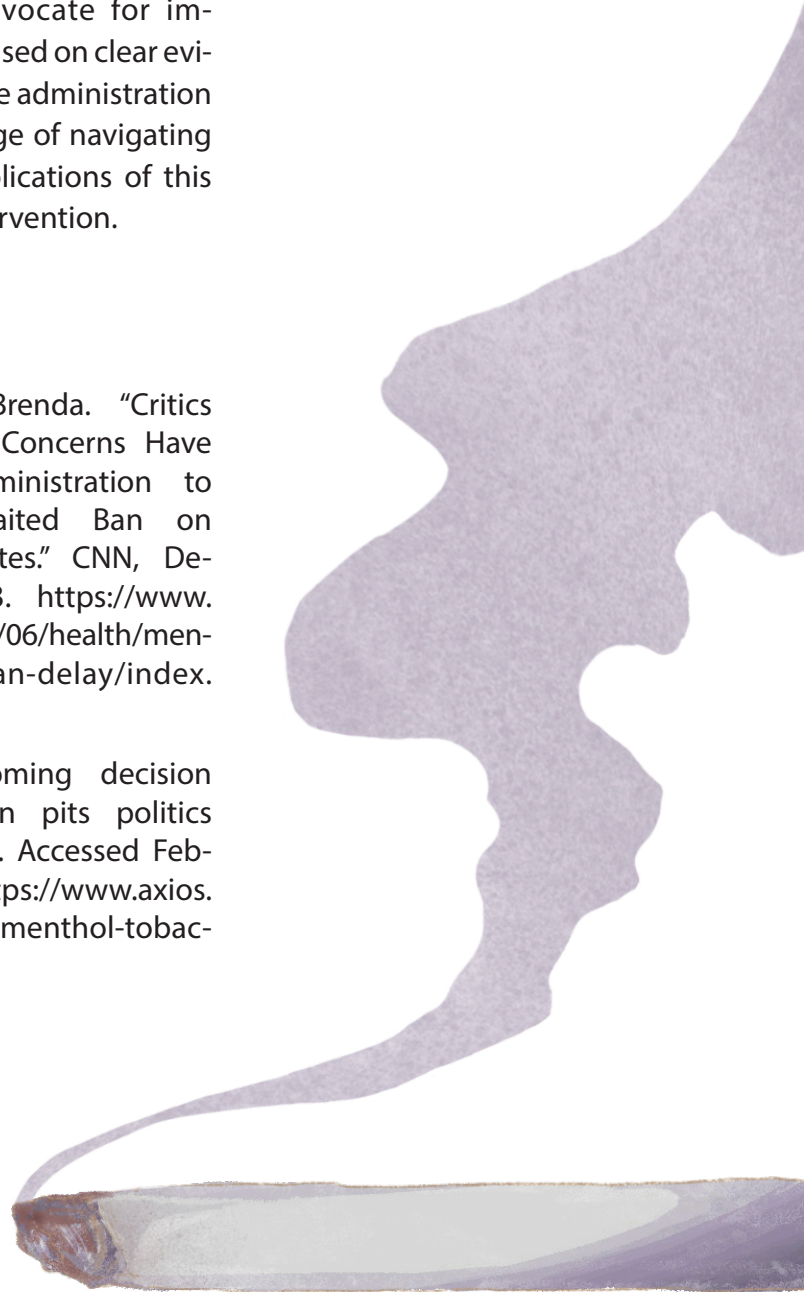
From a health perspective, the debate is clear-cut. Research indicates that menthol cigarettes are a significant public health concern. They contribute to the initiation of smoking, particularly among youth and minorities, and pose barriers to smoking cessation. The FDA's own research underscores these points, with experts arguing that every day of delay in implementing the ban could have a tangible impact on public health. The Biden administration, while acknowledging these health concerns, appears to be treading cautiously, balancing the public health imperative against concerns of racial profiling and the political fallout of such a decision. However, this careful approach does not diminish the urgency expressed by health professionals, who see the ban as a vital step in addressing tobacco-related health disparities, especially among African Americans.

All in all, the postponement of the menthol cigarette ban

highlights a complex web of health, social, and political considerations. While public health professionals advocate for immediate action based on clear evidence of harm, the administration faces the challenge of navigating the nuanced implications of this public health intervention.

Sources

1. Goodman, Brenda. "Critics Charge Political Concerns Have Led Biden Administration to Delay Long-Awaited Ban on Menthol Cigarettes." CNN, December 6, 2023. <https://www.cnn.com/2023/12/06/health/menthol-cigarette-ban-delay/index.html>.
2. Biden's upcoming decision on menthol ban pits politics against ... - axios. Accessed February 6, 2024. <https://www.axios.com/2024/01/12/menthol-tobacco-ban-biden>.



SIBLING DYNAMICS AND FAMILY

By Nana Wins

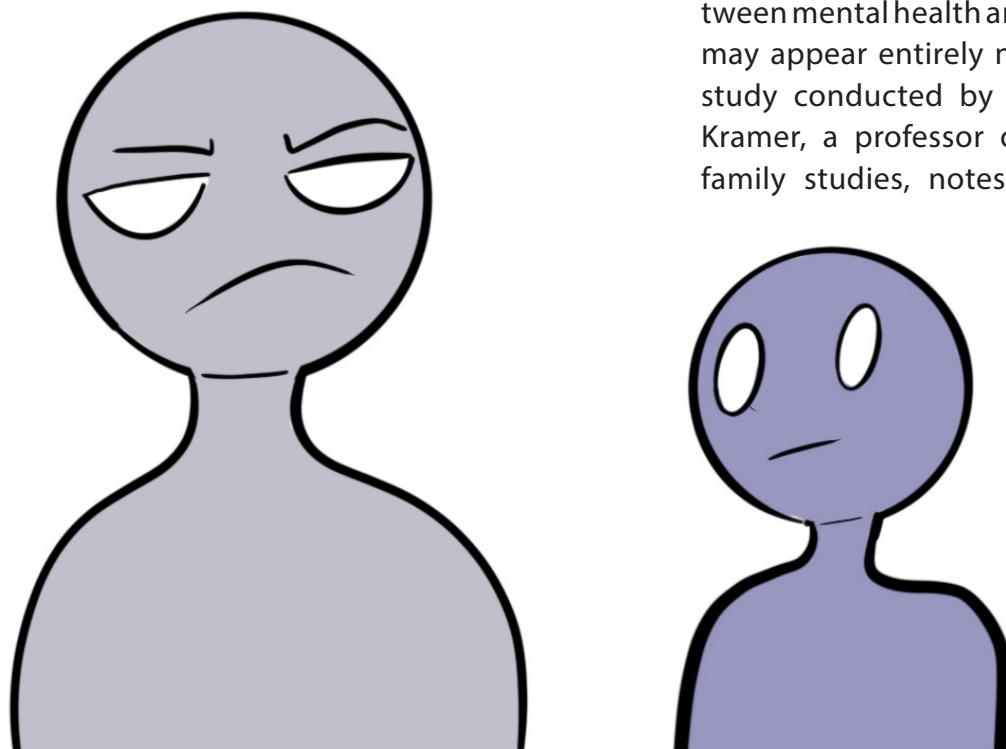
The common phrase, “The more the merrier” often applies to celebrations, parties, and many other activities but recent studies shows growing up in a home with many siblings may not be one of them.

Sibling dynamics can vary depending on personality traits, parenting styles, and environments but research conducted by Dr. Doug Downey, a professor of Sociology at Ohio State University suggested that more siblings may lead to poorer overall mental health in teenagers.¹ The study examined more than 18,500 teenagers from the United States and China. Despite sig-

nificant cultural and socioeconomic differences in these two countries, findings were similar. Dr. Downey noted, “The most important finding [of this study] is that the number of siblings is inversely associated with mental health in both countries.”² The data taken from American children demonstrated that teens who had zero to one sibling had the best mental health. In China, teens without siblings had the best mental health. A confounding factor of the study was China’s One Child Policy, that restricted Chinese citizens from having more than one child until 2016. This resulted in the

amount of children with no siblings in China being considerably higher than those in America (34% and 12.6%, respectively.)³ The link between having siblings and adverse mental health was directly related to what Downey called “resource dilution.” He elaborated, “siblings dilute parental resources and compromise the quality of family interactions, leading to lower mental health,”⁴ Further emphasizing his point, siblings born within a year of each other had the most negative impact on their mental health because resources and attention from parents were diverted at a greater magnitude.

Although the correlation between mental health and siblings may appear entirely negative, a study conducted by Dr. Laurie Kramer, a professor of applied family studies, notes that sib-



S: MENTAL HEALTH

FAMILY SIZE

ston-Ashie '27

lings can be important to child development and can serve as "agents of socialization." Kramer said, "What we learn from our parents may overlap quite a bit with what we learn from our siblings, but there may be some areas in which they differ significantly."5 Siblings can teach each other mutual respect, cooperation and problem solving skills to one another that parents could not. People with siblings can be more socially competent in school and work settings because of the lessons that come with experiencing and navigating close relationships at home.

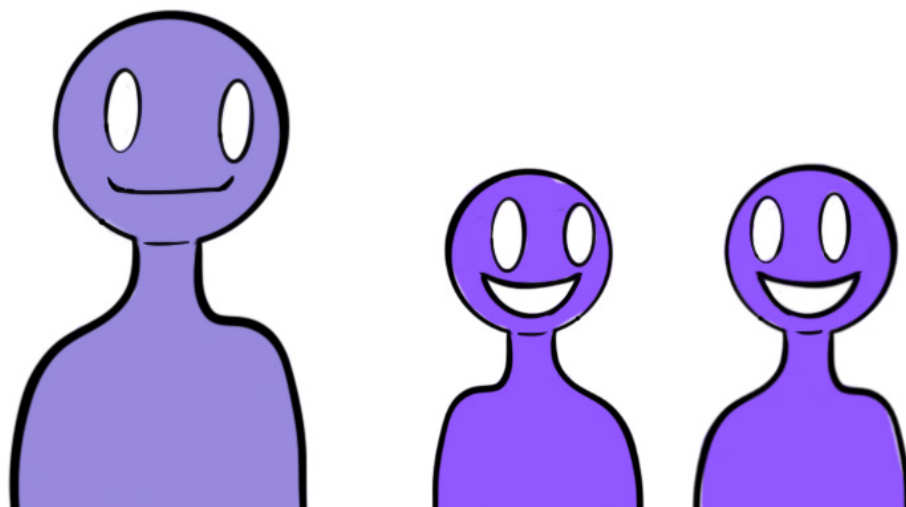
Though Dr. Downey's research suggests a negative impact of having more siblings on mental health, there is counter-evidence that siblings can foster complex relationships early on in life which has benefits as op-

posed to living in a solely adult oriented environment. Siblings inevitably brings shared experiences and memories, both positive and negative. Nonetheless, the ups and downs, the rivalries, and memories all contribute to growth both as a human being and as a member of society.

Sources

1. Rudnesky, F. (2024, January 16). How many siblings teens have may affect their mental health, study finds. PhillyVoice. <https://www.phillyvoice.com/mental-health-siblings-teens-ohio-state-study/>.
2. Grabmeier, J. (2024, January 16). MSN. <https://www.msn.com/en-us/health/other/more-siblings-mean-poorer-mental-health-for-teens-says-study/ar-AA1mLGnM>
3. Guardian News and Media. (2024, January 15). Teenagers with more siblings have worse mental health, study suggests. The Guardian. <https://www.theguardian.com/society/2024/jan/15/teenagers-siblings-mental-health-study>.
4. Denis Storey (January 26, 2024) More siblings might mean more mental health struggles. Psychiatrist.com. <https://www.psychiatrist.com/news/more-siblings-might-mean-more-mental-health-struggles/>
5. Ciciora, P. (2010, January 15). Siblings play formative, influential role as "agents of socialization." ILLINOIS.EDU. <https://news.illinois.edu/view/6367/205739>.

Graphics by David Glover-Barr '25



HIGH ALTITUDE, HIGH IMPACT

By Ethan Sun '27

With the world becoming increasingly connected, flying has become an integral part of many people's lives, allowing great distances to be traveled within just a few hours. The excitement of traveling, however, can often overshadow the effects that flying has on our bodies.

Prolonged periods of sitting on a flight increase the risk of deep vein thrombosis (DVT). DVT is when lack of movement slows blood flow in the veins, causing a blood clot to form in a deep vein in the body, usually in the leg.⁴ The blood clot can cause swelling and pain in the leg, and even pulmonary embolism if it enters the bloodstream. However, the risk for DVT is small, as it only occurs in one out of 4600 flights greater than four hours in length.¹

Furthermore, flying exposes the body to small amounts of radiation. At an altitude of 30,000 feet, the thin atmosphere causes more radiation exposure. Although radiation is known to increase the risk of cancer in the long term, the radiation from flying has very little impact on the body, as it is estimated that even 3.7 years of accumulated flight time will only add up to an additional 0.5 percent chance of contracting fatal cancer in one's lifetime.³

The air inside plane cabins is also dry and low in pressure, which can cause dehydration. Air in planes is only at around 10-20% humidity, while normally the human body is accustomed to 30-65%,² causing dehydration and symptoms such as thirst, dry skin, scratchy eyes, headaches, and a sore, irritated throat.⁴ Dehydration of the airways can also put the body at a greater risk of other diseases.

In addition, flying may increase the risk of being exposed to communicable diseases. Passengers can acquire diseases through touching contaminated surfaces, or from airborne particles, due to the proximity of the passengers in the enclosed space. Planes, however, use particle air filters that capture 99.97% of particles that are $\geq 0.3 \mu\text{m}$ in diameter,¹ which includes most bacteria and larger viruses, helping to prevent the spread of diseases. There have been cases of COVID-19 transmission during air travel,¹ and therefore flyers with infectious illnesses may often be advised to delay their flights.

There are a multitude of other health effects of flying, such as jet lag, increased blood pressure, and earache from changes in pressure.² Despite the potential health effects associated with flying, it remains

a rarity for even frequent flyers to encounter direct long-term health complications from air travel, and most health effects are temporary or can easily be prevented. Most passengers can continue to embark on their journeys, confident that the benefits of flying and exploring far outweigh the minimal health risks.

Sources

1. Chen, T.-H., Ray, A., & Brown, C. Air Travel (CDC Yellow Book 2024). Center for Disease Control and Prevention. Published 2024. <https://wwwnc.cdc.gov/travel/yellowbook/2024/air-land-sea/air-travel>.
2. 5 Things to Know Before You Fly. Penn Medicine. Published June 22, 2017. <https://www.pennmedicine.org/updates/blogs/health-and-wellness/2017/july/health-risks-of-flying>.
3. Jorgensen, T. J. Air Travel Exposes You to Radiation—How Much Health Risk Comes with It? Scientific American. Published June 18, 2017. <https://www.scientificamerican.com/article/air-travel-exposes-you-to-radiation-how-much-health-risk-comes-with-it/>.
4. Reeves, M. How flying can affect the body. Published November 6, 2023. <https://www.medicalnewstoday.com/articles/effects-of-flying-on-the-human-body>.



Graphic by Melody Qian '24

THE DANGERS OF SEDENTARY LIFESTYLES

By Carolyn

Sedentary lifestyles have become a growing concern for public health as people spend more time sitting and lying down without enough physical activity. The Centers for Disease Control and Prevention (CDC) estimates that Americans spend between 6.5 to 8 hours a day sitting down on average.¹ Not only have

jobs become increasingly sedentary, with people sitting at desks for hours on end, but the popularity of common pastimes such as watching TV and playing video games has also increased.²

Physical activity is necessary to keep the body healthy, and research has shown that sitting for long periods leads

to health consequences. Prolonged sitting can lead to discomfort in various body parts such as the neck, shoulders, lower back, butt, and thighs.³ An inactive lifestyle can cause a slower metabolism, increased weight, high blood pressure, high cholesterol, weaker bones, poor blood circulation, and increased inflammation.¹ Seden-



DANGERS OF A SITTING LIFESTYLE

Chen '25

tary lifestyles can also increase the risk of developing chronic diseases such as type 2 diabetes, heart disease, and cancer.³

Prolonged sitting also has negative impacts on mental health. Although the exact connection between sitting and mental health has not been discovered, there is a positive correlation found between developing anxiety and depression and people who sit for longer periods of time.⁴ Studies have also shown that sitting for long periods can impair creative problem-solving abilities and cause feelings of exhaustion.³

More movement and activity can help prevent these consequences whether it is by going for a walk, using the stairs instead of the elevator, or riding a bike. If someone has an inactive lifestyle, it is better if they start with less strenuous activities and gradually increase the intensity to improve their stamina over time.¹ The CDC recommends that people should perform at least 150 minutes of physical activity each week.⁵ Regular physical activity can also be beneficial

in managing weight, reducing the risk of disease, improving brain health, and strengthening bones and muscles.⁶

There are many consequences, both physical and mental, associated with prolonged sitting. Negative health outcomes caused by excessive periods of sitting can be prevented by implementing a more physically active lifestyle.

Sources

1. Barlow, C.E., Shuval, K., Balasubramanian, B.A., Kendzor, D.E., Redford, N.B., DeFina, L.F., et al. (2016, December 29). Association Between Sitting Time and Cardiometabolic Risk Factors After Adjustment for Cardiorespiratory Fitness Cooper Center Longitudinal Study, 2010-2013. CDC. https://www.cdc.gov/pcd/issues/2016/16_0263.htm.

2. Barrel, A. (2023, June 9). What happens to the body after sitting down for too long?. MedicalNewsToday. <https://www.medicalnewstoday.com/articles/sitting-down-all-day>.

3. Better Health Channel. (n.d.). The dangers of sitting: why sitting is the new smoking. <https://www.betterhealth.vic.gov.au/health/healthyliving/the-dangers-of-sitting>.

4. U.S. National Library of Medicine. (n.d.). Health risks of an inactive lifestyle. MedlinePlus. <https://medlineplus.gov/healthrisksofaninactivelifestyle.html>.

5. CDC. (n.d.). How much physical activity do adults need?. <https://www.cdc.gov/physicalactivity/basics/adults/index.htm>.

6. CDC. (n.d.). Benefits of Physical Activity. <https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm>.

INNOVATIONS IN ARTIFICIAL IN

By Lily Th

In recent years, the integration of Artificial Intelligence (AI) into various industries has sparked significant advancements and transformations. One of the sectors experiencing a profound impact is healthcare. AI is revolutionizing numerous aspects of healthcare, ranging from enhanced diagnostics and personalized treatment plans to robotic surgery, virtual health assistants, as well as drug

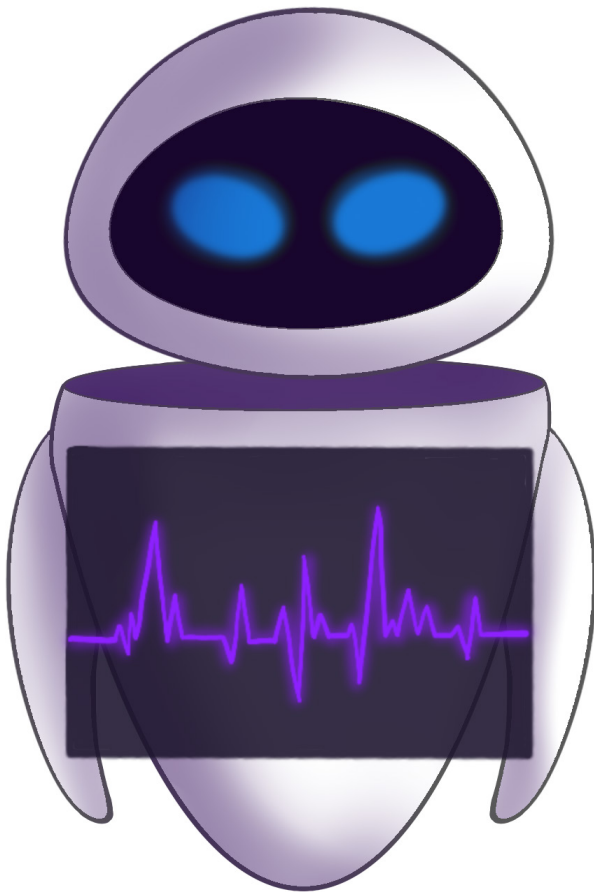
discovery and development. This sudden use of technology in healthcare could create a more effective and sustainable system where data-driven insights and technological innovations can improve the patient experience and the power and success of healthcare systems on a global scale.

One of the key contributions of AI in healthcare is its ability to analyze vast amounts of medical data

quickly and accurately. Machine learning algorithms can process complex datasets, including medical images, genetic information, and patient records, to identify patterns and abnormalities that may not be evident to human practitioners. This capability is particularly crucial in the early detection of diseases such as cancer, where quick intervention can significantly improve patient prognosis. Rather than solely relying on the experience of individual doctors, this system facilitates

global collaboration among healthcare professionals, allowing the sharing of important data and insights. Moreover, AI plays a crucial role in advancing the field of precision. By integrating patient data, including genetic information, lifestyle factors, and medical history, AI algorithms can generate personalized treatment plans. This tailored approach ensures that treatments are not only more effective but also tailored to the unique characteristics of each patient, thereby minimizing side effects and improving overall patient outcomes. AI brings a much vaster set of data information, as it can accumulate information on patients worldwide, giving more opportunities to discover a prognostic.

AI has also been able to adapt to many contemporary challenges, such as the Covid-19 pandemic and mental health. The pandemic has accelerated the adoption of telemedicine, and AI plays a crucial role in this shift. Remote patient monitoring, powered by AI algorithms, enables healthcare providers to track patients' vital signs and health metrics in real time. This not only enhances patient convenience but also allows for early intervention in case of any concerning developments. Additionally,



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AI has integrated itself into mental health care, addressing a critical aspect of healthcare often overlooked. AI-powered tools can analyze speech patterns, facial expressions, and other behavioral cues to assist in the early detection of mental health conditions. The development of virtual therapists and chatbots further expands access to mental health support. Virtual therapists and chatbots are being developed to provide mental health support, making mental healthcare more accessible and reducing the stigma associated with seeking help. AI's adaptability has proven instrumental in addressing contemporary challenges, such as the accelerated shift to telemedicine during the Covid-19 pandemic, as well as its tools for mental care. This adaptability highlights AI's potential to address future challenges in healthcare effectively.

While the promises of AI in healthcare are vast, ethical considerations and data security pose significant challenges that must be addressed. The use of patient data to train AI algorithms raises concerns about privacy and consent. Achieving a balance between leveraging data for improved care and ensuring patient privacy is

essential and presents a critical challenge that healthcare organizations must navigate. Clear guidelines, transparent communication, and robust cybersecurity measures are necessary to build and maintain trust while adopting AI technologies in healthcare. The prominent use of AI can also lead to human job uncertainty. While AI can enhance efficiency, there is a need to balance technological advancements while preserving human roles and the interpersonal aspects of patient care. As we embrace AI in healthcare, it is crucial to consider the negative impact it can have on patients and doctors.

The integration of Artificial Intelligence in healthcare is an essential tool that holds immense promise for the future of medicine. Its quick adaptability and extensive access to data make AI a beneficial tool within healthcare. However, concerns regarding privacy and the potential cause of unemployment instill doubt in many. By embracing AI responsibly, we can unlock its full potential to improve patient outcomes, reduce healthcare costs, and create a more sustainable and effective healthcare system for all.

Sources

1. AI in Healthcare. (n.d.). Foresee Medical. Retrieved January 25, 2024, from <https://www.foreseemed.com/artificial-intelligence-in-healthcare>.
2. Arguing the Pros and Cons of Artificial Intelligence in Healthcare. (2023, December 26). Health IT Analytics. Retrieved January 25, 2024, from <https://healthitanalytics.com/news/arguing-the-pros-and-cons-of-artificial-intelligence-in-healthcare>.
3. Hard choices: AI in health care. (2021). Yale School of Medicine. Retrieved January 25, 2024, from <https://medicine.yale.edu/news/yale-medicine-magazine/article/hard-choices-ai-in-health-care/>.
4. Mehra, A. (2020, March 16). How AI Is Transforming Healthcare. Forbes. Retrieved January 25, 2024, from <https://www.forbes.com/sites/forbestechcouncil/2020/03/16/how-ai-is-transforming-healthcare/?sh=348649564ba0>.
5. Rebitzer, J., & Rebitzer, R. (2023, September 14). AI Adoption in U.S. Health Care Won't Be Easy. Harvard Business Review. Retrieved January 25, 2024, from <https://hbr.org/2023/09/ai-adoption-in-u-s-health-care-wont-be-easy>.



SUGAR TAXES: SIPPING ON CHANGE

By Ada Tieanworn '26

In recent decades, supermarket shelves have become a mosaic of color, each hue encasing a different flavor of sugary drink. Amid this overload of choices, health specialists have turned to a new strategy to combat the pressing issue of sugar overconsumption: a sugar tax. Historically, sugar-sweetened beverages (SSBs) were identified as known contributors to a range of health issues, including unhealthy diets, obesity, and diabetes. Recognizing this, public health agencies have made efforts to tax SSBs, increasing their cost, effectively deterring customers from purchasing them in unhealthy quantities. With the overarching goal of improving public health for children and adults, the sugar tax seeks to steer consumer behavior towards health-conscious choices, highlighting the critical link between diet and wellbeing.

Recently, studies have shown that various American cities and countries worldwide with the sugar tax have already exhibited improved consumption patterns. Namely, a 2023 study in Oakland revealed that compared to cities without the policy, purchases of SSBs dropped 26.8% after a one-cent-per-ounce tax went into effect. In addition, sweetened soda consumption decreased by 23.1%, fruit drinks by 30.4%, sports drinks by 42.4%, and sweetened teas by 24.4%.

Interestingly enough, healthy consumption habits are not the only benefits that sugar taxing has reaped. Researchers found that consuming 26.8% fewer SSBs over the last 10 years has saved Oakland more than \$100,000 per 10,000 residents in health care costs, with gains expected to increase over a lifetime. These estimates indicate that the sugar tax is just as cost-effective as other widely recognized public health initiatives, namely those focussed on promoting smoke-free workplaces and air pollution control.

Most importantly, the sugar tax has improved general health outcomes for various populations. Data from Kaiser Permanente Washington and the Seattle Children's Hospital reveal improved body mass indexes among children. While a modest improvement, it nonetheless is important given that very few population-level interventions have shown any impact on BMI, according to dietitian Jessica Jones-Smith. Additionally, a study conducted by the University of California San Francisco found that sugar taxing in five cities significantly lowered the risk of diabetes, unhealthy weight gain, and developing an overly small fetus in pregnant mothers. In addition, purchases of sweetened soda, fruit drinks, sports drinks, and sweetened teas were all lowered in a diverse range of demo-

graphics including higher and lower-income areas.

The implementation of a sugar tax embodies a strategic approach aimed at mitigating major health issues like obesity, type 2 diabetes, and cardiovascular disease. These conditions, significantly preventable through policy measures, underscore the broader societal benefits of the sugar tax. By fostering a healthier population, sugar taxes can promote a more vibrant community.

Sources

1. MacNeil, M. (2023, April 21). Sugary drink tax improves health, lowers health care costs. UC Berkeley Public Health. <https://publichealth.berkeley.edu/news-media/research-highlights/sugary-drink-tax-improves-health/>.
2. World. (2023, December 5). WHO calls on countries to increase taxes on alcohol and sugary sweetened beverages. World Health Organization. <https://www.who.int/news/item/05-12-2023-who-calls-on-countries-to-increase-taxes-on-alcohol-and-sugary-sweetened-beverages>.
3. Seattle's Sugar-Sweetened Beverage Tax Results in Improved Public Health Outcomes. (2023, May 8). Washington. <https://sph.washington.edu/news-events/sph-blog/sugar-sweetened-beverage-tax-results-in-improved-public-health>.

ANCIENT WISDOM, HOW TRADITION SHA

By Sofia Rub

For much of humanity's existence, medicine has been everlasting. The use of medicine is not restricted to past and present practices. Much of the modern medicine used today stems from traditional medicine, a form of treatment that has been passed down for centuries. The treatments can vary from using plants and nature to combat sickness to practices of acupuncture and yoga that are proven to better one's physical and mental health.

Many don't realize that much of the medicine and cures for diseases today are derived from traditional practices. Forty percent of pharmaceutical products come from traditional medicine.¹ Chinese scientist Tu Youyou discovered a cure for malaria, by turning to traditional Chinese medical literature as a guide. In 1971, After much trial and error, Youyou and her team were then able to find a solution by isolating artemisinin. Artemisinin is an active compound in a plant called sweet wormwood. Artemisinin was originally used to treat chills and fevers in ancient China. This treatment became very effective when treating malaria, and ended up saving a mil-

lion lives. In 2015, Youyou was awarded a Nobel Prize in Physiology and Medicine for her outstanding discovery.¹ This proves that our advanced knowledge of medicine in contemporary society can provide a deeper understanding of the true benefits of traditional medicine.

Incorporating past and present knowledge about medicine opens a whole host of opportunities for cures and treatments. Even in our current society, much of the world still solely relies on the use of traditional practices of medicine. In Africa and Asia, eighty percent of the population uses traditional medicine for their healthcare.² Many argue that traditional practices are not as effective as modern medicine. Just like most things in the world, nothing is completely perfect. Traditional medicine stems from an era when there was no advanced technology to provide medical-grade testing and trials. If the method worked, it was then passed down through generations. Those who created the treatments back then did not get proper training or attend universities like the medical professionals today. In comparison,

they may have had less knowledge, but they were still able to develop effective treatments.

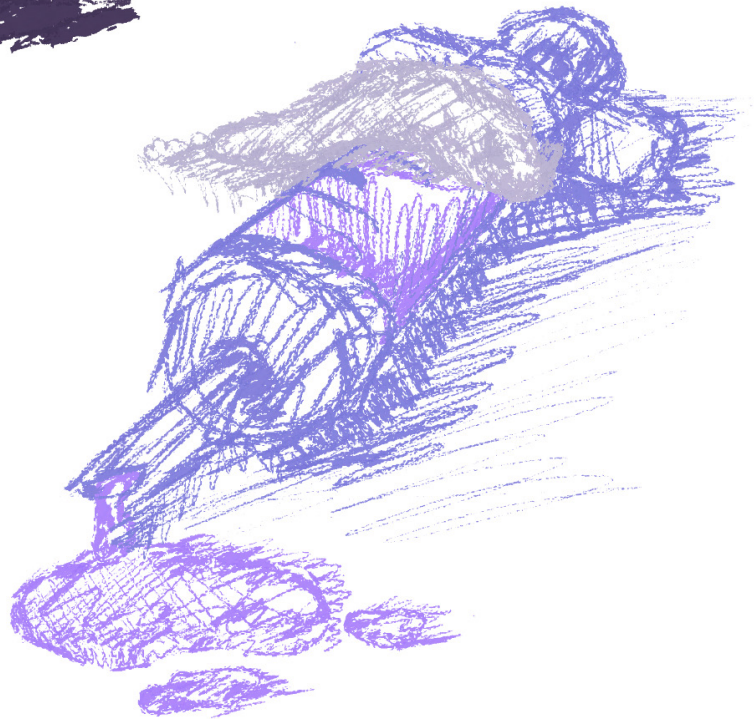
When using traditional and modern medicine together, the results have been overwhelmingly positive. Both practices of medicine have their positives and negatives, but when used together the positive effects outweigh the negative effects. Subsequently, nature and traditional knowledge contribute to and help curate medicine in contemporary society.

Sources

1. World Health Organization. (n.d.). Traditional Medicine has a long history of contributing to conventional medicine and continues to hold promise. World Health Organization. <https://www.who.int/news-room/feature-stories/detail/traditional-medicine-has-a-long-history-of-contributing-to-conventional-medicine-and-continues-to-hold-promise>
2. Integrating modern and traditional medicine: Facts and figures. SciDev.Net. (n.d.). <https://www.scidev.net/global/features/integrating-modern-and-traditional-medicine-facts-and-figures/>

MODERN MIRACLES: APES MEDICINE TODAY

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Graphics by Cora Slowe '26

CHILDHOOD OBESITY AND ADVERTISING

By Ava Hult-Falk '27

Childhood obesity is a pressing issue in America that demands attention and action. Between the years 2017 and 2020, approximately 14.7 million children and adolescents, aged two to 19, struggled with obesity and weight management.

When analyzing the cause of these alarming statistics, it would be negligent to overlook the undeniable connections between America's obesity epidemic and the careless and addictive methods employed in food marketing. Fast food companies have normalized the sale of high-calorie meals at minimal prices, making them easily accessible and appealing. While adults may develop a better understanding of balanced nutrition over time and attempt to limit their consumption, children are particularly vulnerable to the marketing strategies employed by these companies. Children lacking the cognitive ability to differentiate between advertising and content are often targeted by fast food chains through various platforms such as YouTube, movies, and video games. Flashy advertisements can easily lure children, potentially exploiting their intellectual boundaries.

Commercial brands also collaborate with popular toy companies, displaying fan-favorite characters on a sugary cereal box or sweet treat. Additionally, Companies often develop their own mascot, which they display across various advertising platforms that catch children's eyes. One study showed that children were 73% more inclined to select a food item with a colorful character on its packaging.

Understanding the consequences of obesity is crucial as it is associated with nefarious health conditions, such as heart disease, stroke, various cancers, and diabetes. In extreme cases, a person's size can prevent them from exercising, maintaining sustainable employment, and living a happy, fulfilling life. A lifetime of struggle with weight management often begins in childhood. A person is five times more vulnerable to adult obesity if they struggle with obesity in their teenage years.

In conclusion, the detrimental impact of food marketing on childhood obesity is evident as companies target vulnerable young minds with enticing advertisements, creating a lasting impact on eating habits. The alarming increase in childhood obesity demands immediate

attention, recognizing its long-term health consequences and the urgent need for responsible marketing practices to safeguard the well-being of future generations.

Sources

1. Awan, O. (2023, January 5). How Obesity In The U.S. Has Grown And What To Do About It. Forbes. Retrieved January 25, 2024, from <https://www.forbes.com/sites/omerawan/2023/01/25/has-the-obesity-epidemic-gotten-out-of-hand-in-america/?sh=57b9177466e6>.
2. Prevalence of Childhood Obesity in the United States. (2022, May 17). Centers for Disease Control and Prevention. Retrieved January 25, 2024, from <https://www.cdc.gov/obesity/data/childhood.html> Simmonds, M., Llewellyn, A., Owen, C. G., & Woolcott, N. (2016).
3. Predicting adult obesity from childhood obesity: a systematic review and meta-analysis. National Library of Medicine. Retrieved January 25, 2024, from <https://pubmed.ncbi.nlm.nih.gov/26696565/>.
4. Smith, R., Kelly, B., Yeatman, H., & Boyland, E. (2019, April 19). Food Marketing Influences Children's Attitudes, National Library of Medicine. Retrieved January 25, 2024, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6520952/>.



Graphic by Evelyn Kim '25

