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COVID-19 Prophylaxis and Treatments: A Comprehensive Overview by Aman Reddy

Introduction

SARS-CoV-1 (Severe Acute Respiratory Syndrome) is the designated name of a coronavirus that was first identified in February of 2003 after an outbreak in China. It spread to more than two dozen countries spanning across North and South America, Europe, and Asia. [1]. Despite this worldwide breakout, SARS-CoV-1 only infected approximately 8,000 people and killed ~750 people [1]. While it was not as infectious as its present-day successor, SARS-CoV-2 (aka COVID-19), it was much more deadly, with an estimated death rate of 15% compared to 0.68% of those under 25. [2]. SARS-CoV-2 is a variant of the original SARS-CoV-1 and it was officially discovered in December of 2019 [3,4]. However, there are unofficial reports claiming SARS-CoV-2 was initially discovered earlier throughout Asia in October/November of 2019 [5]. The first domestic case of COVID-19 in the United States wasn't until January 2020. Interestingly, since 2003, there have been several other coronaviruses that are able to cross the species barrier and infect humans, such as MERS-CoV [6] but none to the degree of SARS-CoV-2 (COVID-19)..

SARS-CoV-2 is a coronavirus that originated from SARS. Although the precise origin of COVID-19 is uncertain, it is widely believed that the virus mutated from bats and spread to humans, with plausibility due to the meat market industry that exists in China [7]. However, there is also evidence to suggest that the virus may have originated from Pangolins, who carry a plethora of other coronaviruses similar to SARS-CoV-2 [7]. Scientists that compared spike proteins from smuggled Malaysian Pangolins in China and SARS-CoV-2 found many similarities between them, and proposed it could possibly spread to humans.[7] There is an alternative theory that has emerged in which the virus originated from the Wuhan Institute of Virology via an infected employee or contaminated object. However, due to limited accessibility and willingness to cooperate on behalf of the Chinese government, this theory is largely speculative [8]. Despite over 5 million deaths worldwide and a 2-year ongoing pandemic, the Center for Disease Control and World Health Organization (WHO) are still unsure of the precise origin of the virus. There is an international task force of scientists appointed by the WHO that are currently investigating the origin of SARS-CoV-2.

Impact of Covid-19

Covid-19 is quickly becoming one of the most feared diseases in the world. Almost 200 million people have been infected with Covid-19, and more than 4 million of those infected have died [9]. Along with the cost of life that the virus has caused, there are many economic and social problems that the pandemic has caused. The global economy shrunk by 3.5%, and the global recession is at its biggest since the end of World War II [10]. Furthermore, Mental health issues in the U.S have increased by more than 30% since January of 2019, and substance abuse has similarly become more prevalent [11]. The pandemic has caused harm to society in many ways, and it is important we find effective treatment and prevention to prevent more harm from being done.

This is the first pandemic that has emerged in the age of social media, and as a result there is an overabundance of information on the internet about Covid-19 and its treatments. It is important to have accurate and reliable information surrounding the treatment and prevention of Covid-19. This review paper acts as a compact, yet detailed guide on the treatments and prevention of Covid-19.

Methods

PubMed and Google Scholar databases were used for our search. Relevant citations from articles found were also included in our review.

The Key Terms we used were: Covid-19 Treatment, Covid-19 Vaccine, Covid-19 Prevention, Coronavirus Treatment, SARS-CoV-2 Treatment, SARS-CoV-2 Drugs, SARS-CoV-2 Prevention, Covid-19 Prophylaxis, Coronavirus Prophylaxis,

Results

There are three vaccines currently authorized for use within the United States: Pfizer-BioNTech, Moderna, and Johnson & Johnson. [31] These vaccines all work in different ways, but they all are highly effective at preventing Covid-19. The Pfizer-BioNTech vaccine is a 2-stage mRNA vaccine, where 2 doses of the vaccine are needed to get the full efficacy.[12] A study published in The New England Journal of Medicine found that vaccine efficacy between the first and second doses was 52%. The study also reported that seven or more days after the

second dose, efficacy then rose to 95% [13]. The Moderna vaccine is also a 2-stage mRNA vaccine, and it similarly has an efficacy of 95% [12,14].

The Johnson and Johnson vaccine varies from the other two, using traditional virus technology rather than mRNA. It has a lower efficacy rate than the other two, at around 66.3% according to the CDC [15]. Although it has a lower efficacy rate, there are some advantages to this vaccine. Only a single dose is needed which reduces the amount of vaccine doses needed to be on site. Temperature requirements for storage are not as low as the Pfizer and Moderna vaccines, Thus it can be kept in normal refrigerators making it more accessible to places that need it [16].

Although the Johnson and Johnson vaccine has been found to cause blood clots in a small minority of people, all 3 of the vaccines have a relatively similar side effect profile.[17] Redness, pain, and swelling at the injection site, as well as nausea, fatigue, chills, muscle pain, fevers, and headaches are common side-effects. Although less common, If someone has an allergic reaction to the first dose of either the Pfizer-BioNTech vaccine or the Moderna vaccine, it is advised they do not take the next dose [18].

Currently, the Covid-19 Preventative Guidelines published by the NIH do not recommend the use of any drugs for SARS-CoV-2 pre-exposure prophylaxis [19].

There are several studies that have evaluated hydroxychloroquine for pre-exposure and post-exposure prophylaxis of Covid-19. The results of these studies have demonstrated that hydroxychloroquine has not been shown to be effective for prevention of Covid-19. Furthermore, several studies have found that hydroxychloroquine leads to an increased amount of adverse effects. For example, in a study conducted by Barnabas et al to evaluate the efficacy of hydroxychloroquine for pre-exposure prophylaxis of Covid-19, this group found that mildly adverse effects were more common (45%) among those who had used hydroxychloroquine than those who used a placebo (26%) [19]. Mitjà et al. assessed the use of hydroxychloroquine for post-exposure prophylaxis of Covid-19 and similarly found that a greater percentage of patients in the hydroxychloroquine arm experienced adverse events (56.1%) than in the control arm (5.9%). These adverse effects were all mild, but included gastrointestinal events, nervous system disorders, myalgia, fatigue, and malaise [20]. Another study conducted by Boulware et al Found similar results. In a randomized, double-blind, placebo-controlled study that spanned across the

United States and some of Canada, they concluded that hydroxychloroquine did not reduce the amount of cases of Covid-19 and made side effects more common [21].

Ivermectin

Lately, Ivermectin has become infamous because of its widespread misuse by the public and media coverage. Because of this, it is even more important to understand how this drug works and in what capacity it should be used. Ivermectin has been shown to be able to inhibit the growth of SARS-CoV-2 in a lab setting. Of the 115 participants who were exposed to SARS-CoV-2 and then treated with Ivermectin, 38 became infected with Covid-19, and 77 remained uninfected [19]. However, there are meta-analyses that determine that the information gathered from clinical studies must be taken with caution, as the quality of evidence supporting ivermectin received from these studies is low [22]. There are many additional clinical trials currently underway or being planned regarding the clinical use of Ivermectin, however many of these trials have not published their results as of yet. More research is needed before it can be determined if Ivermectin can be used for prevention or treatment of Covid-19.

Monoclonal Antibodies

Monoclonal antibodies are laboratory-made proteins that mimic the immune system's ability to fight off harmful antigens such as viruses [23]. Currently, the FDA has authorized multiple monoclonal antibodies for emergency use in the treatment of Covid-19, and many others are currently being studied and reviewed for approval. However there are also novel studies looking at the use of monoclonal antibodies for prophylaxis of Covid-19. In a recent study published in the New England Journal of Medicine, O'Brien et al. found that subcutaneous REGEN-COV was effective in preventing symptomatic and asymptomatic SARS-CoV-2 infection in household contacts of infected persons.[24] Prophylactic treatment with REGEN-COV reduced the risk of symptomatic infection (Relative risk reduction, 81.4%, $P < 0.00$) The researchers found that REGEN-COV, a prophylactic treatment composed of the combination of the monoclonal antibodies casirivimab and imdevimab, prevented symptomatic and asymptomatic infections overall (Relative risk reduction, 66.4%) Furthermore, this study found that of those that were infected, prophylactic treatment with REGEN-COV reduced the duration of symptomatic disease and duration high viral load.

REGEN-COV, a prophylactic treatment composed of the combination of the monoclonal antibodies casirivimab and imdevimab, reduced the risk of symptomatic infection by 81.4%, and it has also reduced the risk of symptomatic and asymptomatic infection by 66.4% overall [24]. So far, Monoclonal antibodies seem to be very effective against Covid-19, and it is very possible that these may be used in the future against Covid-19 and other similar diseases.

Remdesivir

Remdesivir is an antiviral medicine which has proven to inhibit growth of SARS-CoV-2 in vitro. Many clinical studies are also showing that it is effective when given to patients with Covid-19. According to the National Institute of Health, it binds to the RNA of a virus and prevents it from replicating, disabling the virus and allowing the immune system to deal with the remaining viruses.[25] Remdesivir is currently the only antiviral medication approved for use by the FDA, as well as the only treatment approved for hospitalized patients [25]. It is a broad range antiviral medication, which means it can be used for any type of Covid-19 treatment, even if it is asymptomatic. A meta-analysis study found that remdesivir, along with other anti-inflammatory agents, “were associated with improved outcomes of hospitalized COVID-19 patients” [26]. Based on the randomized clinical trials, this meta-analysis found the risk of progression to severe course and mortality was significantly reduced with remdesivir in Covid-19 patients. (OR 0.29, 95% CI 0.17 to 0.50, $p < 0.001$, and OR 0.62, 95% CI 0.39 to 0.98, $p = 0.041$, respectively) [26]. Remdesivir has been showing promising results as a possible treatment for Covid-19 and has been an invaluable treatment during this pandemic.

Convalescent Plasma Therapy

Convalescent Plasma Therapy uses blood from people who have recovered from Covid-19. The blood is cleaned to remove red and white blood cells and leave behind only plasma and antibodies, which can combat Covid-19.[28] A study conducted by Li et al concluded that convalescent plasma therapy along with standard therapy for Covid-19 had no significant effect compared to standard therapy on its own[27]. However, a report published by the ID society also notes that while convalescent plasma may not be effective at combating Covid-19, it may have merit in increasing the humoral immunity of patients infected with SARS-CoV-2, and that may indirectly help them recover [28]. The report noted a series of case

studies where 23 patients received a high concentration of Convalescent Plasma and subsequently 87% of those patients experienced a full recovery [28]. While the USDA has authorized emergency use of this treatment, the IDSA advises against the use of it on patients hospitalized with Covid-19, and only in clinical trials does it support the use of it [28]. More research needs to be done to determine if these effects can be used practically for the general public.

Interferon Beta

Interferon Beta are types of protein that can have an effect on other immune cells. They have been tested as a treatment for SARS-CoV-2 because of their effects on viruses in vitro. A double-blind, placebo-controlled study conducted in the U.K. quoted by the NIH found that Covid-19 patients who received interferons through inhalation were able to walk without restrictions after recovering, had a decreased chance of their condition to worsen, and had less breathlessness [29]. Another randomized clinical trial conducted by Monafared et al. found that the mortality rate of those who were given Interferon Beta was much lower than that of the control group (19% versus 43.6% respectively) and it significantly increased discharge rates of Covid-19 patients [30]. Furthermore, a systematic review and meta-analysis performed by Nakhband et al found promising results for treatment of Covid-19 with Interferon Beta, especially when combined with antiviral drugs [30]. These results show promise for Interferon Beta as a mainstream drug, however, many more studies are currently being conducted and it will take time for it to be approved.

Discussion

While vaccines have proven to be largely effective in minimizing the burden of Covid-19, it is important to study alternative treatments to better protect the general public. As we find more effective ways of treating and preventing this disease, we can further minimize the burden of Covid-19. Out of the prophylactic treatments listed here, all of these treatments have some marginal benefits over others, but overall the most effective one would be Monoclonal antibodies. There is mixed evidence regarding preventative treatments of Covid-19, however monoclonal antibodies have recently shown promising results in clinical testing. Our research demonstrates that there is evidence that they drastically reduced the chance of both symptomatic

and asymptomatic infection, as well as reducing hospitalization and death in Covid-19 patients. The data regarding Ivermectin on the other hand, has been largely inconclusive. While there is evidence that it may reduce the rate of infection, there is not enough data to support its efficacy in treating or preventing Covid-19. More research needs to be done on this drug and many others; as many treatments are still early on in the research process. Although lots of research has been done, more research is required to find more effective treatments. Lots of research has already been done on the treatment and prevention of this disease, however, it is still a relatively new virus variant and a lot of uncertainties remain. It remains clear through our literature review that there is a lot to learn regarding the most effective way to combat this disease, and more research needs to be done to help further our knowledge.

Limitations

Although this review provides an overview for the treatments/prophylaxis of Covid-19, there are some limitations. This review only discusses the most prominent and widely discussed treatments for Covid-19 currently available. There are several other experimental treatments being studied that are not included.

Conclusion

This review paper provides a broad overview on the main treatments and prophylaxis for Covid-19. Although there are several promising treatments for Covid-19, it is clear that more research needs to be done to find more effective treatments with fewer side effects.

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School Lunch Policy Reforms as a Remedy for Childhood Obesity by Connor Van Huijgevoort

Introduction

The United States is facing an obesity epidemic. Between 2000 and 2018, obesity among adults in America jumped 12% from 30.5% to 42.4%. All Americans, including children, have been affected. From 2000 to 2017, childhood obesity increased from 13.9% to 18.5%. (Hales et al.) Predicted to reach rates as high as 48.9% by 2030 and strongly tied to cardiovascular disease and Type 2 diabetes, obesity is a growing concern in public health (Ward et al.; Deckelbaum and Williams). Childhood obesity often translates to obesity in adulthood, so effectively tackling this issue requires policy changes that target and mitigate obesity early in life (Bhadoria et al.).

On the most basic level, obesity is the result of consuming too many calories while burning too few. Thus, fighting childhood obesity requires increasing a child's energy output and/or decreasing the child's energy input. This can be obtained by improving one's dietary and exercise practices. From the perspective of public policy, ingraining healthy eating and exercise habits in school is far easier than attempting to control lifestyle patterns at home. While many confounding factors contribute to childhood obesity, school lunches contribute about 30% of a child's daily calorie intake so changes in school lunch policies could be a promising approach to improve a child's health and reduce the likelihood of obesity.

As awareness of growing childhood obesity rates has increased in the United States, the National School Lunch Program (NSLP), providing free or reduced lunches to 30 million children and setting nutritional guidelines, has been modified by Congress to try and improve student health outcomes. Investigating differences in state or city school lunch programs can help identify potential improvements to national school lunch policies. Additionally, understanding policies abroad can offer program designs to policymakers that are fundamentally different from American school lunch policies.

Background

Before considering how school lunch policies might address childhood obesity, it is important to understand the factors that are correlated with childhood obesity. A 2018 study analyzing a sample of 14,000 American children, found several environmental and behavioral

factors independently associated with childhood obesity. Two factors that had a particularly large effect were socioeconomic status and ethnicity. Children living in the lowest quintile of socioeconomic status were 70% more likely to be overweight than children in the upper quintile. Additionally, African American or Hispanic children were 60% more likely to be overweight than white children (Williams et al.). This may be a result of income inequality amongst ethnic groups, with ethnic minorities, on average, being associated with a lower median income and less access to public health resources than their caucasian counterparts. Children living in unsafe communities also see higher rates of obesity with fewer opportunities to be active (Bhadoria et al.). In addition, there were also behavioral factors that increased the likelihood of childhood obesity. For example, whether a parent smoked increased a child's chance of being overweight by 40%. Children that ate dinner with their families saw a 4% lower chance of becoming overweight (Williams et al.). Additionally, frequent snacking, sugary beverages, and access to electronic media are associated with higher rates of childhood obesity. Parenting style can also affect a child's healthy food intake. With children often reflecting the eating patterns of their parents, providing the child with rationale and options for healthy foods is associated with positive cognitions of healthy foods (Bhadoria et al.).

While it is important to understand the various environmental and behavioral factors contributing to childhood obesity and a healthy diet, school lunch policies are quite limited in addressing these factors. For example, factors such as parental smoking or access to electronic media cannot be addressed in a school lunch policy. However, snacking or socioeconomic status can be addressed by changing dietary preferences or expanding who has access to free and reduced school lunches.

In addition to understanding what contributes to childhood obesity, it is also important to identify the components that are needed in a school lunch policy. Currently, United States' school lunch policies only include guidelines for the nutritional value and frequency that lunches are served. School lunch policies can address the issue of providing children with healthy food but have little influence on whether children make healthy food choices in school and at home. Ideally, a school lunch policy not only provides healthy foods for all children, but also improves childrens' food preferences for long-term health benefits. Such a policy could improve childhood obesity rates.

While a predicted 40 to 70% of adulthood obesity can be attributed to genetics, considering that school lunches contribute about 30% of a child's daily nutrition, identifying flaws in current school lunch policies can improve children's health (Deckelbaum and Williams). This can be accomplished by designing a policy that potentially introduces nutrition education and addresses factors that contribute to childhood obesity.

National School Lunch Policy

Established in 1946, the National School Lunch Policy (NSLP) was created to improve the well-being of American children by providing nutritious meals through schools. While participation in the NSLP has been consistently high, with roughly 72% of students taking part in the program, the Obama administration began raising concern over its effectiveness in improving children's health.

Originally, malnutrition among children was the primary concern, so the NSLP had a focus on increasing calorie intake, leading to school lunch guidelines setting minimum requirements for bread, meat, eggs, and vegetables (Ralston et al.). However, these food-group requirements were overgeneralized, resulting in schools fulfilling the "vegetable" category with cheaper, more starchy vegetables such as potatoes (Hopkins and Gunther). These guidelines aided in fighting food insecurity when first established, but as calorie-dense foods have become increasingly accessible and with growing childhood obesity rates over the last 2 decades, the NSLP has needed to adapt. This meant imposing revisions to the original guidelines that increase fruit and vegetable proportions while limiting calorie count.

These revisions were made in 2010, with the Healthy Hunger-Free Kids Act (HHFKA) which made large changes in school lunch nutritional guidelines. In contrast to the original NSLP, the HHFKA imposed maximums on calories and fats, while maintaining minimums on fruits and vegetables. Some specific changes, detailed by the Department of Agriculture, included completely eliminating trans fats, dividing fruits and vegetables into separate food categories, and moving towards using only whole grains (USDA). While these changes should improve children's health, making accommodations to address the new guidelines require large reforms to school lunch nutritional quality that schools may not make. A 2015 study, analyzing nutrition data from the 2009-2010 school year, before HHFKA reforms were made, shows that schools were largely unprepared for such changes. For example, only 31% of schools met both

HHFKA calorie maximums and minimums. Additionally, only 0.3% of schools met the 50% whole grain requirement for the 2010 school year (Crepinsek and Paxton). These statistics raise questions about whether schools would be able to meet new HHFKA nutritional guidelines for the 2010-11 school year. To address this concern, schools were granted a 2 year period to switch to 100% whole grain. Despite this extension, many schools lacked funding to accommodate this adjustment, resulting in the passage of the 2015 Consolidated and Further Continuing Appropriations Act. If schools could prove financial hardship, the whole grain and sodium requirements would be eased (Consolidated and Further Continuing Appropriations Act, 2015).

Although the HHFKA reforms were demanding for schools, it has yielded positive outcomes in participation and meal quality. A study comparing the nutritional quality of meals from the 2009-10 school year, before HHFKA reforms, and 2014-15 school year found a positive trend. The 2010 Healthy Eating Index (HEI-2010) was used as a measure of nutritional quality, assessing how school lunches compare to dietary recommendations of the Department of Agriculture and Health's Dietary Guidelines for Americans. Prior to HHFKA provisions, school lunches were 58% of the maximum possible HEI-2010 score. After HHFKA changes, school lunches increased to 82% of the maximum HEI-2010 score. Large improvements were made in 10 out of 12 HEI-2010 components. For example, the score for whole grains increased from 25% in 2009 to 95% in 2014. Additionally, 2014 school lunches were nearly perfect in fruit and dairy components (Gearan and Fox). This demonstrates that HHFKA revisions had a significant effect on the dietary quality of school lunches despite large changes needing to be made.

Not only were school lunches healthier, but reforms may have inadvertently increased participation. This is reflected in a 2017 study, tracking participation rates in the NSLP from 2008 and 2015. Participation rates in all students remained roughly the same throughout the 7 year period, with about 70% daily participation. However, students qualifying for free and reduced lunches have seen an increase in participation. During the 2010-11 school year, in which HHFKA reforms were made, there was an increase from 73% to 82% in daily participation (Vaudrin et al.). This increased participation among low-income students may have been the result of growing acceptance of healthier lunches among students.

Participation improvements can positively impact childhood obesity trends as lunches become healthier with policy changes. When only looking at children in poverty, there was an increasing trend in obesity prior to HHFKA's implementation. However, after HHFKA's 2010

reforms, children in poverty saw a 9% decrease in risk of obesity each year. Without the new nutritional guidelines set by the HHS, the risk of obesity for children in poverty may have been 47% higher in 2018 (Kenney et al.).

When including students of all socioeconomic backgrounds, however, this decreasing obesity trend is not seen. In a 2021 study tracking high school students from 2010 to 2017 found no statistically significant obesity rate changes during this period after HHS reforms (Morgan). Despite the HHS not showing a wide-spread change in childhood obesity trends amongst all American children, it has proven to be beneficial specifically for impoverished students, who are particularly affected by childhood obesity.

With HHS reforms resulting in healthier lunches and potentially positive effects in participation and obesity rates, continued improvements to the nutritional guidelines of the NSLP would help facilitate these trends.

Smarter Lunchrooms Movement

Beyond focusing on nutritional guidelines on school lunches, some organizations have focused on children's eating behavior and how simple, affordable changes in lunchrooms can result in healthier lunches. Created in 2009 by Cornell University's Food and Brand Lab, the Smarter Lunchrooms Movement (SLM) seeks to discover cost-effective strategies that influence children's eating choices. These strategies often include making changes to the lunchroom environment or how food is presented. For example, one SLM strategy includes offering sliced fruits rather than whole fruits. This is justified by a 2009 study, finding that peeling and slicing increases the odds of selecting and eating fruit (Swanson et al.). Other simple lunchroom environment changes include assigning fruits and vegetables with creative names, placing healthy foods in two locations, and displaying unflavored milk at the front of coolers.

While strategies proposed by the SLM are low-cost and require no changes to school lunch nutrition, its effectiveness in influencing healthy food selection is not conclusive. In a 2020 study, 67 schools were paired with a Child Nutrition Director, and changes were made to each school's lunchrooms that increased their Smarter Lunchroom Scorecard score (Drzal et al.). Incorporating more SLM strategies results in a higher score. Despite improvements in Smarter Lunchroom Scorecard scores, these changes did not result in greater fruit and vegetable selection. Despite this, a comprehensive review of 11 studies found that SLM strategies increase

the selection of fruit, vegetables, whole grains, and milk. Given that this review examined studies with a wide range of samples throughout the United States, versus only 67 schools, it can be inferred that SLM strategies make school lunches healthier (Mumby et al.).

While not all of SLM's recommendations have been investigated, some strategies have proven beneficial results. For example, providing multiple fruit and vegetable choices, a SLM strategy, improves healthy food selection. Comparing students before and after given the ability to choose which fruits to select, a 2013 experiment found a 15% increase in fruit consumption. This shows that when students are given an active role in choosing preferred fruits and vegetables, an increase in healthy food consumption is seen (Hakim and Meissen). This finding is corroborated by a 2017 study, finding that students with access to a salad bar see an increase in fruits and vegetables consumption (Johnson et al.). Some SLM strategies have yet to be specifically studied and more research needs to be done to further understand its effectiveness.

School Breakfast Program

Beginning in 1966, the School Breakfast Program (SBP) set out to provide subsidized breakfasts for rural and impoverished children without access to breakfast before school. With eating breakfast being inversely associated with BMI, expanding school's involvement in children's nutrition through SBP may have positive outcomes (Timlin et al.).

Nutritional guidelines for school breakfasts are similar to those outlined in the NSLP, setting maximums on saturated fats and minimums on food groups like grains and fruits. However, the SBP's effect on rates of obesity in children remains inconclusive. A 2009 study, utilizing a sample representative of all US public schools, found that the SBP is associated with lower incidence of childhood obesity. In fact, for every additional school breakfast eaten each week, there is an associated 0.15 decrease in BMI (Gleason and Dodd). This decrease could be attributed to breakfasts taking up more of a child's daily calorie intake that would have been replaced by unhealthy foods later in the day, like snacks. Another study finds that eating breakfast at school through the SBP is not related to weight changes, but in low-income families, one school breakfast per week increased odds of becoming obese (Sudharsanan et al.).

While the SBP's effect on the risk of obesity is inconclusive, given that the SBP's nutritional guidelines follow a similar framework as the NSLP after HFFKA reforms, it can be expected that SBP participation can improve childhood obesity trends.

International Policies

Looking at school lunch policies from different countries outside the United States, can offer insight into how changing the framework of current policies can better children's health outcomes. However, the impact that investigating foreign school lunch policies can have in the United States is quite limited. Childhood obesity is a result of various behavioral and socioeconomic factors, such as wealth, which are significantly larger contributors to obesity than school lunch programs. Because of this, in countries where such socioeconomic or behavioral factors are less prominent, lower childhood obesity rates can be expected, independent of the characteristics of their school lunch program.

Sweden

Unlike the United States' NSLP, which originally was created to curb malnutrition, Sweden's school lunch program has set the goal of making lunches widely accessible. Only recently has a reform been made to ensure that lunches were nutritious to improve health, the 2011 Education Act. While there are no specific nutritional guidelines made in this reform, schools are expected to follow the Swedish nutritional recommendations, updated every 8 years. Such guidelines involve no baked goods, no sweetened drinks, and appropriate amounts of Vitamin D and fat. Without any precise standards, such as specified calorie expectations, Swedish school lunches varied widely in nutritional standards, with 60% of schools lacking a system to track nutritional quality. Despite this, a 2015 study found that after the 2011 Education Act reforms were made to school lunches, there was an increase seen in serving fish and essential nutrients, like fiber and iron (Patterson and Elinder). This may be attributed to schools re-evaluating and improving lunch nutrition after the Education Act was passed, garnering new public attention on school lunch standards.

In addition to healthier lunches, Sweden has also offered universal free school lunch since the 1950s. Studies have found that free lunches not only improve children's nutrition but also reduce families' spending. One study tracked the economic and health outcomes of students from 1959-1969, after universal free lunch reforms were made. It was concluded that after 9 years of school lunch participation, students saw a 4% increase in likelihood to be near perfect health and 8% decrease in likelihood to be diagnosed with a health condition by adulthood.

Additionally, the study found that Swedish families could save roughly 1% of the average household income (Lundborg). Even if the United States implements a universal free lunch program that only reflects slight improvements in health outcomes, as seen in Sweden, it can reduce stigma that may surround free and reduced lunch programs, increasing participation.

Japan

Japan's School Lunch Program (SLP) followed a similar shift in goals as the United States' NSLP. First enacted in 1954, the SLP was originally designed to prevent malnutrition but was later modified to include nutrition education and dietary guidelines. Unlike cafeteria or à la carte food service in the United States, children are served a set menu, freshly prepared in schools, 5 days a week. Nutritional standards are similar to those outlined by the HHS in the United States, setting maximums on fats and calories and minimums on vitamins and fiber. These set meals and nutritional guidelines have shown positive results in reducing childhood obesity rates. A study tracking middle school students from 2006 to 2015 found that there is a 0.23% decrease in obesity for every 10% increase in SLP coverage in prefectures (Miyawaki et al.).

Additionally, the SLP was reformed in 2005 to include Shokuiku, the promotion of dietary education and sustainability. These reforms required that schools hire licensed dietitians, expected to supervise the nutritional quality of lunches and implement dietary education throughout the students' curriculum (Nakamura). In addition to students learning the correlation between diet and health, this curriculum is diversified to include learning about food history in social studies class or cooking methods in English class. Furthermore, students meet with producers to familiarize themselves with how food is grown. The goal of this nutritional education is to have students garner an active interest and role in their diets. Nutritional education in Japan has greatly reduced food waste and positively influenced children's eating habits (Kaneda and Yamamoto).

Requiring schools in the United States to emulate Japanese school lunch standards is unrealistic. Not only is access to locally grown vegetables limited, but many schools with low funds rely on inexpensive large food service corporations. However, implementing nutritional education in the United States that is thoroughly embedded in students' curriculum can yield positive results in children's food preferences.

Conclusion

Childhood obesity is the consequence of a multitude of behavioral and environmental factors. When finding ways to counteract growing childhood obesity rates in the United States through optimizing school lunch policies, it is important to recognize its limitations. For example, school lunch programs can make little or no change in regards to income disparity or family conditions, both environmental factors that greatly contribute to childhood obesity. However, given that school lunch policies are responsible for 30% of students' daily calorie consumption, improving the nutritional value of these calories can have long-term health benefits.

Ultimately, an ideal school lunch program can improve eating behavior and includes dietary guidelines that ensure nutritious lunches. Currently, the NSLP sets acceptable nutritional standards, especially with HHFKA reforms setting maximums on calories and fats while specifying what qualifies as a fruit or vegetable. However, the NSLP currently does not actively seek to influence children's dietary behaviors and expand participation. This leaves room for potential improvements in how the NSLP addresses children's long-term health.

HHFKA reforms have shown promising results in decreasing childhood obesity rates, especially for children living in poverty, but no policy improvements have been made to actively expand access to free and reduced school meals (Kenney et al.). Currently, families between 130 and 185 percent of the poverty line are given the option to apply for free and reduced lunch programs. This application process presents a barrier to school lunch access that promotes children's health. Changing free-and-reduced lunch to an opt-out program can remedy the issue of the application process preventing eligible families from participation.

In addition to expanding participation, improvements can still be made in the dietary quality of school lunches and enforcing nutritional guidelines. If ideally implemented, current NSLP standards can produce healthy lunches. However, many schools fall short in upholding specific requirements such as 2014-15 school lunches only reached 27% of the maximum possible sodium score according to the 2010 Healthy Eating Index (Gearan and Fox). Simple changes to address this could be implementing cost-effective School Lunch Movement strategies, some of which improve the dietary quality of lunches such as slicing fruit, influencing students' selection of healthy lunch options (Swanson et al.). Nonetheless, making sizable

improvements to school lunch quality requires incentives for schools to make active changes. On average, school lunches cost \$3.81 which is greater than the average free lunch subsidy of about \$3.32 (Fox and Gearan). Additionally, many schools lack sufficient funding or access to source fresh ingredients, with only half of schools offering fresh fruits and vegetables daily (Finkelstein et al.). This results in reliance on large food service corporations, providing low-cost meals that narrowly comply with NSLP nutritional standards. Because of this cost-to-subsidization disparity, increasing subsidization of free or reduced school lunches may be an effective incentive for districts to uphold NSLP nutrition standards. If funding for schools with access to local produce is increased, lunches will likely be healthier.

Beyond aligning incentives for schools to uphold NSLP guidelines, adopting a nutritional education program, like what is seen in Japan, can positively impact students' food choices outside of school. A 2019 study designed a nutritional education curriculum, taught in 3 midwestern elementary schools over 6 weeks (Schmitt et al.). With the goal of creating an engaging program, participating students tried new foods, learned about why certain foods are healthy, and how to make beneficial dietary changes. At the end of the curriculum, students who participated in the program included more fruits and vegetables into their eating habits and scored higher on a dietary information exam than non-participating students. This reveals the potential improvements in children's health that the addition of a nutritional education program as part of a school lunch policy may have. While elementary school-aged children are unlikely to have control over meals outside school, primarily relying on parents, a nutritional education program can positively influence long-term eating habits.

Looking into the future of school lunch policy research and reforms, some states are beginning to implement universal free school lunch programs. During the COVID-19 pandemic, in response to food insecurity fears as the American Rescue Plan Act would no longer provide food assistance, the USDA announced that all school lunch during the 2021-22 school year would be free. However, this temporary program may not provide enough information to discern whether or not a universal school lunch program can improve children's health due to its short time frame. Luckily, California chose to adopt a permanent universal program beginning in the 2022-23 school year after an unexpected budget surplus. Conducting research on the effects that this program has on students' health in California can be a good indicator of whether such a universal free lunch program should be considered nationally. Given that school lunch

participation has improved children's health and this policy removes potential stigma for students qualifying for free and reduced lunch, it can be expected that a universal free lunch program will benefit health outcomes.

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Rewards and Punishments: The Implications of Operant Conditioning in College Athletics by Madhalasa Iyer

The completion of complex tasks is accelerated with the use of incentives and remunerations. These incentives often range from soft approbation to monetary rewards like bonuses, scholarships, and other compensation, which have been proven to have a significant effect on one's performance in executing certain duties. One area that clearly illustrates the effects that monetary rewards have on overall performance is seen in college sports as regulated by the NCAA. Although the NCAA claims that the source of motivation for the sport players should solely be based on the, "education and the physical, mental and social benefits," they receive, athletes can also be attracted towards monetary rewards or an increase in fame they could earn from playing in college (Kauwelo et al.). By looking at how these athletes are influenced by rewards provides an example of how they are possibly being conditioned to play for money and not for the intrinsic passion of the sport. These factors motivating college athletes, provides an unique example of operant conditioning, allowing for a broader understanding of this complex term. The American Psychology Association defines operant conditioning as a process by which learning "occurs as a function of the consequences of behavior" (APA). Since the use of rewards often augments the performance of a player, and conditions them to view a sport through an extrinsic, monetary lens instead of an intrinsic perspective, these rewards could change the source of motivation, bringing numerous ethical concerns. Therefore, because the inclusion or removal of rewards can affect the motivation and performance of any player, one needs to ask: to what extent should operant conditioning be limited for college athletes? It is the position of this paper that the practice of operant conditioning, to increase results of sports players, should be limited because these techniques are counterintuitive in the long-run, detrimental to relationships, and affect the methods of improvement.

The implementation of a reward system as a motivation has been proven to hinder the overall performance of the athlete. The behavior that has been reinforced doesn't remain long after the intervals of the reinforcement have ended. Studies by a sport psychologist Robert Kerr on monkeys illustrated that, while the reward is given, neurons in the reward center begin to fire and the subject provides "immediate feedback on the neuron's firing" (Kerr). However, after the reward is given, and the task continues, the animal's "signal is reset" and the neurons in the

reward center stop firing (Kerr). This receiving feedback is momentary and causes one to increase their performance only during specific intervals. Moreover, this further shows that operant conditioning methods, like receiving praise or criticism based on one's actions, only work to provide instant gratification to the college athlete but does little to improve the overall performance of the player. Since the reward system is external, the motivation and the drive to perform certain tasks rely highly on the magnitude of the reward. The study acknowledges that although changes in the brain are at first temporary, the plasticity of the brain allows for transformations to occur that mold the connections for long-term behavior. However for this to occur the act of providing rewards must be continuous and repeated. Unlike the effects on the player, the ramifications of this psychological process are different on the coach, as the effect of operant conditioning is more long-lasting.

Effects of Rewards on Coach

The lack of continuity in performance hinders the coach's ability to receive the psychological benefits of playing and coaching sports. A study by the University of Southern Alabama shows that coaches who rely on extrinsic motivation are "related to a personality style characterized by higher tension and lower warmth" (Frederick & Morrison). The team not performing to its full capability leads to the coach having constant stress and pressure for improving the performance of the team. The practice of operant conditioning is counterintuitive as it doesn't allow the coaches to gain the benefits of playing sports. Much like the coach's perspective, the audience's perspective is similar in their urge to see their associated team win, and is affected by their loss.

Impact on Sports Audience

In addition to the impact that winning or losing has on the college athlete and the coach, the loss of a game negatively impacts the audience and the fans who associate with a specific team. In a study conducted by the Journal of Sport Behavior, "80% of the fans reported feeling good when their teams win" (Amstrong). The origins of these feelings are transformations in the brain that arise due to the increase of dopamine neurotransmitters in the synapse. Dopamine is released when the fans feel good about winning a game or the expectation of winning a game. Much like George Orwell stated in *The Sporting Spirit*, the fans want to see "one side on top and

the other side humiliated” and feel a sense of victory and accomplishment when their team wins (Orwell). This sensation occurs because the fans believe that the sports team is a part of their identity. While euphoric feelings arise for victories, the quite opposite occurs when the team loses. A study by sport psychologists revealed the eating habits of National Football League (NFL) fans whose teams lost. These findings showed that the fans “ate around 16% more saturated fat when their football team lost a game” (Wann). The audiences’ motivation and drive are satiated because of the rewards they expect. However, when their team doesn’t deliver, the detrimental effects on the mental and physical health of the audience increases. The study acknowledges that the sport enthusiasts differ on their choices and “consumption behaviors based on their level of team identification” (Wann). Not all fans display such extreme effects, yet the changes in the mental health of the audience are still directly related to the wins and losses. Overall, the changes in the brain allow us to see the effects on the coach, audience, and athlete through a scientific lens. Through the scientific lens, one can understand the effects of positive reinforcement. However, to identify the impacts of negative reinforcement of the coaches carrying out discipline, it is crucial to approach this topic through a social lens.

Social Aggression in Players

The negative social consequences of how the coach disciplines his/her team can lead to an increase in aggression of the players in their daily relationships. This part of operant conditioning provides strict punishments for mistakes. According to research by Nova Southeastern University, the coach’s methods and ways of punishment reinforcement show “a clear increase of aggression in sports” (Donckers). This helps illustrate that the violent behaviors originate because of methods of operant conditioning. Furthermore, the International Society of Sport Psychology identified that “sport aggression has become a social problem both on and off the playing field” (Keeler). The increase in aggression has pervaded through athletes’ relationships and has reflected on their daily habits. The actions of the coach, whether reprimanding or yelling, affect the athletes as it justifies the actions as correct and prompts the athlete to use the same verbal tone and language when dealing with their daily situations. The athlete’s perspective and the coach’s perspective are similar in the social lens, as the use of operant conditioning has deleterious effects on both of their relationships. While the athlete’s

increasing aggression affects the relations with their family and other daily social interactions, the verbal aggression of the coach affects team bonding and inclusivity.

The inclusivity of the coaches as part of the team is affected as the coach takes a more dominant role. A study by Frederick and Morrison showed that coaches who use extrinsic motivation “exhibit a high level of privateness” and that the methodologies that the coach uses to teach has an “impact on team climate and athlete satisfaction and performance” (Frederick & Morrison). The relationship between the team members and the coach is impacted heavily because of the way they motivate the athletes. There is a lack of communication between the coach and team members due to fear of punishment. Working as a team for a single goal becomes more difficult when there is a paucity of communication. The relationships are affected heavily due to the use of extrinsic motivational methods. This shows how the reward and punishment techniques change the daily lives of the individuals involved. However, the issue of using operant conditioning can also be viewed from a broader ethical lens with what it implies by its practice.

Ethics of Operant Conditioning

By receiving positive reinforcement for good performance and negative reinforcements for mistakes, the perception that one cannot learn from their mistakes is developed. A study conducted by the Sports Psychologist Murcia Moreno revealed that there is “a positive relationship between coaches’ controlling style and athletes’ fear of failure” (Moreno). The study describes how the punishment and reward method lessens the ability of the subject to take risks or explore out of their own comfort zone (Moreno). By connecting punishment to any form of mistake and rewards to good behavior, the fear of failing is increased and people are less likely to learn from their failures. Nevertheless, this doesn’t mean that mistakes should never be punished or reprimanded. There are limitations to the extent to which the process must be curtailed. However, as discussed, excessive verbal or physical aggressiveness can lead to detrimental effects on how the individual views failure. By better understanding the reverberations of the reward and punishment methods applied to college athletes allows one to develop an efficient solution that has the possibility of keeping the benefits of operant conditioning while negating its overall harmful effects.

A Possible Solution to the Harmful Effects

The use of rewards and punishments cannot be removed to such an extent where time-outs and breaks are considered “rewards” that should not be provided for the sake of fostering intrinsic motivation. Therefore, it is crucial to enforce the exact limits of operant conditioning. The practice of this method can be allowed for providing breaks or soft disapproval of certain mistakes and tasks. However, the implementation of this system to provide an extrinsic motivation, as discussed previously, should not be allowed. The use of monetary rewards and compensation for motivation produces limited success and/or benefit to a college athlete. To increase the intrinsic motivation in athletes and coaches, one-on-one sessions with sports psychologists could be organized to help the athletes anchor their motivation and understand the benefits of playing sports. The American Psychology Association states that sport psychologists help numerous athletes enhance their performance and deal with stress (APA). The sessions would help the athletes find their motivation and allow them to receive the greater benefits of playing sports. These sessions should also be employed for the coaches where they have the ability to improve their coaching styles to help motivate the team the right way for optimal performance.

The use of operant conditioning can only be limited with continuous effort and the practice of identifying intrinsic motivation instead. Sports organizations like the NCAA should be responsible for the implementation on a large-scale for all the athletes and coaches. By finding the sport psychologists and allowing individual times for each player and coach, the team’s success would increase and the detrimental effects of employing operant conditioning techniques would decrease. The process of identifying and using intrinsic rewards as motivation with psychologists and therapists has worked in settings where many have hoped to lessen weight. Programs such as Weight Watchers and other weight-loss programs help identify the individual’s motivation and work towards these goals by creating a plan (Kornspan). These programs have been more successful than traditional weight-loss programs and have allowed for individualization. However, this solution does hold certain implications and limitations. Applying and monitoring the practice of operant conditioning in daily situations is difficult, especially in the use of sport practices and team meetings. It is crucial for the coach to follow through the guidelines called for implementation by the sport psychologists. Furthermore, the implementation of this solution would require the athletes to take time out of their schedules for

these sessions and be willing to get accustomed to the process of opening up and reflecting on their thoughts. Though these consequences show the need for careful planning, this solution is the most viable method to help increase success and provide inner motivation.

Overall, behavior modification methods have negative effects on the coach, athletes and the audience associated with college athletics. The prevalence in the employment of the methods of extrinsic motivation calls for regulations and limitations to protect all involved from suffering from the stress of being conditioned. Furthermore, the psychological, social and ethical impacts of operant conditioning illustrate that the procedure requires control so that all the individuals involved in sports can receive the real benefits of engaging in the game.

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The Burden of Forced Labor in Southeast Asia, Latin America, and The United States by Rebeca Gutierrez-Sztarkman

Introduction

Forced labor makes up a large part of the modern world's economy and functionality, yet the enormity of the issue is often underestimated. Society's ever-growing demand for cheap labor only adds to the gravity of the matter. While the system may be beneficial for the economy, millions of people around the world are facing inhumane working conditions that strip them of their fundamental human rights.

Several types of work fall under the term of forced labor, such as bonded labor, domestic labor, agricultural, and sexual labor. The widespread use of exploitative labor has allowed the industry to thrive for decades. Virtually every field benefits from these forms of slavery, such as the agriculture and service sectors (Finn). Several factors contribute to the perseverance of the conflict (Finn). These include the flawed legal frameworks put in place that fail to regulate the issue, deep-rooted prejudices and class systems, and societal obligations.

This essay will compare and analyze data regarding forced labor in the regions of South America, Southeast Asia, and the United States in order to highlight solutions that have been consistently effective or ineffective. The data compared will include worker experiences, social and economic effects, labor statistics, amongst others. The essay will conclude by suggesting the best possible solutions as highlighted by the research conducted. This paper will examine the issue's presence in actuality, its historical precedents, the effectiveness of different solutions, and the effects of applicable labor laws in order to conclude with an analysis of the best solutions to implement in the future.

Background

Forced labor is present in nearly every sector of the world's economy, and has shaped its development. The global economy thrives off of the cheap labor offered by the various forms of forced labor. Human trafficking, for instance, generates around \$150 billion U.S. Dollars annually (International Monetary Fund). According to the International Labor Organization, forced labor is involuntary work performed under the threat of being penalized (ILO). This applies to any kind of work in any kind of activity, under penalties as severe as death threats. The

International Justice Mission recognizes that patrons use means of threats and violence to force victims into working, denying them basic human rights such as adequate food, sleep, medical attention, and an education. Types of forced labor described by the ILO include laboring in fishing, agriculture, construction, sexual exploitation, and domestic work. These require great amounts of exhausting physical labor for extended amounts of time, in exchange for little or no pay (ILO). Additionally, debt bondage occurs when people repay their debts through labor when they are unable to afford fees from unauthorized brokers and recruiters. Those who fall into debt may be forced to work in factories, mills, mines, among others (Anti-slavery International).

Just as there are varying types of forced labor, there are varying types of experiences for victims. The majority of victims, especially women and children, are sexually exploited. Enforcers of forced labor often view women and children solely as objects useful for sexual exploitation (IMF). This has led to an increase in child pornography and live streaming of sexual abuse on the internet. (IMF) In some places, children as young as 4 years of age can be forced to live under conditions that deprive them of basic human rights. In fact, child slavery is becoming increasingly common (International Justice Mission). Patrons prey on their innocence and vulnerability, as they do with other groups of people in desperate situations.

Because involvement in the forced labor industry varies between Higher Income Countries and Lower Income countries, this paper analyzes the forced labor industry in countries and regions that fall into these categories. Higher Income Countries, or HICs, have more valuable economies, stable governments, and widespread accessibility to resources like clean water and sanitation systems, according to the BBC. (BBC) They have a stable market with a greater number of exports, which are typically finished products, than their number of imports. An example of an HIC is the United States. Several of an HIC's decisions affect Low Income Countries, or LICs, which have less valuable economies, typically have corrupt governments, and a shortage of clean water and sanitation systems. (BBC). Their economy depends on the export of raw materials rather than finished products, earning them less money. They cannot afford to have factories or processing facilities. Opportunities are limited, and large numbers of the population are impoverished. The following sections explore forced labor in the United States, an HIC, and in South America and Southeast Asia, regions with predominantly LICs. Figure 1 shows the heavily affected regions that will be discussed in this paper.



Figure 1: Map of Focus Regions. United States, South America, and Southeast Asia.

Southeast Asia

The region of Southeast Asia is one of the most involved in the inhumane industry of forced labor. The International Monetary Fund estimates that around $\frac{2}{3}$ of the world's victims of forced labor are in Southeast Asia and the Pacific (IMF). A prevalent form of forced labor in Southeast Asia is human trafficking. Over 85% of human trafficking victims worldwide were trafficked from this same region, and over 60% of 7,800 identified victims were being trafficked for sexual exploitation (IMF). The growing epidemic of forced labor in the region does not show any signs of slowing down.

An estimated 9.1 million domestic workers, or 14% of global employment, are migrant domestic workers in Southeast Asia and the Pacific (International Labor Organization). The region's popularity for migrants in search of labor opportunities has increased due to the establishment of an economic community by the Association of Southeast Asian Nations (ASEAN) in 2015 (World Bank). Many members of impoverished communities will migrate in hopes of finding paid work, and end up working as forced laborers in industries such as fishing, agriculture, and domestic work (IMF). Singapore, Thailand, and Malaysia are main destinations for migrants in need of work, while Indonesia and the Philippines are common places of origin for these workers (Kaur). Victims may also find motivation to migrate in an increase in natural disasters. The Haiyan typhoon left several vulnerable Filipino groups in a worse state than before, leaving many to work as domestic servants, beggars, laborers, and prostitutes (IMF).

Among all these forced labor industries present, two seem to stand out and thrive the most in Southeast Asia: sex work and fishing.

Between the years of 2012-14, over 60% of human trafficking victims in the region were trafficked for the purpose of sexual exploitation, which is believed to be attributed to an increase in demand for online child pornography (IMF). This industry alone generates around \$3 billion to \$20 billion USD annually for Southeast Asia. (IMF). Women and children, the most targeted groups, are forced to work as escorts, sold as brides, and sexually assaulted on the internet as part of this industry's jobs (IMF).

Southeast Asia's fishing industry is also heavily dependent on slavery. Thailand, for instance, is the world's largest exporter of tuna, and the third-largest exporter of seafood, and the nation's widespread use of slave fishermen to help them achieve this status is considered an 'unavoidable' issue (Lowy Institute). In other words, the seafood industry thrives because of it. The Thai Department of Fisheries and local NGOs estimate that there are at least 17,000 currently active fishermen who fall under the definition of a slave (Lowy Institute). Men are held in boats at sea for as long as several years, enduring beatings while doing physical labor (Lowy Institute).

Law enforcement agencies often lack the skill, knowledge, and resources to keep up with this issue's evolving difficulties (IMF). Armed groups in the Philippines recruit children for combat and non-combat roles, corrupt officials are enlisted by traffickers for aid in selecting and trafficking victims, and victims receive inadequate assistance/protection (IMF). Incompetence on behalf of law enforcement contributes to the industry's long-lasting, prosperous growth.

Latin America

An estimated 1.3 million forced laborers are currently living in Latin America. The forced labor industry in Latin America and the Caribbean generates approximately \$1.3 billion USD. An increase in the global demand for cheap domestic servants, agricultural and industrial laborers, and sex workers has resulted in the industry's growth over the years (Zondi).

The main forms of trafficking in this region include sexual exploitation, labor trafficking, and the trafficking of illegal immigrants (Zondi). The latter, the smuggling of illegal immigrants, includes the large number of immigrants smuggled across borders to work as slaves/forced

laborers. 250,000 forced workers (20% of those in the region) are victims of human trafficking (ILO).

Mexico, Peru, and Colombia have the highest number of victims (InSight Crime). In Mexico, 70% of slavery cases involve organized crime groups, where drug cartels smuggle humans across international borders just as they do drugs (InSight Crime). In Peru and Colombia, the industry thrives off of the mining industry, where forced laborers are often forced to perform dangerous jobs that may result in death (InSight Crime).

As in all other regions, traffickers lure victims by making them false promises of improved living conditions in their respective destination countries. People at risk include the impoverished, the unemployed, and those with a history of undergoing abuse, violence, and crime (Zondi). Within impoverished families, it has become common for women to be the main earners by falling victim to industries of forced labor, and for children to fend for themselves in the same way (Zondi). A large number of agricultural bondages are in debt labor, especially for indigenous workers. The prevalence of Indigenous workers in the forced labor industry can be attributed to a lack of representation for them in government, low investment in education, low literacy, and a lack of identity documents (ILO).

There are several other reasons why the region's forced labor industry has grown and prospered over the years. Oftentimes, there are long-established sophisticated trafficking networks with complex recruitment and transporting techniques. This, as well as widespread corruption by law enforcement officers, facilitate trafficking (Zondi). Unregulated immigration has made the region a main source for people who are later trafficked to the United States and Canada (Zondi). Evidently, a lack in competence for Latin American governments has led to the industry's growth.

However, in recent years, countries like Brazil have started to fight forced labor, especially in agriculture. Brazil implemented the National Action Plan in 2003, raising awareness through campaigns, promoting new laws with stronger sanctions, and intensified release of victims, which have proven to be effective in tackling the issue (ILO). Countries like Bolivia, Peru, and Paraguay, which are in similar situations to Brazil, have started to confront the issue as well, hopeful that similar strategies will have similar effects (ILO).

The United States

The United States has around 50,000 forced laborers (Bales). Though the number may seem small, it has proven problematic, as finding and freeing these workers is difficult. Most of them are hidden and exploited, afraid to speak out.

Victims are trafficked from several countries, including India, China, Mexico, and Vietnam, as well as the U.S. itself (Buckley). Most victims are young runaways, who are children of foreigners. Migrant smuggling is a common practice in this industry at a worldwide level, as it deems victims “invisible” to the governments of the countries where they work. This leaves millions of undocumented people in the U.S. (Pew Research Center) without government protection.

Similarly, a large number of forced laborers are illegal migrants hoping to find jobs and better living conditions in the U.S. These migrants are often targeted due to the fact that they do not speak English, are unaware of their rights, are often uneducated, and often fear deportation (Buckley). Perpetrators make use of verbal abuse, forced confinement, torture, and sexual assault to coerce their victims, to the point where they become dependent on these perpetrators (Buckley).

The U.S. is the ideal market for such victims, as there is high demand for their services, as well as poor legislation and inefficient laws (e.g. laws that require little monitoring of work conditions), industries with low wages, and a high demand for cheap labor (Buckley). The highest-grossing industries include sex work, domestic services, and agricultural labor (Buckley).

Sweatshops are common workplaces for forced labor victims. Employers in these workplaces often violate labor laws (Buckley). The large presence of such shops is caused by the competition for creating low-cost imports, and improper protection offered by laws (Buckley). In order to avoid monitoring, they operate on the informal economy. (Buckley).

Southeast Asia

Southeast Asia has historically been a hotspot for slavery, with the involvement of several nations that imported and exported enslaved peoples. It is estimated that 2,000-3,000 slaves were exported each year into the Middle East and South Asia between 800-1700, and 2,000-4,000 a year in the 18th century (International Institute for Asian Studies). At least 600,000 Indians were

shipped to Southeast Asia by a variety of merchants between the 15th and 17th centuries, and enslaved Africans were transported to Southeast Asia by Europeans (IIAS).

The countries most involved in the slave trade within the region included Portugal, Great Britain, and the Netherlands. Their involvement was due to their imperialist interests in these countries. Portuguese ships in particular carried slaves from Mozambique to Asian countries including the Philippines, averaging 125-250 slaves each year between 1500-1834 (IIAS). Additionally, the heavily involved Dutch East India Company shipped at least 4,700 African slaves to Jakarta (Indonesia), Melaka (Malaysia), Maluku (Indonesia), and Ceylon (Sri Lanka) in the 17th century, even using their manpower to build a fortress at Colombo in the 1670s (IIAS). They transported around 100,000 Indians to Jakarta, Sri Lanka, Melaka, and other places in Southeast Asia in the 17th century (IIAS). Ships of the British East India Company carried at least 3,100 slaves to settlements in India and factories in Java and Sumatra between the 1620s and 1770s (IIAS).

The region has seen a variety of different types of forced labor. After the abolition of slavery in the British Empire in 1834, about 3.7 million from India, China, Indochina, Japan, and Melanesia served as contractual workers, a 'new system of slavery' (IIAS). During this time period, Britain was heavily involved in imperialism within the region.

With a variety of merchants providing a heavy influx of slaves to the area, slave trades were facilitated by the large slave populations in the region. Java (Indonesia) had few slaves in the early 18th century, but bonded laborers comprised 10% of the population in Sarawak (Malaysia), 15% in Nias (Indonesia), and 30% in Sulawesi (Indonesia) (IIAS). Slaves from Filipino and Indonesian islands were constantly being traded more than once, within their respective countries (IIAS). An estimated 200,000-300,000 slaves arrived in Batavia (Indonesia) during the 17th and 18th centuries, largely from the Dutch East India Company (IIAS). Bali (Indonesia) exported around 100,000-150,000 slaves between 1620-1830 (IIAS). Southeast Asian Slaves reached the western Indian Ocean, reaching the Cape Colony between the 17th-18th centuries (IIAS).

Meanwhile, in modern day, these histories of slavery and influence of imperialist powers have shaped the region's economy and social systems. The middle class is a result of economic development under American imperialism and business, mostly in Thailand, Malaysia,

Indonesia, and the Philippines (Shiraishi). They are a product of financial globalization and regionalization, which they now have control over (Shiraishi).

Latin America

In Latin America, where child labor is a leading form of forced labor, poverty is its leading cause. Poor public education and family dynamics are other leading causes (Tauson). Poorly educated adults are more likely to force their children into the workforce (Brown). Indigenous (and often impoverished) communities are more likely to force their children to work, as they believe it will educate them to become hard-working adults, tying its obligations to cultural beliefs and education (Tauson).

The more a child works, the less education they receive. Low education levels nationally correlate with high infant mortality, poor health, high birth rate, low life expectancy (Tauson). Interference with children's education traps a country in a state of poverty, allowing the 'cycle' to be repeated (Tauson). Uneducated adults will continue to earn at or below a subsistence level. High rates of child labor and low rates of education maintain low levels of productivity and technology (Tauson). This entraps several Latin American countries in a seemingly endless cycle of poor economic states, low education levels, and poverty, a cycle the region has been entrapped in for centuries, since gaining independence from colonial and imperialist powers.

United States

The use of slavery in American economy and society throughout history is a heavy one. Slavery was legal in America for over two centuries, creating wealth, opportunity, and prosperity for millions, while those enslaved suffered horrific conditions (Equal Justice Initiative). Slavery was widely embraced in the agricultural South, as it allowed for the agricultural industries to thrive (EJI).

During the two centuries in which slavery was legalized, the work of those enslaved produced half of all U.S. exports, and provided much of the finances and raw materials that sparked industrialization (National Museum of American History). Slavery provided a basis for economic prosperity at the cost of the freedoms, basic human rights, and humane treatment of African Americans. Enslaved people were bought and sold as property, valued at around \$2.7 billion in 1860 (NMAH).

In present day, racial discrimination remains an issue in American society. This is evident through systematic racism, defined by Johnson as “systems and structures that have procedures or processes that disadvantages African Americans” (Yancey-Bragg). Currently, black people are less likely to identify as members of the middle class, middle-class black people have worse health profiles than working-class whites, among other examples of unfair systems that promote racism within American society (Ray).

As the United States has progressed to become a nation with a wide influx of immigrants, systematic and blatant racism on behalf of citizens and governmental institutions are bound to grow as well. Immigrants account for about 13.7% of the U.S. population as of 2020, and the foreign-born population of the United States reached a record 44.8 million in 2018 (Budiman). 77% of immigrants are here legally, while nearly a quarter are here illegally for a variety of reasons, including trafficking and slavery (Budiman).

Latin America

Mexico is a notable country who has been constantly fighting to prevent and ultimately eradicate forced labor. They encourage businesses to implement prevention and reporting cultures regarding practices of human trafficking, especially with providers of tourism, transportation, and communication services (Global NAP). The country’s PROGRESSA initiative has been highly successful (Tauson). The program consists of supplementing a child’s would-be earnings when he or she is being sent to school by the family (Tauson). Its notable success is continuously reported because it is a reward system instead of a handout. (Tauson).

The country’s successes can be attributed to its realization that programs focusing on poverty alleviation have seen little success, as child labor has become a social norm, and even a social expectation, in several places (Tauson). Previous data from Latin American countries have also revealed that the eradication of child labor would allow for economic stimulation for the state, as its continuous presence gives countries a disadvantage in the global market (Tauson). Most countries have now shifted their focus to efforts in which violators of national and international law are directly held responsible for their actions (Tauson).

Southeast Asia

The Southeast Asian Forum to End Trafficking in Persons and Forced Labour of Fishers (SEA Forum for Fishers) has been established by Indonesia, Thailand, the Philippines, Myanmar, Cambodia, Vietnam, and Laos, working to regulate and strengthen existing efforts to end slavery and trafficking in the Southeast Asian fishery industry (ILO). The Forum's working groups include "Trafficking in persons (TIP) risk identification and alert: data sharing and vessel monitoring, regional protocol for port State control and inspection of labour conditions on fishing vessels, harmonization of labour standards in fishing and seafood industry in SEA, fair recruitment of migrant fishers in and from SEA, and Increased access to remedy for survivors and victims of trafficking in the fishing and seafood industry" (ILO). The promising initiative has been hosted by the Indonesian government and the ILO in Bali, Indonesia (ILO). Its creation demonstrates significant advances in Indonesia since the Benjina case in 2015 (ILO). The Benjina case consisted of the discovery of a slavery ring in Benjina, Indonesia in 2015, serving the fishery industry (Associated Press in Ambon). Witness accounts say the fishermen were tortured, forced to work for up to 24 hours a day, and not paid (Associated Press in Ambon). Poor migrant fishermen from Myanmar, Cambodia, and Laos were largely targeted in this case (Associated Press in Ambon).

Furthermore, countries such as Thailand have adjusted their national action plans to lead a well fortified fight against forced labor. The country prioritizes prevention and suppression of forced labor and human trafficking, especially in its thriving fishery industries, which depend heavily on forced labor (Global NAP). The government has announced the combat of human trafficking as a national agenda, setting a policy to eliminate it in all its forms (Global NAP). Budgets have been increased, laws are being drafted to be more strict and aid in the efficiency of lawsuits, rehabilitation for victims and witness protection are being increased, and preventive measures including keeping up with national standards have been put in place (Global NAP).

United States

The United States plans to enforce laws relating to forced labor or convict labor (Global NAP). They have banned the importation of all goods produced through forced labor. Previously, an exception existed with which certain of these goods were allowed if they had not been produced "in such quantities in the United States as to meet the consumptive demands of the

United States”, therefore somewhat promoting the use of forced labor in business practices (Global NAP).

Additionally, U.S. funds research “Strengthening Protection Against Trafficking in Persons in Federal and Corporate Supply Chains”, developing online resources to help analyze, prevent, and address trafficking risks in the supply chains at a global level (Global NAP).

To aid the struggle in foreign countries, the United States has funded a \$6 million USD project in Brazil and Peru, combatting forced labor and promoting trade of goods and practices between the two countries. In Brazil, livelihood opportunities have been provided to vulnerable households, while in Peru, research has been conducted on forced labor in gold mining and logging, and over 1,000 government officials have been trained on the issue.

International Labor Laws

Legally binding ILO standards are the main tool that governments all around the world have to combat slavery in modern day (ILO). These ILO standards are imposed on all member states, 187 in total, which include 186 of the 193 members of the UN. Members of the UN that are not in the ILO are Monaco, North Korea, Andorra, Bhutan, Liechtenstein, Micronesia, and Nauru. Three of the standards are of most notable and heavy use at a global level.

- Forced Labour Convention, 1930 (No. 29) bans all forms of forced or compulsory labor, defined as “all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily.”
Exceptions include compulsory military service, civic obligations, consequences of convictions under a court of law, and cases of emergency. Additionally, illegal use of forced or compulsory labor must be punished as a penal offense.
- Abolition of Forced Labour Convention, 1957 (No. 105): Bans forced or compulsory labor used as political coercion or education, as punishment for holding certain views, as a method of labor for economic development, as a means of discipline, as punishment for strikes, and as a means of discrimination.
- Protocol of 2014 to the Forced Labour Convention, 1930 and Forced Labor (Supplementary Measures) Recommendation, 2014 (No. 203): A legally binding protocol that aims to encourage prevention, protection, compensation, and strengthening efforts to eradicate all forms of forced labor.

Latin America

Taking into account the country of Brazil as a point of reference for other countries in the region, labor Law provides the right to a minimum wage, limits working hours, sets a minimum working age, and protection within employment contracts (Labor Exploitation Accountability Hub). Forced laborers rescued from inhumane working conditions are entitled to three installments of unemployment insurance, as well as services from the Ministry of Labor and Employment, such as vocational training and aid in securing employment (LEAH).

- Article 149 of the constitution penalizes for ‘reducing someone to conditions analogous to slavery’, with 2 to 8 years of prison, as well as a fine (LEAH)
- The Criminal Code punishes false advertisements of employment in other parts of the country or overseas (LEAH).
- Article 203 criminalizes using violence or fraud to violate any labor rights, and more directly targets forced labor by outlawing force, coercion, and the retention of legal documents to keep a person under debt or employment (LEAH).
- The Special Mobile Inspection Group (GEFM), created in 1995 under the Ministry of Labor, is one of the country’s most notable efforts against slavery and forced labor (LEAH). The group makes use of labor inspectors, prosecutors, and federal police officers who are specially trained and equipped (LEAH). 1,820 operations had been conducted and 48,068 workers had been rescued as of 2014 (Ministry of Labor).
- The first national plan to combat slavery was adopted in 2003 by the Brazilian Ministry of Labor, creating the National Commission to Eradicate Slave Labor, or CONATRAE (LEAH). CONATRAE developed the Second National Plan in 2008, calling for heavier economic sanctions against employers who make use of forced labor, increased power for the mobile inspection unit, prevention and reintegration measures (LEAH).
- A constitutional amendment allowing for the expropriation of property where employers were found to be using forced labor was adopted in 2014, as had been suggested by the second national plan (LEAH).

Southeast Asia

Taking into account the country of Malaysia as a point of reference for other countries in the region, ILO convention 29 was ratified in 1957 (Azmi and Associates). Several acts and articles in the constitution make up the policies that are in place to combat the presence of forced labor.

- Article 6 of the country's Federal Constitution bans all slavery and forced labor, except compulsory service for national purposes (Azmi and Associates), as is the case for several countries around the world, including the United States.
- The Anti-Trafficking in Persons and Anti-Smuggling Migrants Acts state that anyone smuggling persons for their exploitation is committing an offence (Azmi and Associates)
- Section 374 of the Penal Code says it is against the law to compel any person to labor against their will (Azmi and Associates).
- The Employment Act of 1955 gives minimum protection regarding an employee's working conditions, wages, hours, holidays, and benefits (Azmi and Associates).
- The Occupational Health and Safety Act of 1994 secures the health, safety, and welfare of workers, protecting them from unsafe practices (Azmi and Associates).
- The Private Employment Agencies Act of 2017 considers past convictions and detentions regarding human trafficking when providing businesses with licenses (Azmi and Associates).

United States

The United States mainly makes use of different sections in the U.S. Code as well as acts to make up the country's combat of forced labor and trafficking of persons.

- Section 307 of the Tariff Act of 1930 bans the importation of goods made partly or entirely by forced labor or indentured labor. Any exceptions to this act were eliminated in 2016 by the Trade Facilitation and Trade Enforcement Act (Azmi and Associates).
- Section 1581 of Title 18 prohibits the holding of a person in debt slavery. It bans the use of force, threat of force, or threat of legal coercion as a means of compelling people to work against their will (U.S. Department of Justice).

- Section 1584 of Title 18 prohibits the holding of a person in compulsory servitude against their will. To fall under this conviction, the victim must be held by force, threats of force, threats of legal coercion (U.S. Department of Justice).
- Section 1590 prohibits the recruitment, harboring, transportation, or brokering of persons for labor purposes (U.S. Department of Justice).
- Section 1591 prohibits the trafficking of people with the purpose of selling them into sexual exploitation (U.S. Department of Justice).
- Section 1592 prohibits the seizing of documents to force others to work, including both false and official documents, based on whichever the victim possesses (U.S. Department of Justice).

Overall, a common theme across the different focus regions is the prohibition/penalization of the use of coercion, violence, or threats of violence as a means of keeping a person under employment, as well as health standards, standards for working conditions, a minimum wage, maximum working hours, and the ban of slave labor as a whole. Most countries/regions also use government agencies and organizations as a means of enforcing labor laws, such as CONATRAE in Brazil. On the other hand, few have preventive measures that serve to discourage the use of forced labor in industry, such as the ban of imported goods that make use of forced labor in their production, present in the United States Code.

Conclusion

The presence of forced labor and human trafficking across the world is far greater than many may realize, especially taking into account the innumerable amount of cases that are yet to be discovered. Millions are stripped of their basic rights and forced to perform exhausting tasks under brutal conditions, making the issue one of the prevailing human rights concerns at a global level. With the consistent growth of industry and the prevalence of poverty in several regions, it is imperative to prioritize the prevention of forced labor and the rescue of existing victims, especially by regional organizations and governments.

The global economy thrives off of cheap labor, and its presence can be found in virtually every industry, from fishing, to agriculture, and most notably, sexual exploitation. Victims, often including women and children, are forced to perform exhausting and degrading tasks under

inhumane conditions, posing threats to their health and well-being. The vulnerable are often preyed upon, including those affected by natural disasters and impoverished groups desperate for job opportunities that will allow them to provide for their loved ones.

Governments often lack the skill to fight against the issue. Given that industries making use of slavery make large amounts of money, it is common for government officials to become corrupt, aiding in the trafficking of persons and in allowing abusers to be undetectable by the government. Additionally, a lack of funding, training, and knowledge on the issue make it difficult for an effective fight against forced labor. The issue is underreported, and without constant reinforcement of laws and standards as well as efforts of rescue and prevention, it will only continue to grow.

It is also necessary to fight against pre-existing social divisions and cultural expectations that contribute to the prosperity of forced labor. Southeast Asia, a region with a strong presence of imperialism in the past, has historically been a hotspot for the trading and use of slave laborers. As the area continues to develop, these pre-existing norms, which have become deep-rooted in the region, play a big role in the growth of industry. The Thai fishing industry, for instance, one of the largest in the world, is infamous for its large use of forced laborers, which has allowed for the growth and prosperity of said industry. In Latin America, the expectation for children to work in order to provide for their impoverished families, as well as the prevalence of poverty, have allowed for the growth and persistence of child labor over the years, especially in marginalized indigenous communities. In the United States, the history of legalized slavery and the economic prosperity it brought upon the country has allowed for systematic racism in modern society, as well as a sort of foundation for the present forms of slavery in the country.

Lastly, while most regions have labor laws which set standards for matters such as working conditions and minimum wage, there is a lack of preventive measures such as the United States' ban on imports that have made use of forced labor in its production. Countries such as Mexico have found that the education of children allows for an overall decrease in child labor, as well as economic growth, and that this can be achieved through the rewarding of families who enroll their children in schools and support their education. Additionally, the country found that efforts that focus on poverty alleviation have had little success. When borrowing from successful initiatives from around the world such as these, the fight against forced labor becomes a more effective collaborative effort.

Moving forward, the battle to eradicate forced labor will allow for the protection of basic human rights, economic prosperity, and possibly the alleviation of related issues such as poverty. Taking these outcomes into account, it is essential for the eradication of such a widespread concern to be prioritized by governments and organizations. Otherwise, the threats to economic well-being and the human rights of millions will only grow larger with time.

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The Minimum Wage — High School Students' Perspective, a Comprehensive Review of Recent and Classical Literature by Benjamin Zhao

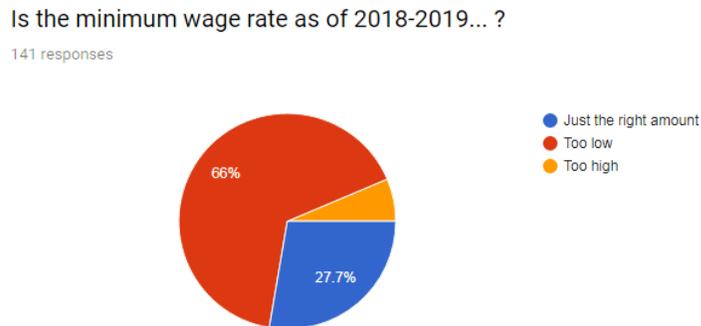


Figure 1: MHS Google Forms Survey - Minimum Wage Rate of 2018-2019

Abstract

Since its introduction in the Great Depression, the minimum wage policy has been implemented to raise workers out of poverty and raise the living conditions for low-income workers, and to ensure that workers have a liveable wage. The goal of this paper is to examine the successes and failures of the minimum wage policy, while analyzing quantitative and qualitative Google Forms survey data from Montgomery High School student's perspectives on the minimum wage. The sample of individuals in the survey results is a snapshot of high school teenager's perspective on the minimum wage. The perspectives of teenagers on the labor market, incentives, wages, are ever more relevant as we are the ones who will fill up positions in the labor market in several years. Examining student survey data, popularly cited minimum wage policy literature, and US government data, the paper seeks to put together a comprehensive picture of the nuances within the ongoing debate between economists on the minimum wage policy.

Introduction

In a 2019 survey of 142 students at Montgomery High School, New Jersey, 73.8% of respondents stated that they had a bit of knowledge behind the economics of the minimum wage and 18.3% of the respondents said they had extensive knowledge on it, meaning they learned

about it in school or elsewhere (Zhao, 2019). When asked if the current minimum wage was too low, high, or just right, 66% responded that it was too low, 27% responded that it was just right, and 6% of students responded it was too high. Most students generally responded to the survey showing a general understanding of the minimum wage, saying that it was “The minimum amount a person is paid for a job” or “the minimum someone can be paid for a service per hour.” The minimum wage is a nuanced policy issue that does not simply affect workers, but affects their employers, and ultimately the welfare of the entire country.

At Montgomery High School, the minimum wage is a social policy which is generally viewed favorably. From an economics point of view, the minimum wage acts as a price floor which creates a surplus in the quantity of labor: the quantity labor supplied is greater than the quantity of labor demanded. There is a deadweight loss which represents the jobs that could have been held by workers who were seeking employment, that were lost as a result of decreased demand for labor. The equilibrium quantity exists at a point of economic efficiency at which $\text{Marginal Cost} = \text{Marginal Revenue}$ and parties involved cannot be benefited more without causing additional losses. However, beyond economic theory, a cost-benefit analysis of this policy would be useful to determine if the real-life applications of the minimum wage policy are feasible and beneficial for workers and their employers.

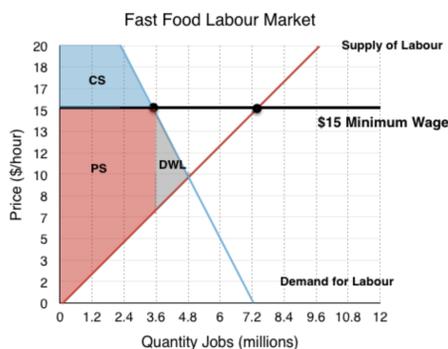


Figure 2: ECampus Ontario - Solutions: Case Study – Automation in Fast Food - Fast Food Labor Market Supply Demand Curve

Literature Review

The crux of the minimum wage debate lies in whether or not raising the minimum wage has significant adverse effects on employment. Summaries from academic research “range from ‘it is now well established that higher minimum wages do not reduce employment,’ to ‘the evidence is very mixed with effects centered on zero so there is no basis for a strong conclusion

one way or the other,' to 'most evidence points to adverse employment effects'" (Neumark and Shirley).

The main argument made by supporters of the minimum wage is that increasing the minimum wage benefits workers and helps to raise them out of poverty. To some extent, data supports the idea that poverty is reduced for those who maintain their jobs while receiving higher pay. In 2021, the Congressional Budget Office (CBO) cites that "by boosting the income of low-wage workers who had jobs, a higher minimum wage would raise their families' real income, lifting some of those families out of poverty" ("How Increasing the Federal Minimum Wage Could Affect Employment and Family Income"). However, this CBO study also found that incomes for the families who became unemployed as a result of the minimum wage would fall, resulting in a "net reduction in average family income." In terms of net income, it is apparent that the minimum wage has little effect in reducing poverty and may even increase poverty for some low-income families. A 2014 study conducted by the CBO "estimated that raising the minimum wage to \$10.10 would reduce total employment by 500,000 workers" (Wolla). The loss of jobs would prevent many workers from having a wage at all. The minimum wage hurts high school students and entry-level workers who seek employment to gain work experience.

Furthermore, Neumark and Wascher widely cited "Do Minimum Wages Fight Poverty" (1997) found that the minimum wage had no statistically significant effect on reducing poverty because of its tradeoff in reducing the employment opportunities of workers willing to work for wages lower than minimum wage. Rather than improving the general welfare of low-skill workers, it is clear that the minimum wage only shifts the distribution of income among low-skilled workers and does little to reduce poverty.

The minimum wage was once \$0 and last raised to its current national level at \$7.25 in 2009, with many states at minimum wages higher than the national level ("History of Federal Minimum Wage Rates Under the Fair Labor Standards Act, 1938 - 2009"). The minimum wage is a policy that indirectly hurts the very people it is targeting to help. Because of the increased costs of labor, businesses frequently find other means to balance the additional cost of labor. Businesses could be compelled to reduce workers' hours or decrease the number of employees—neither of which are desirable for either the worker or employer.

If workers' hours are reduced, but their wage rate is increased, workers would be paid the same amount or less. Even worse is that workers' jobs are increasingly replaced by automation

and computers in order to make labor more affordable. Lordan and Neumark (2018) found that low-skilled workers with automatable jobs are particularly vulnerable to unemployment effects of minimum wage increases.

While some argue that the minimum wage's effects of unemployment are not significant because labor markets are monopsonistic, these claims are simply untrue. Card and Krueger's popularly cited 1993 study, "Minimum Wages and Unemployment: a Case Study of the Fast Food Industry in New Jersey and Pennsylvania," shows a special case in labor markets for low-skill workers in fast food chain companies in New Jersey such as McDonalds, Burger King, and KFC, etc. that saw an increase in employment following an increase in minimum wage compared to the control group in Pennsylvania which maintained the same minimum wage throughout the study.

The market for low-wage labor is characterized as highly competitive in George Stigler's "The Economics of Minimum Wage Legislation," (1946) a widely cited work on the minimum wage. Stigler argues that the labor market for low-skilled labor is largely competitive because there are many firms that workers may choose from to work at. Large corporate fast food chains such as McDonalds and Burger King that have large wage power are monopsonistic and noncompetitive in nature, making them un-representative of the majority of the market for low-skill labor, which is mostly competitive.

The minimum wage greatly hurts small businesses because many of them cannot keep up with higher cost of labor. Raising the cost of hiring low-skilled workers also affects other high-skill employees because it could cause businesses to pay them less, threatening the business's ability to retain top talent and stay competitive.

According to a Chhabra's (2019) Forbes article, the minimum wage's impact on small business is significant considering that "small businesses provide 55% of all jobs and 66% of all net new jobs since the 1970s in the United States. 28 million small businesses account for 54% of all US sales." The minimum wage continues to affect small businesses across the country and a minimum wage hike could devastate a large population of low-income families.

Higher minimum wages in certain US states directly correlated with the collapse of many small businesses. The Faces of 15," a map project done by the Employment Policies Institute, documents 200 restaurants across the nation from Chinese restaurants, to Mexican cantinas, to ice cream shops, closing down due to not being able to keep up with the minimum wage. One of

the many businesses listed by “The Faces of 15” cites, “Buster’s Restaurant and Bar shut their doors because of the minimum wage increase, according to Stuart McDaniel, the Vice President of Government Affairs for the Greater Flagstaff Chamber of Commerce” (Employment Policies Institute). Many of the businesses listed in Faces of 15 voice similar grievances: along the lines of not being able to keep up with paying workers and maintaining a profitable business at the same time. Not surprisingly, most of the reported closings occurred in California and New York, two of the states with the highest state minimum wage.

Methods

142 student participants were gathered from Google Classroom posts from various Physics, Math, and Journalism classes at Montgomery High School, with students ranging from grades 9-12, with most students from grade 9. The Google Form survey took student responses from the beginning of February to the end of March of 2019. 142 Student responses were received.

The median household income in Montgomery Township is \$195,807. For background, Montgomery is an affluent middle-class suburb in New Jersey. The overall median income for New Jersey is \$82,545. From the graph, it is clear that household income for Montgomery Township is skewed left.

Montgomery vs New Jersey State Household Income Brackets

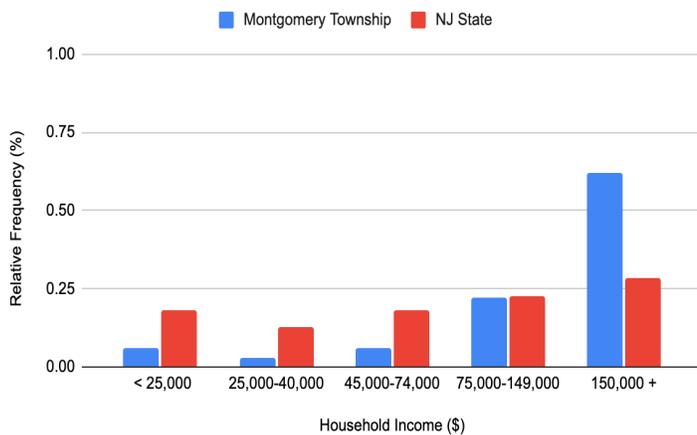


Figure 3 - Montgomery vs NJ state Household Income Brackets

Students were advised to “answer the survey honestly and to the best of your knowledge without using any outside sources” (Zhao). Questions were asked in a neutral way.

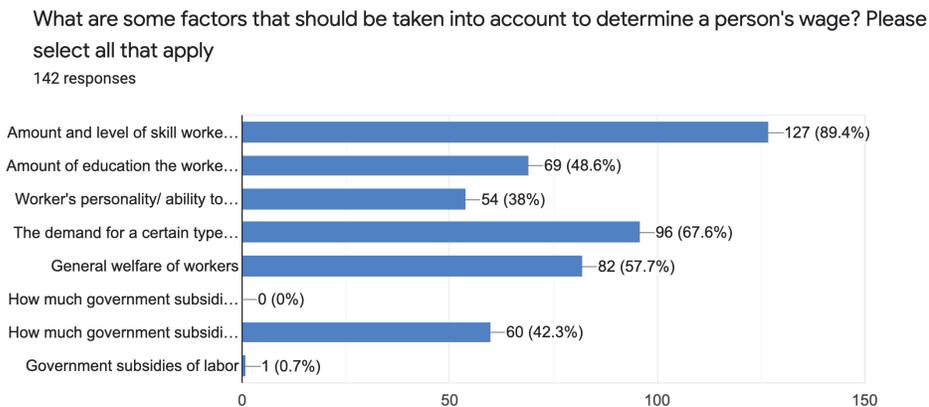
Teachers posted on their google classrooms, please help “a student” with a survey project.

Survey Form Questions:

- **Q1: How informed are you about the economics behind the Minimum Wage? (Single-Select)**
 - Very well -- I've learned a lot about it both in class and/or outside of school.
 - A little bit - I've heard about it in the news
 - What's a minimum wage???
 - Other...
- **Q2: Is the minimum wage rate as of 2018-2019... ? (Single-Select)**
 - Just the right amount
 - Too low
 - Too high
- **Q3: What are some factors that should be taken into account to determine a person's wage? Please select all that apply (Multiple-Select)**
 - Amount and level of skill workers possess
 - Amount of education the workers possess
 - Worker's personality/ ability to be agreeable person
 - The demand for a certain type of worker in the market
 - General welfare of workers
 - How much government subsidies are provided for labor
- **Q4: Briefly explain what you think of when you hear the term "minimum wage." (Short Answer)**
- **Q5: What would the lives of low-skill workers be like if there was no minimum wage? (Single-Select)**
 - A lot worse- they wouldn't be able to have basic necessities such as food or shelter
 - The same - the minimum wage increase is such a small change to low-skill worker's wages that it wouldn't significantly affect them in anyway
 - Better - businesses have to compete for labor as well as the best products. Businesses have incentives to pay workers the highest they can pay will making profits
- **Q6: Who is benefited by a minimum wage? Select all that apply.**

- Low-Skill Workers
 - High-Skill Workers
 - Small Businesses
 - Big Businesses
- **Q7: Who is hurt by the minimum wage? Select all that apply.**
- Low-Skill Workers
 - High-Skill Workers
 - Small Businesses
 - Big Businesses
- **Q8: Please briefly explain why you think that certain people are benefited or hurt by the minimum wage? (Short Answer)**

Multiple Select Questions



Selected Short Answer Responses:

Q4: "being paid \$3 an hour while working at a mcdonalds at 3 am worrying about a paper you have due at midnight on saturday as a middle-aged slightly overweight white lady screams at you for 'giving her attitude' when really you're both extremely tired."

Q4: "Politics. I know there is a lot of debate over it. Mostly I think of people who work in service jobs who don't get paid enough to deal with the people they do or the amount of hours they work or how demanding the job can actually be."

Q4: “The lowest possible amount a business can pay an employee, any lower would cause immense financial strain that can have adverse and long-term effects on health, stability, and relations.”

Q8 aggregated selected responses:

- “Low skill workers need a livable wage. Big business needs increased aggregate household consumption.”
- “A small business is hurt because sometimes they cannot pay minimum wage. Large businesses do well because they can pay lots of their workers very well and low-skill workers are helped because they can get a job that has a pay that does not go under a certain salary.”
- “I don't know why...”
- “if its too high, nobody will want to work at a hard job like being a doctor”
- “Big businesses are interested in continuing and increasing profit, like Nike, so by paying workers in countries the company has expanded to minimum wage, the company spends less on workers. Small businesses trying to grow need worker loyalty.”
- “without the minimum wage, businesses would have no incentives to pay the workers liveable wages, because businesses don't care about their workers”

Survey Findings

Students were very thorough and thoughtful within their responses. Among responses, a frequent perspective was that a minimum wage hike could improve the quality of life of workers, but increasing it too much could have an unintended consequence on small businesses and other parties. Students conveyed the conflicting perspective that the minimum wage interfering with the labor market’s equilibrium could have adverse effects, yet most students still supported raising the minimum wage. The essence of the ongoing and modern debate on the minimum wage is almost perfectly captured within this high school student study.

In general, within responses, students were more concerned with the social and moral responsibilities rather than practical execution of policy. Although, there were several responses that focused more on the dangers of raising the minimum wage by taking an extreme example of a loss of incentive if the minimum wage were raised to a very high level.

While discussing the minimum wage, many students acknowledged the limitations in our understanding of the policy as well its implications on workers. Intriguing findings were that students would pick the economically logical choice to certain responses in Q3, Q5-Q7, but use their line of reasoning from opinion-based questions such as Q1, Q2 to justify their original thinking in Q8, the question that asks why certain groups benefit and or hurt by the minimum wage.

Given the socio-economic background of students, a majority of students supported raising the minimum wage. Results were consistent with the secular trend that high-income individuals are fairly likely to support raising the minimum wage.

Conclusion

Stigler's "The Economics of Minimum Wage Legislation" (1946) makes a final point, "We seek to abolish poverty in good part because it leads to undernourishment. In this connection, dietary appraisals show that in any income class, no matter how low, a portion of the families secure adequate diets, and in any income class, as high as the studies go, a portion do not. The proportion of ill-fed, to be sure, declines substantially as income rises, but it does not disappear. We cannot possibly afford to abolish malnutrition, or mal-housing, or mal-education, only by increasing incomes."

He suggests that raising or maintaining the minimum wage is not necessarily an effective solution to alleviating poverty or solving malnutrition. He argues that instead focusing on increasing opportunities for labor through improving the quality and availability of education as a more effective solution to fighting poverty.

Stigler's ideas tie into the concerns of MHS students on the national minimum wage. In the 2019 survey, when Montgomery High School students were asked to explain "why you think that certain people are benefited or hurt by the minimum wage," responses fluctuated between a need for supporting small businesses and sustaining the living conditions of workers (Zhao, 2019).

However, one common thread identified was a need for a balance in the minimum wage as raising the minimum wage too much would be detrimental, while students also mostly agreed that too low of a minimum wage would lower the quality of life for workers (Zhao, 2019).

While revisiting the original goal of the minimum wage, it was first established by the Fair Labor Standards Act (FLSA) in 1938, with the purpose of stabilizing “the post-depression economy” and protecting the workers in the labor force (“Minimum Wage”). The US resurfaced from the Great Depression but the minimum wage policy has remained intact. Currently, the national minimum wage is functioning in its capacity to raise the wages of workers for those who hold a job. While the minimum wage has had side-effects of reducing employment opportunities for workers in search of a job, the minimum wage has existed for more than eight decades and those who benefit from the minimum wage would be hurt by an abolition of the minimum wage.

Economic data and theory support the idea that the minimum wage should not be raised either as that would most likely create more problems than it would potentially solve. Like the well-meaning responses of MHS students, the minimum wage policy has unintended consequences on the very workers it tries to help and the small businesses that employ workers.

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<https://docs.google.com/spreadsheets/d/1-fqWxv5QSTrGo3Uvmvu2jmkNzpQA8ygCtuaHHrGuTMw/edit?usp=sharing>

Implications of WWI on Eastern European Civilian Life: Infrastructure, Displacement, Genocide and Ethnic Racialization by Kenneth Park

The First World War, often referred to as the Great War or WWI, reshaped the economic and political landscape of Europe as well as Europe's geopolitical relationships with the rest of the world. However, what remained less visible were the new ethnic enclaves, nation-states, transnational identities and multilingual communities that emerged in the post-WWI period. Following the armistice and numerous treaties (namedly the Versailles, Trianon, and Saint-Germain-en-Laye Treaties) the German, Habsburg, and the Ottoman Empires fell and many new nations emerged in their place, as fresh lines were drawn to divide Eastern Europe on the world map. Some nations such as Czechoslovakia and Yugoslavia followed in Woodrow Wilson's footsteps of self-determination, seeking to reclaim power over their victors. New governments and ideologies emerged, as seen in the example of the Communist party taking power in war-torn, weary Russia. As a result of these shifts in power, minority ethnic groups were targeted for violence and expulsion. Civilians were displaced from where they had lived for centuries, or, outright murdered, as in the Armenian Genocide in Turkey. Post-WWI not only precipitated geopolitical shifts in power, but also had long-lasting implications for ethnic nationalism and ethnic identity. This essay will not attempt to provide a comprehensive overview of the multitude of repercussions the Great War had on a global scale, however, it will provide a focused analysis of the ethnic and political implications for Eastern European countries. In so doing, it will highlight the infrastructural and ethnic implications for Germans, Hungarians, Armenians, and Russians as a result of the uneven enforcement of state borders and shifts in power that marked WWI fallout.

Italy in Power: Ethnic racialization of German Tyroleans The Treaty of Saint-Germain-en-Laye was the final nail in the coffin that dissolved the once-great Habsburg Empire, and precipitated lasting changes in German territorial identity. One of the many nations emerging from the ashes, the newly-formed Republic of Austria was now a shadow of its former glory. The Habsburg monarchy that reigned over Austria for centuries was forced to abdicate and in its place was an unstable, war-torn republic. Of the many territorial concessions Austria made was South Tyrol, an area where ethnic Germans made up over 90% of the population at the time, and was given to Italy. (SPA, 2020) Italy's gain of the South Tyrol territory was a result of their

campaign “Italia Irredenta,” in which they pursued annexation of the regions Dalmatia, Istria and Tyrol as ‘rightful Italian land.’ Italia Irredenta was the primary motive for Italy’s entry into the First World War, and their pursuit of it inevitably resulted in heightened ethnic tensions. When Mussolini and the Fascists assumed power in Italy via a coup d’état in 1922, cultural barriers for German ‘Tyroleans’ increased. In 1923, usage of German place-names(which even included the name ‘Tyrol’) and the German language was prohibited as part of the Italianisation programme. Later on, it was demanded that either the Germans immigrate to Germany or stay and accept full Italianisation. This resulted in the division and tension between the groups who either left or stayed, planting the seed for a future crisis. German school systems were destroyed and Italianised, while all legal objections and actions had to be in Italian (Alber 2012). The government also encouraged Italian immigration to the region in the 1920s and 30s. Following the collapse of Mussolini’s government in the Second World War, Trentino and South Tyrol (both of whom ceded by Austria to Italy in WW1 with significant populations of ethnic Germans) were given the status of autonomous regions within the Republic of Italy as a part of the Gruber-De Gasperi Agreement of September 1946.

However, the damage was done as decades of Italianisation in the region resulted in the dilution of the German-Austrian cultural identity, and many Germans in the now merged region of Trentino–Alto Adige/Südtirol became a minority in the region. Due to the dissatisfaction from the agreement -- namely from increased Italian presence in the region and Allied decision to remain South Tyrol in Italy despite the Germans desiring unification with Austria -- tensions boiled over into physical conflict in the form of terrorism mainly led by the Befreiungsausschuss Südtirol in the 1950s and 60s (Mece 2016). At first public edifices and fascist monuments were targeted but later on became violent, costing the lives of 21 people (15 members of Italian security forces, two civilians, and four terrorists). The most violent of these was the notorious 1967 attack on a patrol at Cima Vallona where the Carabinieri, an Italian civilian militia, were targeted.

The ethnic racialization of Tyrolians by Germans not only produced such historical instances of violent conflict, but also left a legacy of what linguistic scholars term raciolinguistic ideologies (Rosa and Flores 2017). According to the 2011 census, 62.3% of the population speaks German as their first language with 23.4% speaking Italian and around 10% speaking a different language. This shows an obvious decline in the status of the German

language in South Tyrol alone by almost 30% from that in 1910, and demonstrates a form of raciolinguistic discrimination. Despite the numerous agreements made after the 60s and the matter declared resolved with the 1992 Austro-Italian agreement, the status of South Tyrol still influences regional politics to a great deal. As of 2018, 12.2% of the seats belonged to secessionist parties with the issue itself being a major part of other parties' agendas in the province of South Tyrol.

Treaty of Trianon: Displaced Hungarians and Infrastructural Disintegration

Due to the shift in power relations during WWI, the Treaty of Trianon was signed between the Kingdom of Hungary and the victorious allies, which effectively crippled and dismantled the Hungarian realm. The Treaty of Trianon has significant, far reaching consequences which act as a flashpoint of tension, influencing Hungarian participation in WWII-: namely the nation's decision to align itself with Adolf Hitler for the restoration of Hungarian rule in Transylvania. Out of the numerous ethnic groups within the now-former Habsburg realm, The Great War and the Treaty of Trianon objectively had the most significance on the Hungarians. Many of the lands ceded had sizable Hungarian populations and some even included areas with an ethnic Hungarian majority (i.e. Northern-Transylvania) (See Appendix, Figure 1). Following the treaty of Trianon, 31% of total ethnic Hungarians which approximates to 3.3 million people found themselves outside of their country (Frucht, 2005).

Many Hungarians fled to neighboring country Romania, leading to mass displacement and refugee-seeking, a source of tension between Romania and Hungary. The mass migration was also partially due to the Treaty of Trianon stating that Hungarians outside of Hungary's borders would lose their Hungarian nationality within one year of the treaty being signed in June 1920 (Puscas, 2020). The millions of Hungarians outside of Hungary faced discrimination and oppression from their former subjects. Hungarian properties were expropriated by local governance, which had a significant impact in the lives of the Hungarians.

Following the Treaty of Trianon, Hungary lost 75% of its land, and along with it, many valuable resources. Furthermore, Hungary was the breadbasket of Central Europe. Hungary produced 500% more food than it needed (Berend and Ránki, 1966), where other areas of the former empire which relied on Hungarian agriculture produce were in danger of starvation,

Hungary had too much of it. Hungary held 90% of the engineering and pre-war industry of the former kingdom, while it only retained 11% of timber and 16% of iron.(Wittmer 1937, p. 141) (Kosáry and Várdy, 1969) (Tucker, Wood and Murphy, 1996) . This decimated the Hungarian industries and led to mass unemployment of Hungarians in Hungary, as well as a decline in economic productivity in the post-war Kingdom of Hungary and the surrounding regions. Industrial output dropped by 65% and production of grain plummeted by 70% (Schuller and Gratz, 1930). Industry and resources were not the only problem. Transport systems and infrastructures were also rendered ineffective and cut off by the new borders. With previously open roads and railways now being cut off from uncooperative countries, people and goods were not able to effectively move around. As a result, supply chains were decimated and families were separated, consequently leading to the loss of many jobs that relied on interregional production chains (production processes which utilised raw materials from multiple regions).

Armenian genocide and mass displacement

In the Ottoman Empire, the difficulties and frustration regarding the war effort manifested in the form of hatred and discrimination against ethnic minorities. The Armenian genocide was a systematic mass extermination and expulsion of 1.5 million or more Armenians in the Ottoman Empire (later Turkey) between 1914 and 1924 (Melvin, 2019). The genocide was carried out in two stages, where the able bodied men were massacred and the women and elderly were deported to the hostile deserts and wastelands of Syria and the Middle east. World War One acted as a provocative factor for the massacre, where on multiple occasions, the Turks blamed the Armenians for their defeat in battles against Russia.

To this day, the genocide has had far reaching consequences; geopolitical tensions continue to rise within the Caucasian-Anatolian region and the Armenians and Greeks maintain a 'hostile' diplomatic stance with the Turkish government. The genocide resulted in the massive Armenian diaspora of 11 million, with the remaining population of Armenia being a bit less than three million. The pre-war population area of the Armenians was about six times larger than that of modern day Armenia, encompassing northern Persia, eastern Anatolia, and southern Georgia. (Melvin Ember; Carol R. Ember; Ian A. Skoggard, 2004). Through such displacement and land dispossession, it is observable how the Great War resulted in the near expungement of the Armenian ethnicity, influence and in its region.

Territorial transfers, infrastructural, bureaucratic failure

As old empires fall and new nations rise, new governments with new ideologies are established, a reality that Russian citizens' faced in their daily lives. Tsar Nicholas II's regime's failure to direct the war effort has led to much suffering and devastated Russia as a whole. Equipment shortage and incoming refugees further strained the Russian administration, with famines and shortage of food led to unrest and exhaustion. With the civilians unable to support the war, a nation-wide revolution occurred in Russia. Lenin, along with the Bolshevik party, advocated for the slogan of 'Bread, Peace, Land', which was extremely appealing to the weary, war-torn civilian populace. After a series of civil wars against the White Russian front, which devastated the already weary nation, the Bolsheviks established the Soviet Union (USSR) in 1922 and marked the rise of communism (Vladimir Lenin, 2009). One may argue that the most significant change to civilian lives due to WWI is the emergence of the Communist regime and Communism over all in the Soviet Union and other areas of the world, which shaped the 20th century and the Cold War.

Not all nations who had risen up from the sick man of Europe suffered the same fate as Austria or Hungary. The former Kingdom of Bohemia, or now the Czechoslovak Republic, emerged with an extremely favourable position. It possessed 70-80% of the Imperial industry and was left with ample supplies of coal and iron, with a significant population of 13.5 million. The Kingdom of Romania annexed a third of Hungarian land from the Kingdom of Hungary, which includes the region of Transylvania which had a significant minority and often majority ethnic Hungarian populations. This transfer of territory is what defined Hungarian foreign policy in the 1930s and 40s to join the Axis in order to regain their lost lands and unite their brethren across the border, plunging the nation into another bloody conflict (Edelman 2020). Central Europe and the Balkans saw the ascendance of Czechoslovakia and Romania as a regional power, replacing the previous hegemony of Austria and Hungary.

After reading this essay, one may notice that World War One had an extremely prominent and significant impact on the civilian populations in many different ways, often varying in geographical location and social class. The Treaty of Saint-Germain-en-Laye dissolved the Habsburg Empire, resulting in multiple ethnic conflicts and tensions along with mass migration. Here, one may observe how border changes can greatly impact the economy of a nation as well as infrastructure and supply chains, and how changes in the centre can have on the surrounding

nations and communities. The Armenian Genocide, objectively the most significant and extreme case of ethnic discrimination and tensions resulting due to the Great War, changed entire regions' ethnicities and wiped historical Armenian settlements from the map; one may realise how war can be a flashpoint for discrimination against certain ethnicities as a result of ethnic nationalism (Savelsberg 2021). On a broader historical scale, the rise of new ideologies and governments were also very prominent not only in the short term and its citizens, but to the entire world, in which the ascendance of the Communist regime and ideology directly was precipitated by the fallout of the Great War.

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The Changing Process of Lithuanian Family Structure: Discussion of Changing from Traditional form to Western Culture Family Structure by Ziyue Wu

Family is a globally captivating topic, whether in everyday life or in academia. Gooder, a pioneer of family studies, states, "The family (rather than religion) is the only social organization that is officially established in all civilizations." ¹ Family is composed of individuals and part of a wider network of relationships. It has traditionally been seen as the first group of persons to socialize and the social cell. In sociological studies of family transitions, there are several theoretical approaches. The author examines the relevant research views on family changes from family modernization theory, gender analysis of mania, and individualistic theory, which is according to the peculiarities of modernization and family changes in Lithuania and the compatibility of relevant research. ²

The family modernization theory focuses on the process of industrialization and the shift from tradition to modernity. This shift is considered as the most important aspect of the growth of a contemporary family. The renowned "convergence hypothesis" of family patterns was proposed by Gooder. ³ With the advancements of global industrialization and urbanization, civilizations all over the globe are transitioning from traditional to contemporary institutions. The extended blood family concept is being replaced by the couple family model. Simultaneously, Gooder included the unique impact of culture, philosophy, and other elements into the analytical method. ⁴ However, some researchers have challenged the nuclear family convergence pattern to be mono-line evolution, claiming that it does not match certain civilizations. Some researchers argue that the nuclear family is not only a product of industrialization, and is not the best place to start when studying the link between industrialization and family. ⁵ For the last 300 years, the nuclear family has dominated western civilizations, yet not exclusive to industrial societies. ⁶ In the traditional notion of family modernization, authority is distributed democratically and equally throughout the family. As the core of the modern family operation, the husband and wife axis replaces the father and son axis. ⁷ At the same time, the contemporary family is characterized by smaller family sizes. Lithuanian family changes display basic features and express their particular distinctiveness as a result of modernity. Traditional culture and political power both have a significant impact on the formation of Lithuanian households.

Gender as a concept emerged during the second feminist wave in the 1960s. The analytical viewpoint of gender is critical for family studies and gender equality research. Social gender analysis refers to “observing and analyzing social phenomena from the perspective of gender with the concept and method of social gender and development.”⁸ Gender analysis frequently reveals distinct expressions of gender disparity in society when looking at gender equality inside the family. Gooder contends that biology has a little part in the division of labor between men and women and that the gender division of labor is congruent with the socially accepted roles taught and acquired from a young age.⁹ As a result of this social construction, gender roles have various features as society evolves. Women's roles and positions have evolved as the Lithuanian association has progressed through several historical changes. "Women are not born but created," stated Beauvoir in *The Second Sex*.¹⁰ Spouses and women's positions in Lithuanian households have changed dramatically due to differing assumptions of traditional and contemporary responsibilities of women. While gender discrimination persists in many instances, it is not as prevalent as it was in the past. Women used to evaluate their worth by men's standards, but today "women view themselves and the world through their window of value."¹¹

Individualism is defined as "the emphasis on individuality and individual traits, individual independence, and individual freedom of action and belief in Western culture".¹² Individualism leads to the rationality of social expression, the institutionalization of individual retreat, and re-embeddin. The trend of individualism in late Soviet Union society gradually influenced Lithuanian society, especially after the collapse of the Soviet Union. This was when political power greatly reduced individual control, as it was coupled with the Lithuanian westernization policy advocating "return to Europe" , which was the trend of individualism in Lithuanian society. As a result, individuality is widely embraced in Lithuania. The inner spiritual drive and universal support of the social structure- which is represented in the position and role of individuals in the family- motivate the quest for human dignity, autonomy, privacy, and self-development. Traditional culture, political power, and religious authority have all contributed various hues of family ideas to Lithuania to establish and change social and moral order. From the focus on family ethics to the goal of economic growth, the value and role of the family reflect features of the historical period. As individualistic characteristics like family size have become less prominent, promotion of individual decision-making and other aspects of

personal value have been clear in western Lithuania's development of family over the past 30 years.

Lithuania was split between Russia, Austria, and Prussian Land due to historical causes from the late 18th century to the early 20th century, and its sovereign state disappeared off the map for more than a century. Lithuania was seized by the Soviet Union just 26 years after achieving independence in 1918 and regained its freedom in 1991. The study of Lithuanian families began towards the twentieth century, particularly when the Soviet Union fell apart, as the country's socioeconomic structure, family size, family relationships, and family idea altered dramatically. Major-research topics include macro-quantitative study on families based on large-scale population surveys, research on the changes of Lithuanian families in the post-Soviet era and their causes, research on the division of work in Lithuanian families and the position of women, and so on.

According to a study by Lithuania's independence from the Soviet Union after the main changes in the family system, and fertility rates are falling. The reasons for the change are mainly due to "individual, freedom of choice, secular, modern contraception, change of values", as the characteristics of the western social influence factors, marriage and family in Lithuania were on a path to "de-institutionalization".¹³ Of course, in the context of political, economic, wild changes, and major demographic changes, the diversification of family risks and family changes also occurs. Increasing social risks faced by families, such as "poverty, unemployment, lack of labor skills, poor drinking, crime and child neglect," also challenge the family system due to increased migration.¹⁴

Joseph Family Structure Changes

The traditional era is defined by the historical period from Lithuania's first independence at the conclusion of World War I in 1918 to the eve of its annexation by the Soviet Union in 1944. Since it occurred between the wars of independence against Russia and the war against the Soviet Union, this era is known in Lithuania as the Interwar Period. Because pre-Soviet Lithuania had a weak industrial base and progressed more slowly than Latvia and Estonia in terms of industrialization and urbanization, Lithuania was established as the most agricultural country in the Baltic region. Recently, 19 percent of Lithuanians were employed in agriculture, accounting for 75 percent of their workforce. Lithuania was a typical agrarian culture at the time,

with parents and their married offspring living in a single-family home in the countryside surrounded by acres of farmland, demonstrating that family life at the time was intertwined with agricultural output.

Joseph, a senior student in the School of Humanities and Asian Studies at Vitotas Magnus University, is studying the skills of Chinese learners. He lived in Taiwan for a year as an exchange student and speaks fluent Chinese with a Taiwanese accent. He and his family were interviewed by the author. Joseph's parents lived in Baisogala Town, which is about 100 kilometers from Kaunas. After finishing vocational school, Joseph's father was sent to work here from his parent's family in the tiny town of SeduvaTown, where he met Joseph's mother. They resided in a red-and-yellow-painted wooden single-family home with a pitched roof. The furniture was likewise wooden, with the overwhelming bulk of it being built by Qiao Mas' father. The tablecloths were cushioned with beautiful woolen textiles knitted by his mother, and the walls were adorned with handcrafted wooden masks. His parents told the author about life before the Soviet Union as they recollect. ¹⁵

"I heard it from my parents who died." Joseph's father said, "My mother had a husband before she met my father. When my mother was about 19, the man's parents approached a man and asked her to set up a girl about the same age for their son in Ziyi. So the matchmaker found my mother. They got married at the request of their parents a few months after they met. However, their life together was unhappy. The mother said that she did not know the man after marriage and did not know why there had been no children. She had to do all the housework, and the man had a bad temper and often beat her. After 16 years of marriage and the deaths of the older people on both sides, she did not want to endure the abuse anymore, so she secretly ran away from the original family, fled to the town of White Sugara, and met my father. My parents married in 1958 in Pesugala, and my sister and I were born a few years later. Of course, this was very rare." ¹⁶

The author discovered through further interviews that in the traditional pre-Soviet time, males dominated the courting of unmarried men and women. In most cases, however, neither the guy nor his family are directly engaged. Instead, a professional village matchmaker is engaged to arrange a blind date. The matchmaker is typically compensated with handmade goods such as vegetables, honey, and butter, rather than money. After being introduced by a matchmaker, Joseph's grandmother married her previous husband. Lithuania was in a difficult position at the

time, and the marriage registration system was not flawless. The fact that priests officiated the wedding, signed a paper to register the marriage with the church, and the church retained the marriage registration documents was proof of validity. Assume, however, that you wish to register to marry. In such a situation, you must provide the two religious identity confirmations to the church, one after confirmation and the other after first holy communion. During the ceremony, the marriage registration paperwork is signed. Since families are intimately linked in the same village, traditional weddings are large and time-consuming, taking up to two weeks to complete.

Men performed most of the labor in the fields in traditional agricultural civilizations, while women were primarily responsible for childbirth and housekeeping. Because males provide the family's economic lifeblood, the traditional family is a patriarchal culture dominated by men. Women are expected to listen to men. Women should look after the men and have limited authority at home. The male is the head of the family and is in charge of all major decisions.

Women had the same chances to work and earn money as males in the Soviet Union, where all employees were employed. Matzkowski felt that a woman's increasing involvement in professional and social activities served to improve their "knowledge of marriage and family relations",¹⁷ and that a woman's economic independence grew as her position in the family grew. However, this is just a logical ideal, and patriarchy continues to have a significant impact on gender roles and family work distribution.

The author: "Your parents should have a typical Soviet upbringing. They have their own jobs. How do your parents in the home division of labor do the housework?"¹⁶

Joseph: "The division of labor between parents is very clear. I cannot say he did not do anything around the house. He did cooking, washing the ashes, cleaning the house, things he never did, but men of my father's generation built their own houses and repaired their own cars, and women generally did not do that."¹⁶

The author: "That sounds like both men and women are doing part of the work, just different types. Is it fair to say that parents have similar status in the family?"¹⁶

Joseph: "No, the father still had control in the family. Every day my mother had to make the plan before my father came home, or he would be angry. Sometimes my father would beat and say my mother needed an 'education.'"¹⁶

Although the husband and wife had a certain division of labor in the housekeeping throughout the Soviet Period, the woman nevertheless took up a greater portion of the daily job, as shown by the above interview materials. The role of women in the home will not alter entirely if they compete with males in the job market and gain economic independence. A woman's rights in family marriage, according to Li Yinhe, include "the right to choose a spouse, the right to divorce, the right to remarry, the right to property, the right to name, and the right to inheritance".

18

Conjugal Relationship Change

Lithuania regained independence and joined the United Nations shortly after the Soviet Union fell apart, embarking on a capitalist path of "return to Europe",¹⁹ democratization, economic development, and the pursuit of individual values. The author refers to the post-Soviet period, which has seen Lithuania's development policy show a clear westernization trend of "returning to Europe" since the Soviet Union's collapse in 1991. The exodus of large numbers of immigrants, particularly male residents, during the early stages of the post-Soviet transition resulted in a serious gender imbalance in Lithuania.

According to the data of the census of Lithuania in 2011, the sex ratio (male to a female) in Lithuania is 1:1.17, in which the age of 1-15 is 1:95, the age of 16-55 is 1:1.03, and the age of 55 is 1:2.02.²⁰ Male's age structure is generally younger than women's, with more men among adolescents, more women of working and marriageable age, and more women than men among the elderly. When observed that many young men work in Western European nations, the gender divide is much wider than demographics indicate. This division is apparent even on the streets. According to official data from Lithuanian households, more than 210,000 people emigrated from 2012 to 2016, accounting for 7.37 percent of the total population.²¹ The difference in male and female sex ratio and the increase of population mobility in modern society lead to the unequal position of marriageable men and women in the mating market in Lithuania. In post-Soviet Lithuanian sexual relations, there is a different phenomenon in courtship activities. Women tend to take the initiative and occupy the dominant position, while Lithuanian men are more passive. Richard, in his 60s, sent the author a sample and told the author: "You know what? In Lithuania, there are twice as many women as men. Right? And Lithuanian girls are beautiful and capable, much better than boys, but there are too few boys like that. Imagine how direct and proactive Lithuanian girls are in front of the opposite sex. Lithuanian boys are generally shy and

reserved and not as bold as girls, but even so, they are always surrounded by pretty girls. In addition, the traditional family formation strategy of forming a family through marriage is under attack, and cohabitation as a new way of living together is becoming more and more popular in Lithuania".¹⁶

Another interviewee named Gindar told the author, "In Lithuania, due to the low fertility rate and the decrease of population, the state adopts an active fertility policy and encourages more births through material incentives and preferential policies. In addition, there is no restriction of the household registration system and children's enrollment system, so holding a marriage certificate will not affect children's fertility and education. This is the institutional factor that allows cohabitation to become widespread. We are both financially independent people now, getting married is not good for protecting our private assets, and while we do have some joint income and expenditure accounts, moving in together makes our partnership purer." Luck is the economic factor in cohabitation motivation. There are many Lithuanians who choose not to marry out of the motivation to protect private property. The freedom of cohabitation is also one of the factors that make some people choose cohabitation instead of marriage. For example, interview subject Monica told the author: "Choosing to live together not only allows us to have a normal family and love life but also allows us to maintain our freedom of choice. Of course, this does not mean that we should be free to cheat on our families or deny the value of our relationships. It just means that if the relationship is no longer working, whether we are married or not, we should eventually separate, right? Divorce is more trouble than breaking up".¹⁶

The author's logical motive for choosing cohabitation is to experience love and family life without being tied by marriage and maintaining personal freedom, However, no marriage here is simply unregistered in accordance with the marital legislation. Another religious register was used to establish the legality of the marriage, just as it had been done in the past. The Constitution of the Republic of Lithuania, established in a referendum in 1992, states that: "Marriage is established by mutual consent between a man and a woman."²² The state registers marriages, births and deaths, and also recognizes marriages registered in churches".²³ However, Tang Ying believes that cohabitation can be legitimized as a "de facto marriage" under certain conditions to obtain the dual attributes of both the private and social natures of marriage.²⁴ There are some significant requirements and formal requirements comply to the marriage, marriage

relationship may be created. As a result, establishing the validity of marriage in cohabitation is more difficult than establishing the legitimacy of marriage in religious or legal marriages. In terms of wedding customs, the current Lithuanian wedding customs are very similar to those of the Soviet Union. Secular marriages, on the other hand, are growing more popular and may now be held anywhere, not just in a dedicated "wedding palace".²⁵ Today's young people are less concerned about whether or not to have a religious wedding; even at the wedding church, the meaning has changed, and some people want to have a wedding ceremony. As a result, individuals choose between religious and non-religious weddings. A woman typically has a bachelorette party with her girlfriends before the wedding. Although they are no longer constrained by the set job location of Soviet times, young Lithuanians today prefer to live away from their parents after marriage. Therefore, in today's culture, the nuclear family remains the most common family arrangement. Since late marriages and child births are frequent in post-Soviet Lithuania, the percentage of nuclear families will be lower than in Soviet times; however, the proportion of couples will be greater.

In terms of the current state of labor division among Lithuanian families in the post-Soviet era, it is widely assumed that women today have more career and lifestyle options, and that the traditional division of labor between men and women is no longer the only mode of modern family life. There are plenty of male for the author, such as Lucas, who believe that women are now autonomous, that men and women have equal standing, and that women now control the household.

Undoubtedly, the division of labor between men and women in the family has changed, and the economic strength of women has become stronger and self-reliant. However, due to the conflict of role expectations, a woman's status is often different in public life and family field. For example, in recent years, there have been more and more female state leaders in the world. In May 2009, Dalia Grybauskaitė was elected Lithuania's first female president by a landslide of 68.18 percent, but like most other female state leaders, she is unmarried and has no children.²⁶ As a consequence, although women have grown more visible and engaged in public life in recent years, it has often come at the cost of personal love, marriage, and family life. The phenomena, according to the author, is inextricably linked to societal gender orientation and role expectations. Despite the fact that women are increasingly able to compete with males in public affairs, there is still a gender imbalance in sexual interactions, with women being weaker and

men being stronger. Few men are willing to be the man behind a powerful woman, therefore women should pay quietly for men's professional possibilities. As a consequence, males are more likely to succeed in both their professions and their families, while women must compete in their careers while still working hard to maintain a family life.

The functions of the family typically include reproduction, child rearing, emotional support, and economic cooperation, with child rearing being particularly important for family stability. Childcare is not the same as child education, and it should not be considered only a school issue. The family is the most significant main unit of socialization for children. Children, as members of the primary family, used to live in a more stable rural setting with their parents and grandparents. Divorce was uncommon in the traditional era, and children grew up in a full and secure family setting. Furthermore, a gender-based division of work among parents is beneficial to children's development of a distinct sense of social gender, although inevitably influenced by traditional patriarchal thoughts. The norms of family and social life are obvious, and the views expressed by both parents from various viewpoints, led by the father, are complete.

In the post-Soviet era, things were much more complicated. The first thing is both parents work, leading to a decline in the quality of childcare over the past 20 years. Parents have limited energy to devote to their children because they are too busy working. In Lithuania, where the nuclear family has been the norm for more than half a century, "a young man who wants to get married has to build a nest of incense. His own 'home' was rebuilt, and his parents' home was fractured in the course of history".²⁷ As a result, grandparents are usually absent during childcare. Therefore, parents should be the bearers of children's family care. Fei Xiaotong believed that "two-line parenting" should be adopted in childcare work and that "in the division of the labor system between men and women, a complete childcare group must include the cooperation of both sexes. Parenting cannot be borne by a man or a woman alone. A mother must have a father as well".²⁸ This point indicates the plight of Lithuanian families when it comes to childcare - the large number of single mothers. In addition, even in families with healthy parents, there is a lack of interaction between parents and children. Furthermore, the intergenerational relationship becomes even more estranged. Grandparents are almost always absent when their grandchildren are growing up. "Grandpa" and "grandma" are words that are rarely heard by a child. The elderly generally live by themselves, with little

experience of living together and lack of direct emotional connection with their grandchildren. On the other hand, parents serve as an important emotional connection between their grandchildren and their grandparents.

Lucas, a university student in Vilnius and one of Joseph's friends, lives off campus. He has to pay his own expenses except for the rent, which is sometimes subsidized by his father. He told the author about his relationship with his grandfather and grandparents.

“Only my parents occasionally took us to visit my grandfather on weekends. Unless they scheduled a visit, we usually did not go. My father went more often, but he did not always take us with him.”¹⁶

Divorce was also frowned upon and difficult to obtain in old Lithuania. In the instance of Joseph's grandmother, she accepted a matchmaker-arranged marriage planned by her parents and then had a large religious wedding in front of all her family and community.¹⁶

She would be frequently beaten, mistreated, and limited by conventional social and moral standards because of her unhappy married life and pressure from Joseph's grandmother, Qiao. After 16 years of marriage and the deaths of both of his parents, he was compelled to leave his homeland to start a new life, demonstrating how little tolerance Lithuanian traditionalists have for divorce. Divorce is not possible due to serious drinking or mental disease.²⁹ Traditional Lithuanians maintained the feudal ideals of marriage and family, as well as agricultural society's standards of behavior, and divorce was forbidden by both pagan and Christian beliefs. In a divorce, even males have limited rights.

Conclusion of Lithuanian Family Structure

To begin with, the major elements contributing to the modernization of the Lithuanian family are industry and urbanization. Lithuania's industrial foundation is extremely poor in the traditional era, and 75 percent of the country's population lives in rural regions, engaged in agricultural production.³⁰ As a result, family relationships had a strong bond throughout the traditional era. The H generation shared a single-family home, and the family's production and living revolved around a big family unit. Men are the family's authority figures and decision-makers since they are the economic pillars in labor production. When Lithuania was seized by the Soviet Union and incorporated into its planned economy, family patterns started to shift. Many young Lithuanians are dismantling their rural families and joining collective

production in cities or collective farms. In the new life field, they select their own spouses and create a new way of life that is distinct from that of the previous generation.³¹ Despite the fact that industrialization had been mostly accomplished by the time the Soviet Union fell apart, urbanization persisted. While the western way of life and ideals are gradually influencing Lithuania, people's thinking patterns have changed dramatically.

Second, the trend of family change in Lithuania is consistent with the overall trend of family change in the world. Giddens summarizes the changing patterns of the world's families as follows: "Women's rights, whether in marriage or in decision-making at home, are increasingly widely recognized; Arranged marriages are increasingly rare; First men and then women are developing higher levels of sexual freedom in societies that were once very restrictive".³² The author finds that the family changes in Lithuania reveal the characteristics consistent with the world trend and the theory of family modernization: the family size is getting smaller, and the nuclear family has become the main family structure model. In terms of mate selection, independent choice gradually replaced arranged marriage.³³ The status of women has improved significantly in the past decade; Fertility willingness decreased, advocating late marriage and late childbearing; Divorce rates are rising, and premarital sex, cohabitation, and children born outside marriage are becoming more common.

Third, the modernization of the global family in Lithuania has its own distinctive characteristics, primarily expressed in two areas. One is that in Lithuania's family modernization process, the independence of family members is prominent. Even though the overall tendency of family changes due to industrialization and urbanization is for smaller, less-linked families, this trend is especially pronounced in Lithuania. In today's Lithuania, as the author stated in the last post, there is a lack of common meal times among family members. This tendency is also uncommon in other European and American nations that were among the first to begin the process of modernization.³⁴ According to the author, this is due in part to the anticipated shift in the distribution of work and responsibilities of women in the home and the fact that Lithuanians now respect family seclusion and the progressive move to the progressive move to public and social life. Furthermore, religious and cultural traditions continue to play a significant influence in the formation of Lithuanian families. According to the updated family modernization hypothesis, industrialization and urbanization are not the only variables that drive family changes.³⁵ In Lithuania, Catholicism was significantly impactful, outlawed, reinstated, then went

away. However, Lithuania's traditional culture, which is a sign of agricultural culture and the belief in nature god, has always flowed through the country's history, even at times coexisting with the Catholic religion. ³⁶ These social and moral standards influence the Lithuanian people's manner of life and style and their values and spiritual world.

To summarize, in the course of modernization, the Lithuanian family is affected by industry, urbanization, and western ideals, exhibiting a pattern comparable with global family changes. ³⁷ At the same time, the historical ups and downs of religious beliefs, the interplay between the continuation of cultural traditions and industrialization, and urbanization in various times all contribute to the unique characteristics of family transitions in Lithuania.

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If Winter Comes, Spring Will Not Be Far Behind by Yaoyi Lu

Europe during 1819 is at a time when labor and revolutionary movements surge forward. For their rights to live, the British working-class wages a heroic struggle against the bourgeoisie who maltreats his employees. Under this turbulent circumstance, Percy Shelley writes Ode to the West Wind, depicting a powerful West Wind blowing into a forest, upon the sky, and across an ocean, as symbolism for the revolutionary storm sweeping across Europe. Mr. Shelley expresses his strong belief that although the Labor Revolution is destructive, it will lead to a significant victory, corresponding to the natural flow that even though winter is terrible, it leads to a thriving spring.

In the first three stanzas, Mr. Shelley focuses on how the mighty West Wind destroys the world in winter, symbolizing how violent revolutions push Europe into wild chaos. He begins by showing the West Wind relentlessly driving “Yellow, and black, and pale, and hectic red, (decaying leaves in winter) / pestilence-stricken multitudes / to their dark wintry bed” (4-6). In this imagery, the pestilence-stricken leaves represent the wealthy tycoons back that time, who sicken workers, disease moral standards, and harm one century’s European society. To stop the plague from spreading and causing more sufferings, the West Wind of winter fiercely sweeps the dead leaves away and buries them under the frosty ground, their dark tombs. The howling of the wind is metaphorized as the stubborn rebellions led by European laborers to pull the decadent middle class out of their wealth and power. With the usage of “dark wintry bed” to represent graves, the metaphor also vividly shows the revolutionary wind piercing through Europe with bloodshed and death. Mr. Shelley later includes a scene of the West Wind bursting “Black rain, and fire, and hail” in a dusky winter sky. He uses the color “black” to echo the dark revolutionary era that he has experienced. He visualizes his experience of laborers fighting against the corrupt middle class and struggling for their freedom through armed uprisings as the West Wind blowing away the thick clouds and ruining the world with extreme weathers. During the revolution, the competing forces are uncontrollable as the torrential rain and hail are pouring; the situation is complicated as no one knows what is hiding in the rolling sky; the revolution itself is destructive as the roar of the harsh wind with storms and chilliness. Hence, winter is terrifying because of the fierce West Wind. The revolution is terrifying because of its bloodiness and turmoil.

Mr. Shelley, however, sees the West Wind not only as a destroyer but also as a preserver. He argues the West Wind for “Driving sweet buds like flocks to feed in air / With living hues and odours plain and hill” (11-12). While the revolutionary West Wind violently drives away social peace and harmony, it brings in sweet buds, symbolic to members of the working class, who show the world their bravery, talents, and solidarity in the revolts. The revolution provides a stage for laborers to exhibit their abilities, equally as the bourgeoisie, in terms of making contributions to the world, like the metaphor of the West Wind scattering new seeds into the ground as to where they can grow to decorate the world. The young labor forces, then, are rising with full energy to break through the thick layer of mud, the control from the bourgeoisie. Mr. Shelley thus shows his faith in the working class that their revolutionary goals will be achieved while the symbolic seeds will start sprouting, injecting their hues and odors into the dead of winter. Nature, destroyed by the violence of the revolution, will then be recovered with the awakening power of workers, and a revolutionary spring will arrive. Since spring is often seen as a season of flourishing and hope, Mr. Shelley is convinced that the bloody revolution will eventually triumph to bring in a new era of prosperity and peace, with young workers and their extraordinary intelligence.

Without a doubt, the Labor Revolution is a gory event, which parallels the horrible winter with the howling West Wind. Although there is winter as a frightening season, there is also spring as a season of hope. Similarly, although the revolution is influencing Europe in an extremely negative way, it is also introducing intelligent workers to the world and injecting vigor that can shape the world to a positive direction. Mr. Shelley questions at last, “If Winter comes, can Spring be far behind?”, and my answer is spring is right ahead, accompanying with a revolutionary victory and a brand-new flourishing era.

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The Life-River Theory by Yaoyi Lu

It's eleven thirty in the evening, and I'm sitting in front of my desk, thinking of how to open this paper. It's almost midnight, and I'm doubting whether I should continue. Though the paper will be graded, what's the point of earning a straight A or whatever? Probably it's because universities will value it, and if I can attend a good university, it will be more likely for me to secure a better job and live a better life. But then, why do I have to lead a good life, or even why does a life matter?

Indeed everyone along with everything he or she has will vanish as he or she dies, be it good or evil, smooth or struggling, easily or hard earned. Still doubtful about what I'm doing now though, back to reality I'm still working on my paper. It's similar to everyone else who is now experiencing, struggling through, or dedicated to his or her life. But no matter what there must be some meaning behind our actions because it's apparent that we can choose to do nothing now that everything disappears as we depart from the world. But truth is we are right here going through different life circumstances. So, there must be some reason that we are doing what we are doing, and I believe the reason is defined by ourselves only; it must be not our fate that determines what we need or need not do; and it must be love that drives us to care for ourselves and our surroundings. So, just let happiness radiate through us, both internal and external.

Our fate is predetermined and so even though we try our utmost to keep everything on track, we do embrace unexpected life situations, and such unexpectedness worsens and turns into misery faced by us. We can't ensure we are born without any defect; we can't predict what will happen today; we have no idea whether our flight will land safely; and we can never determine whether it rains or shines. Undeniably something is doomed since it's predetermined and beyond our control. And these predeterminations, unfortunate or unpredictable, sometimes come out of nowhere.

Now that predetermined life events happen, we need to learn to control their aftermath. We can turn negativity into positivity so that we will be less harmed. We can rectify our misbehaviors in order to reduce chances of misfortunes this time or next time. A well-known figure whose life blooms from the thorns is Helen Keller. Ms. Keller suffered from a severe illness at nineteen-month-old, unable to hear and to see throughout her life. She definitely has no control over her disease as well as its irreversible consequences. But courage favors her. She

began to learn talking, reading, and writing despite her blindness and deafness. Her such unique life experience was condensed into her own philosophies tackling life's misery. She's one of the best examples that predetermined misadventures cannot fail humans. And I believe we all can act like Ms. Keller to lessen predetermined sufferings by finding our innate passion for life, and then we can rise from the ashes stronger. Predeterminations pain us while they favor us, temper us, and nurture us to be either a more tolerant, persistent, fearless, or self-disciplined human being. We exert all our strength, or even our life to remove obstacles arising out of the predetermined parts of our life and make benign outcomes out of them.

After figuring out what a predetermination is and how to gain strength to avoid unfavorable outcomes from it, it's paramount for us to consider our roles in our surroundings. We may often ask ourselves what contributions we can make to our family, school, community, society, and world, how we can influence them positively, and to what extent our actions can benefit them. Essentially, the second layer of the meaning of life is to create a greater good, which is the principle of Aristotle's Aristotelianism. But first of all, we need to clarify what the greater good is or what exactly we are endeavoring to achieve. As Aristotle puts it, "If there is only one final end, this will be what we are seeking, and if there are more than one, the most final of these will be what we are seeking." Let's plug his definition in the medical field. Apparently, many achievements in this area, including the discovery of a new type of medicine, creation of an effective vaccine, or invention of even more powerful medical machines, are all beneficial, but are they the final end of what doctors are seeking? The answer is no. Doctors work hard to accomplish what I just listed for the sake of the health of everyone else in the world. Hence, maintaining the world to be healthy is the final outcome anticipated by doctors and, according to Aristotle, is what really can be termed as a greater good. Overall, this good we try to create for someone beyond ourselves should be not only good but also the final purpose of all the other goods.

Although Aristotle's view of the existentialism of life fits in with the mission of doctors, it is not well suited for the following scenario: suppose there's a citizen who has noticed a problem within the government system, he wants to alert the government and then he does make it through a protest. In this case, the good the citizen strives for is to draw the government's attention on the mistake it has made and is thus helpful to remedy the government. But the approach towards accomplishing this good is not good itself. Obviously, his public outrage

disturbs the masses' life. So what if what we deem good is instead bad or harmful to the public? Will it still be considered good? Aristotle, in my opinion, doesn't give an answer. All he says is that good is the final purpose of our deeds.

One possible way to surpass the blind spot of Aristotelianism is basing our behaviors on love to all. Back to the scenario illustrated above, if the protesting citizen loves not only the government but also the surrounding residents, he will be likely to find a more peaceful way to make the good he expects, ensuring that not only the good is good but also the steps to do it are not bad as well. Then, the dilemma will be resolved.

Now, focus on the solution – loving all. Is it realistic? For the word “all,” it can be interpreted from multiple angles. Within the “all,” there's someone we are familiar with, someone we've never encountered, someone who loves us, someone who hurts us, somewhere we live in, somewhere we are unable to reach, something we were taught with, something so profound that we have merely touched the surface of, and so on. It is unimaginable of how many elements being part of the “all,” and even more unimaginable of loving all of the “all.” Take a simple example, are we able to love someone who hurts us? Thinking about someone who once denounced us publicly, isolated us from our friends, stole our money, or beat us, are we still able to forgive and greet them politely, and seem instead encouraged whenever we're face to face? I guess it's no. So, in short, Aristotelianism's basis that we can and must love all – every existence other than ourselves is impractical.

Now that we aren't equipped with the ability to love all, then what defines what we should love? I think this will be an egotistical question and we can't find any answer from Aristotle's theories. According to Ayn Rand, “My happiness is not the means to any end. It is the end. It is its own goal. It is its own purpose.” Speaking of what worth our love, according to Ayn, it's what we want to love and what brings us happiness as happiness dominates everything – the end, goal, and purpose of our behaviors. As we love those outside of ourselves, we do need to consider our feelings, wants, needs, and desires. If we feel uncomfortable with someone, some places, or some situations, it's understandable to not pressure ourselves to do so. While we make others happy out of love, make sure that we first of all feel happy ourselves. While we love others, loving ourselves is also important. Loving ourselves means we recognize our capabilities, even after knowing that we're unable to live a good life on our own, to see our prettiness, to be under the cover of cuts and bruises left by predetermined adversities, to sometimes allow our

caprice, or to be confronted with what troubles us, and even after all of these, we still appreciate each and every decision we've made, every action we've engaged in, and every thought we are to formulate.

From what I just wrote above, obviously, our life is complicated. Life is like a river with the flowing of time, people, and circumstances. Sometimes the river is tranquil, passing through its usual path, but suddenly, storms arrive. The water surges, rushes towards banks, and floods the nearby. Gloomy clouds shroud upon the river, making the water seem black. The black water rises high, clamoring to the sky, competing with the storm to see which is more influential. With the joining of new forces from the rain, eventually, the river wins. The storm concedes and leaves. Now, the sky is blue again with gentle winds passing by. Due to the rain, more water is added to the river that it is pushed to continue flowing forward. The river then flows, flows, and flows until it meets an ocean. Part of it joins the ocean, supplying the ocean with its strength. Part of it follows a divergent path that goes through the terrestrial land. More and more water flows through, accumulates, and forms its own lakes. Although one day, other newly emerged and vigorous bodies of water will come and occupy the river, the oceans it's joined and the lakes formed by it are always there.

We tend to fear our departure from everything we've done and so we doubt the purpose of going through life's journey doing what we are doing. Like the river, itself may be overlapped by other young rivers, but the evidence of its existence – the oceans and the lakes – ever remains. So, life is not meaningless because not every part of it will disappear, and the meaning is that we act to make positivity out of predetermined negativity of life, to love and make contributions to someone or something beyond ourselves out of happiness and self-love. Maybe fifty years from now, I, the author of this paper, will no longer exist, but the paper itself will be stored forever on my computer, on Blackbaud, and in the memory of all of you who now read to the end.

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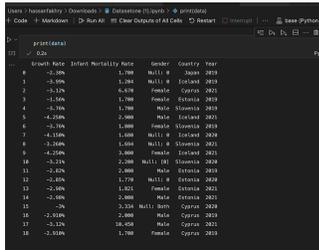
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The Relationships of Mechanisms, Material, and Abundance Within Continuous Positive Airway Pressure Therapy (CPAP) Machines for Infants by Aida Frankly

The relationships of mechanisms, material, and abundance within continuous positive airway pressure therapy (CPAP) machines for infants was closely examined in this research. Data from different intervals in countries, in direct correlation to their infant mortality rates, was thoroughly investigated before the creation of the IAMP IAPM: Infant-Aimed Pressure Model] was suggested through a 3D CAD visual. Additionally, the following research provides suggestions for future chemical compounds within air filtration (multi-applicable) and the construction of a CPAP machine without testing on real patients. This research concluded the following keen notions; The results are shown via Jupyter Notebook further my stance on the creation of an air filter using activated carbon, more specifically, the following equation $(C_nH_{2n+1}COOH) + (C_3H_6)_n (n+1) R(OH)_2 + n R'(COOH)_2 \rightarrow HO[ROOCR'COO]_nROH + 2n H_2O$. The benefits of integrating such a model into any CPAP machine (especially for infants) are prominent due to the properties that allow it to remove volatile organic compounds (VOCs), odors, and other gaseous pollutants from the air. Additionally, the archetype for the humidifier provides an RF gateway that will carry out messages using NRF24L01, a very low-cost RF chip that works at 2.4Ghz. Using the following equipment: NRF24L01+ 2.4GHz Wireless RF, Arduino Nano V3, Jumper Cables, DHT22 Temperature and Humidity Sensor, Raspberry Pi Kit, a sensor would be automated within an Arduino Thermostat.

Keywords: Continuous Positive Airway Pressure Therapy; CAD; Construction; Machine; Pollutants; Volatile Organic Compounds

Figure 1.



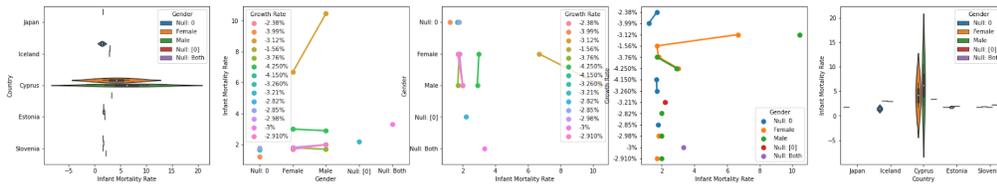
```
print(data)
Growth Rate  Infant Mortality Rate  Gender  Country  Year
0  -1.00%  1.780  Null 0  Portugal  2018
1  -1.00%  1.780  Null 0  Portugal  2018
2  -1.12%  6.610  Female  Cyprus  2011
3  -1.00%  1.780  Female  Estonia  2013
4  -1.00%  1.780  Male  Slovenia  2013
5  -1.00%  2.000  Male  Estonia  2011
6  -1.00%  1.800  Female  Slovenia  2013
7  -1.00%  1.000  Null 0  Portugal  2018
8  -1.00%  1.000  Null 0  Slovenia  2011
9  -1.00%  2.000  Female  Portugal  2011
10  -1.11%  1.000  Null 0  Slovenia  2010
11  -1.00%  2.000  Male  Estonia  2011
12  -1.00%  1.770  Null 0  Estonia  2010
13  -1.00%  1.821  Female  Estonia  2011
14  -1.00%  2.000  Male  Estonia  2011
15  -1.00%  1.324  Null 0  Spain  2010
16  -1.00%  2.000  Male  Cyprus  2011
17  -1.11%  16.000  Male  Cyprus  2011
18  -1.00%  1.780  Female  Cyprus  2011
```

Based on the Python-3 dataset and the statistical analysis below, a solution was developed: Solution [CPAP IAPM: Infant-Aimed Pressure Model is an innovative enhancement to modern-day complications within Angolan healthcare facilities. IAPM was drafted shortly after a machine learning algorithm in Python 3 (data science

mechanism) ran through and checked the ability of mechanical ventilators that have already been established in Angola. The ventilator (CPAP) was analyzed through research methodology (keywords, Google Scholar) under the search for: “Angola Medical ventilators; CPAP (901920) imports by country in 2018” [4]. CPAP was thoroughly researched for its effectiveness and impact on infant mortality: Infants not receiving prophylactic CPAP had higher mortality rates (odds ratio (OR)=1.69, 95% confidence interval (CI) 1.17, 2.46), need for any mechanical ventilation (OR=1.68, 95% CI 1.33, 2.14) and death or bronchopulmonary dysplasia (BPD) (OR=1.47, 95% CI 1.09, 1.98). [31]. According to the World Integrated Trade Solution, Angola imported Medical ventilators; CPAP; BiPap; Oxygen concentrators; from Portugal (\$356.35K, 6,503 Kg), China (\$59.64K, 7,512 Kg), United States (\$53.77K, 624 Kg), United Kingdom (\$49.53K, 868 Kg), Germany (\$47.69K, 265 Kg), at a total cost of ~ \$566.98K and 15772 Kg. This number, plus high exportation costs and a lack of overall accessibility [2, 5].

Before IAPM’s 3D model was designed, two primary ventilators under Angola’s prominent company for healthcare, Hunan Beyond Medical Technology Co., Ltd, were thoroughly examined for its development of CPAP masks. Two of the most popular masks (among different shareholders) [4] were: “New design ease fit FMIIP” and “EaseFit NMI-NV nasal mask for CPAP” a machine learning sorting algorithm was constructed to run through the (estimated) impact of the two Bubble CPAP masks on Angola’s infant mortality rates, effectiveness, and cost. Both products were examined due to their similarities in material, construction, and usage for infants. Key features include 1.) Sizes (S, M, and L) to fit patient with weight >30kg, 2.) Air-leaking prevents: 2-layer of cushions made from medical silicone, 3.) Safety: with Anti-asphyxia valve and anti-blocking holes, 4.) Comfort: two-direction adjustment to fit any size of the face, easy to wear or take-off.

Figure 2.



The literary overview in the following body of text provides a detailed analysis of mechanical ventilators for infants: Most babies who need ventilator assistance have some lung problems which are profound in Angola, including immature or diseased lungs, which are at high risk for injury [6]. Though, notably, delivering oxygen under pressure, which is a common method used in Angola, can damage the alveoli in the lungs. This can lead to possible air leaks, which can make it excessively difficult for an infant to breathe. Using the machine learning algorithm that was constructed, accuracy (+/-) for air leaking was irrational to calculate, but it is not possible to consider that there were 2 layers of air leaking protection made from medical silicone. The 3D demo that was constructed with CAD aims to have (+/-) 3 layers of air leaking protection made with medical silicone. The most common type of air leak occurs when air gets into the space between the lung and inner chest wall [6] which is a pneumothorax. A less common type of air leak occurs when many tiny pockets of air are found in the lung tissue and centralized around the air sacs. This is called pulmonary interstitial emphysema. Though the air cannot be removed, it most often slowly goes away on its own [9]. Long-term damage may occur when an infant’s lungs are not yet fully developed. This can lead to a chronic lung disease called bronchopulmonary dysplasia (BPD). In order to avoid this, caregivers must closely monitor infants in order to “wean” the baby from oxygen. Additionally, caregivers decrease ventilation settings whenever possible.

The two ventilators from above [“New design ease fit FMIIP” and “EaseFit NMI-NV nasal mask for CPAP] were examined through a machine learning sorting algorithm and resulted in the following conclusions (for reference, look at referenced dataset: “Data Set for IAPM Ventellator Creation.”) Preliminarily, the impact of ventilators was weighed through the following subpoints: a.) estimated effectiveness/ineffectiveness b.) cost.

Figure 3.

```

import numpy as np
import matplotlib.pyplot as plt

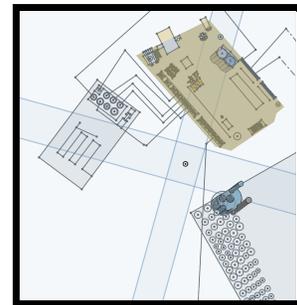
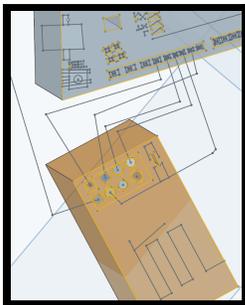
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ax[0].text(0, 4.978412222287607e-58, '4.978412222287607e-58% Humidity')
ax[0].text(0, 2.4892061111438035e-58, '2.4892061111438035e-58% Humidity')
ax[0].text(0, 1.2446030555719017e-58, '1.2446030555719017e-58% Humidity')
ax[0].text(0, 6.2230152778595085e-59, '6.2230152778595085e-59% Humidity')
ax[0].text(0, 3.1115076389297542e-59, '3.1115076389297542e-59% Humidity')
ax[0].text(0, 1.5557538194648771e-59, '1.5557538194648771e-59% Humidity')
ax[0].text(0, 7.7787690973243855e-60, '7.7787690973243855e-60% Humidity')
ax[0].text(0, 3.8893845486621927e-60, '3.8893845486621927e-60% Humidity')
ax[0].text(0, 1.9446922743310964e-60, '1.9446922743310964e-60% Humidity')
ax[0].text(0, 9.723461371655482e-61, '9.723461371655482e-61% Humidity')
ax[0].text(0, 4.861730685827741e-61, '4.861730685827741e-61% Humidity')
ax[0].text(0, 2.4308653429138705e-61, '2.4308653429138705e-61% Humidity')
ax[0].text(0, 1.2154326714569352e-61, '1.2154326714569352e-61% Humidity')
ax[0].text(0, 6.077163357284676e-62, '6.077163357284676e-62% Humidity')
ax[0].text(0, 3.038581678642338e-62, '3.038581678642338e-62% Humidity')
ax[0].text(0, 1.519290839321169e-62, '1.519290839321169e-62% Humidity')
ax[0].text(0, 7.596454196605845e-63, '7.596454196605845e-63% Humidity')
ax[0].text(0, 3.7982270983029225e-63, '3.7982270983029225e-63% Humidity')
ax[0].text(0, 1.899113
```

below. Though, notably, primary factors such as atmospheric (external) temperature, settings (indoor/outdoor), and the age of user (infant vs. adult), are not factored into the diagram below.

In order to create a comprehensive model that is applicable to the scope of this research, an Arduino Thermostat Code was written using the programming language C. Testing for the (sensor) message was done through an OpenHab software to automate the temperature within a room/household. The C script thoroughly examines the following factors for climate: AC/cooling temperature, ideal temperature (default is the average temperature in Angola) 48°F, and, since the DHT22 sensor is connected to the 4 Channel 24V Relay Module, humidification is balanced simultaneously. Though the C script cannot be tested accurately, a manual is presented below for the different settings/interfaces within the CAD 3D model.

The figures (6-7) below demonstrate the wiring of an NRF24L01+ data transmission module with the following OpenHub specifications: Power consumption is around 12mA during transmission which is less than the led. It can operate with baud rates from 250Kbps up to 2 Mbps; range can reach up to 100 meters if used in open space and with antennas; it can both send and receive the data simultaneously; each module can communicate with up to 6 other modules; it uses the 2.4 GHz band; it can send 1 to 25 bytes of raw data at the transmission rate of 1 MB. It has 125 different channels.

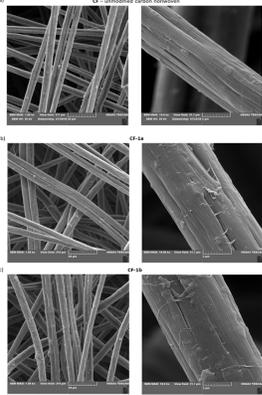
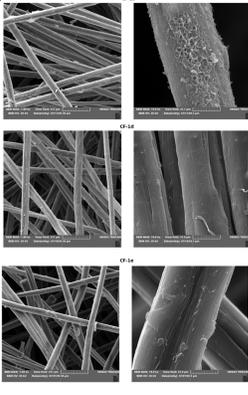
Figures 6-7: Wiring for humidification OpenHab application [NRF24L01+] wireless data transmission module:



In turn, this model would (ideally) connect the sensor located within the humidifier to the Arduino thermostat, and wirelessly print out results of the CPAP humidifier every night; if the user runs the C program (this program can be found in GitHub using the following link: <https://github.com/AidaFakhry>), additionally, all links to CAD demonstrations can be found with the following links: [CAD Demo 1](#) [arduino thermostat], [CAD Demo 2](#) [NRF24L01+ applied to wire]. Furthermore, the instructional manual with an in-depth description of each part of this research can be found using this [link](#). In order to improve biological compatibility and cellular response, the thermal conversion from polyacrylonitrile fibers will be ideal for air filtration in a CPAP machine. Surface functionalization of carbon nonwovens containing C-C double bonds (the atomic structure) may be applied to the functionalization of carbon materials [1]. Using situ to modify the surface of carbon nonwoven fabric using in situ generated diazonium salts derived from aromatic amines.

This methodology was tested by the Fourier Transform Infrared Spectroscopy (FTIR) method, based on this test, the best chemical strategy for a CPAP air filter would be aniline derivatives containing electron-donor substituents as they were found to be better substrates for coupling to the C=C bond. (OH or NH₂) may undergo auto coupling, forming derivatives that are removed during the removal of excess reactants. Modification of nonwoven fabric will ensure the overall safety in a CPAP air filter with proper peptide incorporation on materials within the CPAP machine, i.e., the CPAP tube, helmet, and air produced via. the CPAP humidifier. In order to create this methodologic CPAP air filter, the use of 4-aminobenzoic acid (H₂NC₆H₄CO₂H) was used for enablement of obtaining material containing carboxyl groups on the surface of a CPAP machine (conclusively) will be examined further below in comparison to other modifications of non-woven fabric for CPAP air filters.

<p>Figure 9. 10 × 10 mm² pre-wetted carbon nonwoven fabric, 25 mL of 1 M HCl, isoamyl nitrite (0.7 mL, 5 mmol), and 4-aminobenzoic acid (0.71 g, 5 mmol) (Sigma-Aldrich, Poznan, Poland). This reaction was carried out at 80 °C for 18</p>	<p>Figure 10. SEM images of (a) unmodified carbon nonwoven (CF); (b) carbon nonwoven modified with 4-bromoaniline (CF-1a); (c) carbon nonwoven modified with 4-chloroaniline (CF-1b); (d) carbon</p>
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<p>h. The modified CF-1c nonwoven was washed with DMF (3×5 mL) and DCM (3×5 mL).</p>	<p>nonwoven modified with 4-aminobenzoic acid (CF-1c); (e) carbon nonwoven modified with 1,4-diaminobenzene (CF-1d); (f) carbon nonwoven modified with 4-aminophenol (CF-1e)</p>
 <p>CF-1a</p>	 <p>CF-1e, CF-1d, CF-1f</p>

Due to the visible changes observed through the FTIR spectra, characteristics bands confirmed the efficiency of ethylenediamine incorporation of the carboxyl group, at these peaks, it was observed that the introduction of polar groups or peptides on the surface carried out the visible changes in the morphology of the fiber surface of the nonwoven containing Ac-RGD peptide. The introduction of polar groups or peptides of hydrophobic carbon material in the air filter will, ideally, affect mammalian cell adhesion due to the polarity of the material's surface. In turn, the relationship between polar groups and the nonwoven fabric was examined for a CPAP machine. The cellular bondage viewed in Figure 1. and Figure 2. prove that, due to nonwoven fabric's needle-punched design, which allows water to slowly drain out of the product, and its ability to keep soil and other materials stabilized on the surface of the geotextile, that this CPAP filter will filter out micro and nano solid particles from potentially creating an unfiltered mechanism. Furthermore, the use of 4-aminobenzoic acid ($\text{H}_2\text{NC}_6\text{H}_4\text{CO}_2\text{H}$) was used for the enablement of obtaining material containing carboxyl groups on the surface of a CPAP machine in the CAD diagram below.

Figure 11.

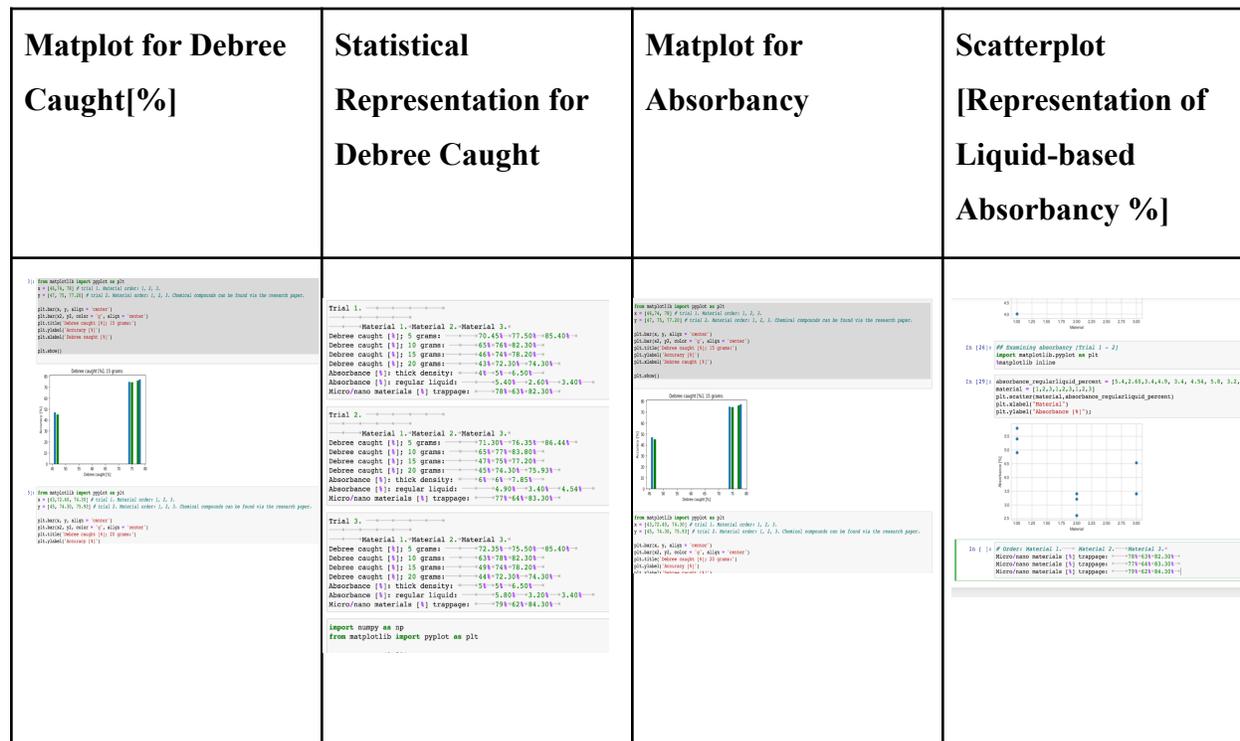
	Model 1.	Model 2.	Model 3.
Percentage 1.	50% Spunbond polyester	50% Shingle Fiber	33.3% Carboxylic acid
Chemical Formula 1.	(p-HOOC-C ₆ H ₄ COOH)	C ₆ H ₁₁ O ₅	C _n H _{2n+1} COOH
Percentage 2.	30% spun-bond polypropylene	50%	33.3% Polypropylene
Chemical Formula 2.	+ (HOROH)	Polyethylene terephthalate	(C ₃ H ₆) _n
Percentage 3.	20% Spun-bond polypropylene	50%	33.3% Spun-bond polyester
Chemical Formula 3.	(C ₃ H ₆)	(C ₁₀ H ₈ O ₄) _n	(n+1) R(OH) ₂ + n R'(COOH) ₂ → HO[ROOCR'COO] _n ROH + 2n H ₂ O.

Testing [Simulation]

To simulate an effective, realistic patient-to-filter interface, the following CPAP machine was abided and tested thoroughly: Philips Respironics general CPAP machine was tested on. The following research questions were prompted: a.) Percentage of dust (big chunks of debris (Scale: 6 grams of beans and 10 grams of beans) that had stayed stuck inside of a tube compared to all different kinds of the air filter. b.) The absorbance of different substances such as thicker liquids (water vs. coffee) to simulate snot or just excessive moisture. (This was formulated via the thickness of snot (molecular formula: C₁₀₂H₁₅₁O₃₉N₃₁) vs. the absorbancy of water H₂O) c.)

Micro/nanomaterials that are almost invisible and their ability to get caught on an air filter [Figures 12] – the Jupyter Notebook is located under [GitHub](#).

Figure 12



Conclusion

The results are shown via Jupyter Notebook further my stance on the creation of an air filter using activated carbon, more specifically, the following equation $(C_nH_{2n+1}COOH) + (C_3H_6)_n(n+1)R(OH)_2 + nR'(COOH)_2 \rightarrow HO[ROOCR'COO]_nROH + 2nH_2O$. The benefits of integrating such a model into any CPAP machine (especially for infants) are prominent due to the properties that allow it to remove volatile organic compounds (VOCs), odors, and other gaseous pollutants from the air. Activated carbon, though not tested for gas-based filtration, effectively filters out odors, pollutants, and volatile organic compounds from the air. [7] Additionally, the activated carbon filter removes trace contamination from the flow of oxygen in a tightly-confined area – just like the mask model suggested in the scope of this research. [10] Furthermore, the material of this filter is quite durable and abundant in certain regions of Angola.

Likewise, polypropylene contains an inherent electrostatic charge that won't wash out or diminish over time [8] – in direct correlation, the electrostatic charge is thus enhanced by the friction of airflow over the air filter materials non-woven surface. The lack of disintegration, thermal properties from polyester, moldability, strength, permeability, UV, and high dimensional stability are all keen factors of the IAPM model, proving that this mechanism is well-suited for infants and, more specifically, regional and marginalized areas such as Sub-Saharan Africa. Future research should analyze the benefits of using activated carbon in direct correlation to air filters, and the CAD model as a basis for CPAP construction.

Risk and safety: All research questions/models were tested with a CPAP machine that was not used on humans. No patient studies on humans will be performed. Only safe and commercially available electronic components and test equipment will be used as part of my experiments.

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