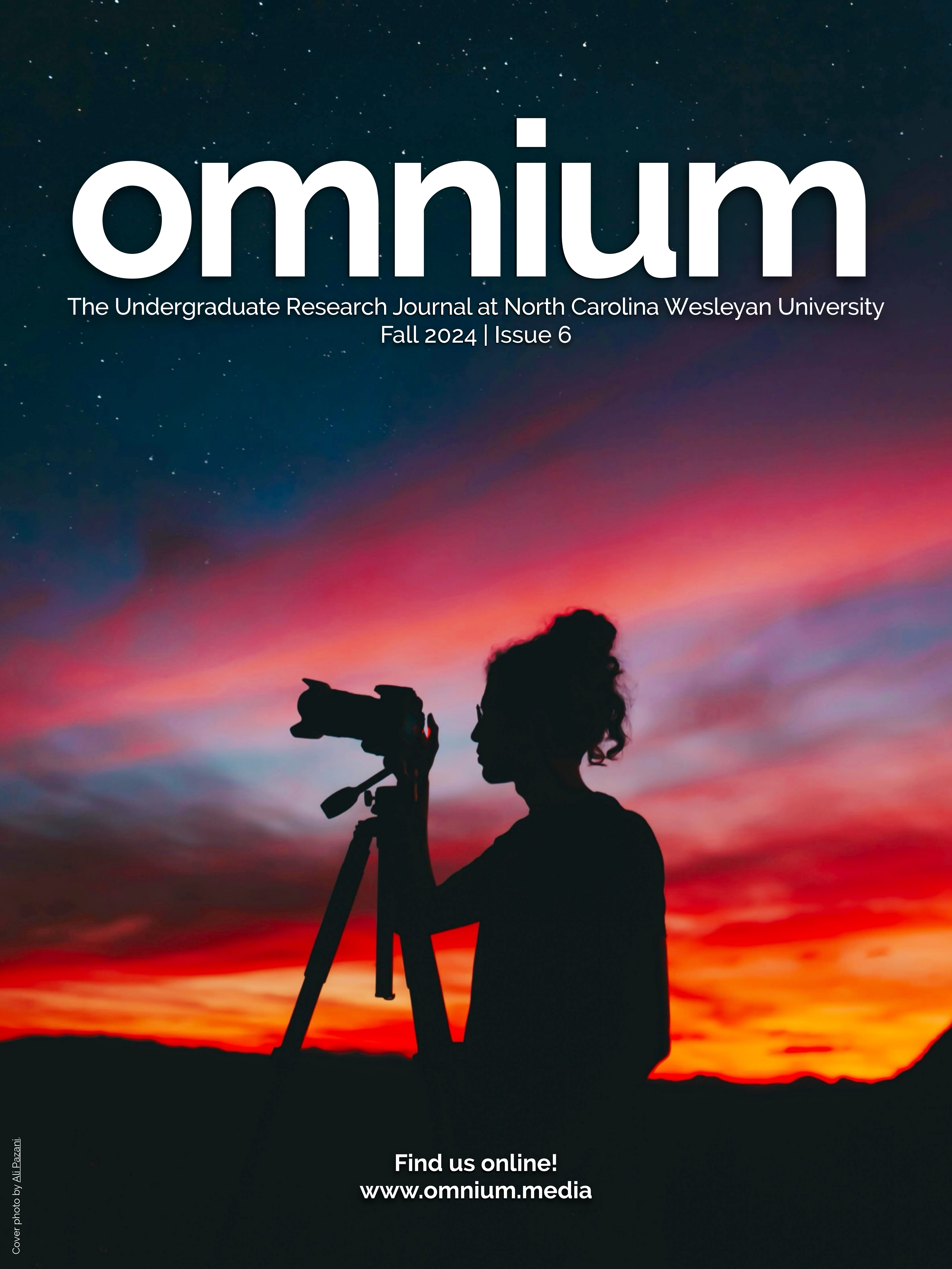

omnium

The Undergraduate Research Journal at North Carolina Wesleyan University

Fall 2024 | Issue 6

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Editor's Note

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OUR MISSION. *Omnium: The Undergraduate Research Journal at North Carolina Wesleyan University* is a collaboration between the Writing Program and the Writing Center at NCWU, providing our undergraduate students with the opportunity to explore the major genres of academic writing, join in scholarly conversations, share their ideas, perform original research, and see their work published in a professional venue. *Omnium* also serves as a teaching resource for NCWU faculty—and faculty at other institutions—as the essays and research articles published here reflect the skill and knowledge of real students at various stages of their academic careers, from first-year composition essays to projects created in senior seminars and honors theses. The materials lend themselves well to in-class discussion, analysis, and emulation, and we hope that students will be energized when they realize that there is no single arcane secret to writing well. All it takes is practice, motivation, and direction.

Welcome to the sixth issue of *Omnium*, originally a joint effort of the Writing Program and the Writing Center at NCWU that collects written work by promising undergraduate scholars.

Each year, faculty around the nation witness certain trends in what captivates students' interest. NCWU's students eagerly explored issues of animal welfare and environmental protection in 2022 and pivoted to questions of identity, justice, and freedom in 2023. This year, the writers whose work I'm honored to feature in *Omnium*'s 2024 issue have dedicated their energies to thinking about how to make the future livable: how to allow communities to flourish. Thus we see essays on fixing healthcare systems, on environmental stewardship, on developing resiliency against pathogens, on thinking long-term about beloved athletic and creative institutions, and about finding one's voice even when swimming against the current. We hope that readers will be as enthusiastic about these fifteen new essays as their reviewers and editor are.

Omnium would not exist without the many expert teachers and scholars at NCWU. My sincere thanks go to to Drs. Jason Buel, Bill Grattan, Meredith Gringle, Jarrod Kelly, Jackie Lewis, Rachel Roy, Mark Sursavage, Katrina Sweet, John Temple, Lee Templeton, Shane Thompson, and Emily Weber for reviewing submissions to the Academic Writing Competition in their respective disciplines and for doing so speedily and conscientiously.

The *Omnium* Editor,

Doreen Thierauf
Associate Professor of English
North Carolina Wesleyan University

Photo by Pixabay.

CONTENTS: BUILDING BETTER FUTURES

FIRST YEAR COMPOSITION

Photo by Zen Chung.

AGUSTINA REQUEJO

PRESERVING SANITY: CHALLENGING OVER-INSTITUTIONALIZATION IN THE ARGENTINIAN MENTAL HEALTHCARE SYSTEM

Argentinian mental health institutions are harming patients' wellness instead of improving it because hospitalization criteria and the enforcement of patients' rights are absent. Mental health institutions are establishments that oversee the diagnosis, treatment, and long-term care of mental illness. When we talk about mental illness, we are referring to different syndromes, such as schizophrenia, depression, and anxiety, among others, where people's cognition, emotions, and conduct are affected. The global history of these institutions is an extremely sad one, but, fortunately, they have improved dramatically lately. However, that does not mean that the extant institutions have completely fulfilled their promise. Argentina's health care policies are not as developed as they should be at this point, cases of mental illness are getting worse every year, and people don't seem to be improving. In this essay, I am going to focus on the Argentinian mental health system, its weaknesses, and methods to adjust it. Overall, I will discuss how the system could change in order to improve patients' mental health.

Mental disorders among the Argentine population are more common than is commonly acknowledged. According to an "epidemiological study of mental health in the general population of the Argentine Republic" carried out in 2018, the lifetime prevalence of any mental disorder in the general population of Argentina in those over 18 years old was 29.1%, and the projected risk of life to seventy-five

The El Bolsón Area Hospital, Río Negro, has a mental health team, a cultural center, an organic garden, a home, and a social enterprise. Photo credit: *Redacción*.

years old was 37.1%. About a quarter to more than half of people received treatment that is unlikely to be effective (Stagnaro et al.). How patients receive treatment is essential to their health and wellness. As with many other specialties in medicine, care in mental health is the key to how the patient is going to overcome their illness. With that in mind, we must recall the following World Health Organization's statistic: "In 2019, 1 in every 8 people, or 970 million people around the world were living with a mental disorder, with anxiety and depressive disorders the most common" ("Mental Disorders"). This means that mental disorders are more common than one might think and that they must be considered to be as important as physical illness. Also, if that high number of people suffer from these diseases, that means that the system must be prepared to attend to them.

Unfortunately, according to the Argentinian government's website, that is not the case: "From these [patients], two thirds do not receive any type of care. In turn, those who receive it are mostly admitted to hospitals or psychiatric clinics" ("Salud mental"). Therefore, what we have here is a huge dilemma because we know that isolating and enclosing people, including healthy people, brings negative impacts such as exclusion, taking away their capacity to live in community, and maybe retrogressing their illness ("Salud mental").

On the one hand, the size of the Argentinian mental health system has dramatically declined since 1863. In that year, the José T. Borda Psychiatric Hospital was inaugurated, then the best psychiatric hospital in all of Latin America. Today, it is on the brink of closure (De Benedetti). What is the reason for this dramatic change? And the larger question is, was there actually ever a good mental health system in Argentina? There are many topics to discuss at this point in the essay, but I would like to start with the most important one: the rights of psychiatric patients. According to Argentinian Law number 26,657, enacted in 2010, a person with a mental illness has the right to be treated in a general hospital; to receive the most convenient therapeutic alternative, one which does not limit their rights and freedoms and strives towards family, work, and community integration; to be accompanied by family before, during, and after treatment; to make decisions related to their care and treatment within their capabilities; and to never consider their mental illness as a state that cannot be modified, among others. Furthermore, the law clearly indicates that a person cannot be hospitalized against their will and that such hospitalization must be as brief as possible ("Salud mental, Ley 26.657"). What is currently happening is that this law is not followed, and that is why we do not see improvements in patients.

Leonardo Ariel Gorbacz, author of this law, is a political human rights activist, and when he proposed it he stated that the mental health system is repressive. This repressiveness rests on three pillars: confinement, judicialization and medication (Gorbacz). His first point covers the over-hospitalization that exists across prestigious mental health hospitals in Argentina, such as the Borda and Moyano Hospital, where the average length of hospitalization is ten years, according to Gorbacz. In addition, patients cannot make any decisions about their hospitalization. In many cases, they cannot even have contact with their families, they cannot reintegrate into society, and doctors consider their illnesses incurable. For example, Verónica, an anonymous patient, confessed on the website Argentina without Asylums (*Argentina sin Manicomios*) that she suffered while she was there for a long hospitalization. She compares her confinement at the psychiatric hospital with a prison's, saying that the first is worse than the second, since, by losing autonomy and the ability to make decisions in daily life, one becomes incapable of feeling that, at some point, one is going to get out of there ("La Voz de Sus Sobrevivientes"). Another former patient who told her story on this website was María, who was hospitalized for twenty-two months and claims that, after leaving it, her life was not the same. Just like them, there are many cases in which patients know that their hospitalization was longer than necessary, the environment did not help them with their recovery, and, in many cases, there are even stories of mistreatment by medical staff ("La Voz de Sus Sobrevivientes"). The institutional mental health system in Argentina is not doing any good for the people who need it, and that is why it requires urgent reform.

The second point that Gorbacz mentions, judicialization, refers to how the justice system does nothing in favor of patients' rights. There are many people who are institutionalized during acute episodes. The system then takes away their ability to exercise certain freedoms, such as voting, when they really should not be considered temporarily incapacitated (Gorbacz). The legal system, which plays a very important role in these matters, should be a pillar of protection for individuals in vulnerable situations, but in the field of mental health, it seems to act more as a tool of stigmatization. Judicial decisions are often based on bias, resulting in a denial of patients' autonomy and dignity. Instead of promoting inclusion and support, the justice system becomes another obstacle on the path to recovery and social integration. The judicial systems' lack of understanding of and sensitivity to the complexities of mental health contributes to a cycle of discrimination and exclusion, further exacerbating the situation of those who are already struggling with mental illness. Instead of focusing on the causes of pathologies and offering realistic solutions, the law often settles for simplistic solutions, thus perpetuating a system that not only does not solve problems, but also contributes to their aggravation.

Lastly, over-medication, according to Gorbacz, also contributes to the repressive mental health system. According to this author, psychotropic drugs are a large business that is only interested in improving sales and making more money at the cost of misinformation among the population. He assures readers that psychotropic drugs are designed to cover up symptoms that we all experience without actually suffering from a particular illness. People believe that they suffer from mental disorders and become unnecessarily dependent on these medications. Agreeing with this theory, Emilio Pol Yanguas notes in the article "Antipsychotics for Schizophrenia," that there are certain psychopharmaceuticals, such as those for schizophrenia, that, though they serve to treat acute episodes and "cover up" certain serious symptoms, are not recommended for prolonged treatment due to their adverse effects and because they do not treat the cause of the illness. In this essay, the author suggests that diseases such as schizophrenia should be better monitored and the medication should be administered more appropriately since their cause is usually ideologically and commercially constructed. Moreover, when the patient consumes these drugs for a long time, they only create physical and emotional dependence, making recovery almost impossible (Pol Yanguas).


Art at the Camino Abierto Foundation. Photo credit: Redacción.

On the other hand, there have been new improvements that have made the patients feel a difference. Given that the government recognizes that "confinement and isolation in these institutions contribute to the loss of social skills, generate dependency, and are contrary to human rights," as it says on its website, it is logical that it has decided to take action in the matter ("Salud mental"). The province of Río

Negro is a clear example of this. There, they implemented a new model of social inclusion for people with mental health problems. The name of this place is the Camino Abierto Cultural Centre, and its objective is "*demanicomialization*," that is, the integration of psychiatric patients into society in order to reduce their symptoms, alleviate the disease, and help them interact in a healthy and suitable environment with their family and friends.

In this system, workshops and events are organized to integrate people with mental disorders with their neighbors for them to share activities that make them get out of their routine a little and interact with each other in a dignified environment. A successful example of this system is José, who was diagnosed with psychosis and was hospitalized for eleven years in the general hospital of Bariloche, Río Negro. The doctors determined that the case was already chronic and irrecoverable, contradicting what the law indicates. When he joined the workshops at the Camino Abierto Cultural Centre, José's situation changed radically. Now he dances, smiles, and enjoys life with his wife and his friends (Wei He). The neighbors, who at first opposed this system, declaring that it was going to be full of rapists and violent people, discovered that the reality of these people is very different from what they thought. If more people with mental health problems received the support that this community gives, the recovery rate would be much higher and we would avoid all the cases of abuse, confinement, and over-hospitalization that we currently experience in the community in Argentina (Wei He).

Numerous components of the current system need to be changed in order to enhance it and improve the mental health of patients in Argentina. Firstly, it is important to ensure that Law 26,657 is followed. This law protects the rights of those who suffer from mental diseases by ensuring that they receive treatment in normal hospitals, have access to competent care, and actively participate in their treatment decisions while preventing unauthorized hospitalizations. Deinstitutionalization must also be encouraged, as is the case at the Camino Abierto Cultural Centre in Río Negro, which establishes communities where individuals with mental illnesses engage in activities that promote social engagement and connection. Through public awareness programs, education and knowledge are crucial for lowering stigma and discrimination surrounding mental illness.

For treatment to be efficient and accessible, outpatient services must be strengthened to offer individual and group counseling, access to drugs, and ongoing monitoring. Modern methods must be taught to mental health practitioners, who must also respect patients' rights and give priority to recovery-focused therapies. Meeting the needs of persons with mental disorders requires including the community in service planning and monitoring. Making informed judgements requires reliable data collection and continuous service quality improvement. Those who have loved ones with mental illness should support their families by creating support groups and family therapy programs. Offering high-quality services and ensuring that everyone has access to them requires adequate funding. Last but not least, a continual assessment of the mental health system is necessary to pinpoint areas that require improvement and adjust to the population's changing requirements, ensuring that patients and their families experience considerable changes.

In conclusion, there are several obstacles that the Argentinian mental health system must overcome in order to effectively treat and support those who are suffering from mental diseases. While there have been some encouraging changes, such as the acceptance of the necessity for community-based care and deinstitutionalization, there are still major weaknesses that worsen rather than enhance patients' wellbeing. The failure to adequately implement and enforce existing legislation, such as Law 26,657, which protects the rights of mental patients, is one of the main problems. Prominent activists and experts in the field, like Leonardo Ariel Gorbacz, have drawn attention to major weaknesses in the current mental healthcare system, such as a high dependence on medicine, prolonged institutionalization, and judicialization. The autonomy, wellbeing, and chances of recovery of patients have all declined as a result of these problems. Also, there are testimonies from people who have first-hand experience with the system, and they highlight the negative consequences of long-term institutionalization, emphasizing the urgent need for complete change to create a more humane and efficient system of mental health care. Patients frequently experience unwelcome prolonged hospital stays, little autonomy, and a lack of family support, all of which limit their ability to recover and integrate back into society.

Celebration of ten years of the Camino Abierto Foundation. Photo credit: *Redacción*.

Medical staff mistreatment incidents aggravate the issue further.

Positively, programs like the Camino Abierto Cultural Centre in Río Negro show the potential for community-based care methods to be effective. These initiatives emphasize "*demanicomialization*," social inclusion, and giving patients the chance to participate in worthwhile activities. These methods have demonstrated that when people are given the chance to live happy, productive lives in the community, recovery and improved mental health are attainable.

Strictly enforcing patient rights, emphasizing community-based care, reducing stigma through awareness campaigns, bolstering outpatient services, training medical professionals in recovery-oriented care, involving the community in service planning, enhancing data collection and quality improvement, supporting families, securing adequate funding, and continuing system evaluation and adaptation are all necessary to improve the Argentinian mental health system. It is critical to address these problems and put these suggestions into practice if the Argentinian mental health system is to develop into one that genuinely enhances patients' mental health and wellbeing while upholding their rights and dignity.

Argentina's mental health care reform movement needs cooperation from a range of participants, including citizens, medical professionals, government entities, advocacy organizations, and the general public. Argentina can work to create a more equal, empathetic and and efficient mental health care system that respects the autonomy and dignity of all of its residents by putting the rights and wellbeing of people with mental disorders first and allowing comprehensive, person-centered strategies into practice. A change of this kind will not only help the people who are immediately affected by this, but it will also help create a society that is more inclusive and compassionate in general. ❖

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The citation system used in this essay is MLA 9th.

NOAH JACQUES

HUNTERS: A VITAL TOOL FOR DEER POPULATION CONTROL

The idea of deer frolicking in a field of luscious soybeans on a spring day or of bucks gallantly competing in a forest heavy with fog does not give us an immediate cause for concern. However, when considering the growing population of deer and their damaging effects on human safety and the environment, we ask ourselves, is now the time to act before the situation gets out of control? Steeve Côté et al., researchers specializing in ungulates, note specific indicators of animal overabundance. Overabundance can be said to exist when animals "(a) threaten human life or livelihood, (b) are too numerous for their "own good," (c) depress the densities of economically or aesthetically important species, or (d) cause ecosystem dysfunction," as defined by Graeme Caughley, a fellow biologist and researcher of ecology population (qtd. in Coté). As we review these critical effects, while factoring in a decline in hunters, we urgently need to formulate a plan. Côté et al. explain the reason for this population surge: "deer management has reversed course from a preoccupation with augmenting population growth through habitat protection, hunting regulations, and predator control to serious concerns about how best to limit deer densities and the consequent impacts of these animals on other ecosystem constituents and functions," implying that wildlife managers have learned from their past mistakes (Garrott et al. 946). With this valuable insight, wildlife agencies focus on humane and cost-effective ways to control wildlife populations, with hunting at the forefront. Although hunting is a touchy subject, public support will nurture hunting as an effective tool in managing wildlife overabundance.

Photo by Carolina Wy

The first step toward a solution to deer density is educating the public about the problems caused by it. Shawn Riley, a professor with the Department of Fisheries and Wildlife at Michigan State University, highlights crucial negative impacts: "Deer are implicated as a causal factor in prevention of forest regeneration, reduced songbird numbers, decreased aesthetic attributes of ecosystems, increased damage to agricultural crops, increased frequency of motor vehicle and aviation crashes, and perpetuation of disease," with the utmost concern being harmful effects on the environment (456). Crops and forests are vital to the future of human survival. If deer destroy essential components of plants, specifically of crops, agriculture will suffer long-term effects. Through controlled experiments and research data, it has been determined that deer impact the survival of plants as they consume not only the leaves and stems, but also fruits and flowers, affecting reproduction rates (Côté et al. 121). Abundant deer populations change landscapes. The number of deer determines which plants become depleted, as their favorites are at risk of extinction (Côté et al. 125). To help resolve destruction in yards and gardens, the public and agriculture extension groups can work toward cultivating plants that will deter deer, including plants with thorns or offensive odors. Other ideas include barriers and ecologically friendly repellents such as soap or motion objects. Community involvement will promote awareness, participation, and support.

In addition, animal species within a forest, including birds, are at risk due to the destruction of foliage. Forest density provides a protective cover and food supply for mammals; however, when destroyed, they are left vulnerable to starvation and predators (Côté et al. 126). The public should consider the welfare of these smaller animals as well as of insects and reptiles. Out of all the forest inhabitants, the protection of pollinators should be a priority. Côté et al. notes that "Ungulates also disrupt associations of plants and pollinators by shifting patterns of relative flower abundance," inferring the destruction of flowers negatively impacts pollinators and puts them at risk (126). With pollinator populations already on the decline, every effort should be made to ensure a healthy environment, even if this means diminishing the deer population.

Another important reason the public should pay attention to this issue is the dangerous situations large mammals cause on roads and airport runways. As ungulate populations increase, so does the number of automobile deer collisions and unsafe conditions at airports. Human safety is at stake: "Frequency of mammal incidents with aircraft and incident rates was influenced by relative abundance of species" (Schwartz et al. 914). Consequently, the lack of resources will endanger more lives. According to Kristin Schwartz, and other researchers at Mississippi State University, there were 909 deer-related airplane incidents with United States aircraft reported from 1990-2020, with 880 of the 909 incidents causing damage (Schwartz et al. 914). In addition, John Kilgo et al., wildlife research biologists with the USDA Forest Service Southern Research Station, explain that "Deer vehicle collisions (DVCs) are one of the most important and direct sources of human wildlife conflict in the United States, resulting in an average vehicle repair cost of $1,840 and a total estimated cost per collision of $8,388 nationwide," expecting these numbers to rise with deer populations and the increased costs of automobiles and insurance coverage (87). The public can help on roadways by reducing speed and being aware of noted crossing locations where deer are prevalent.

There are no easy solutions for deer on roadways and runways. Despite this, deer-proof fencing at wildlife crossings have been instituted in some areas. Kilgo et al. reveal challenges in that "deer-proof fencing with wildlife crossings was most effective but limited by costs and is not always appropriate," and wildlife managers agree forcing agencies to look for cheaper options (87). Another method, as Kilgo et al. state, is that "Research on white-tailed deer . . . social behavior suggests that targeted removal of matriarchal social groups can be an effective means of dealing with localized nuisance deer problems" (87). However, relocation of deer is not a humane solution. Other recommendations include that sharp shooters be utilized in areas where hunting is not an option, like urban areas, high traffic locations, or parks (Kilgo et al. 91-92). Nevertheless, sharpshooting will only target a limited number of deer, and the outcome will be short-lived. When considering the large number of deer-related accidents, coupled with high repair costs and a continued surge in deer populations with inadequate resources to resolve the situation, hunters remain the most important tool to help protect the welfare of humans and save lives.

Another public health crisis with cause for concern and linked to deer overabundance are tick-borne diseases. Ticks, from deer as hosts, can be transmitted to humans through contact with pets or by visiting locations with thick brush, such as wooded areas. There are many tick-borne diseases, including Ehrlichiosis and Lyme Disease, wherein bacteria from deer are transmitted (Maxwell et al. 21-22). Anaplasmosis is another such disease associated with deer ticks (Maxwell et al. 21-22). Each has the potential to be life-threatening to humans and should constitute a call for action to reduce deer numbers. To research these diseases more effectively, scientists rely on hunters to report sick deer, track changes in deer population, and provide specimens for testing from their harvests; this certifies that hunters are advocates mitigating challenges presented by deer density (Maxwell et al. 4). Without hunters available to assist researchers, data from the field would be insufficient to track and study deer-associated diseases and their risks to humans; hunters help to keep communities safe.

The overpopulation of any species is a hazard, not only to the environment, but also to the health of that species. Disease and starvation are crucial dynamics that affect wildlife in large numbers. This is the case with Chronic Wasting Disease which was discovered in the 1960s; it is a neurological disease that affects cervids, and, sadly, there is no cure. As it is fatal, Chronic Wasting Disease kills deer in large numbers, and it is becoming more prevalent as deer populations grow and expand in location. The disease can be spread through animals, and it can also flourish within the environment for years, leaving deer vulnerable to transmission. Fortunately, Chronic Wasting Disease cannot be spread to humans; however, diseases can change, and continued research and observations are imperative (Bartz et al. 7). Hunters assist with the research by submitting samples for testing and pinpointing locations of sick deer observed. With the help of hunters in the field, researchers can track widespread transmission and effects on herds.

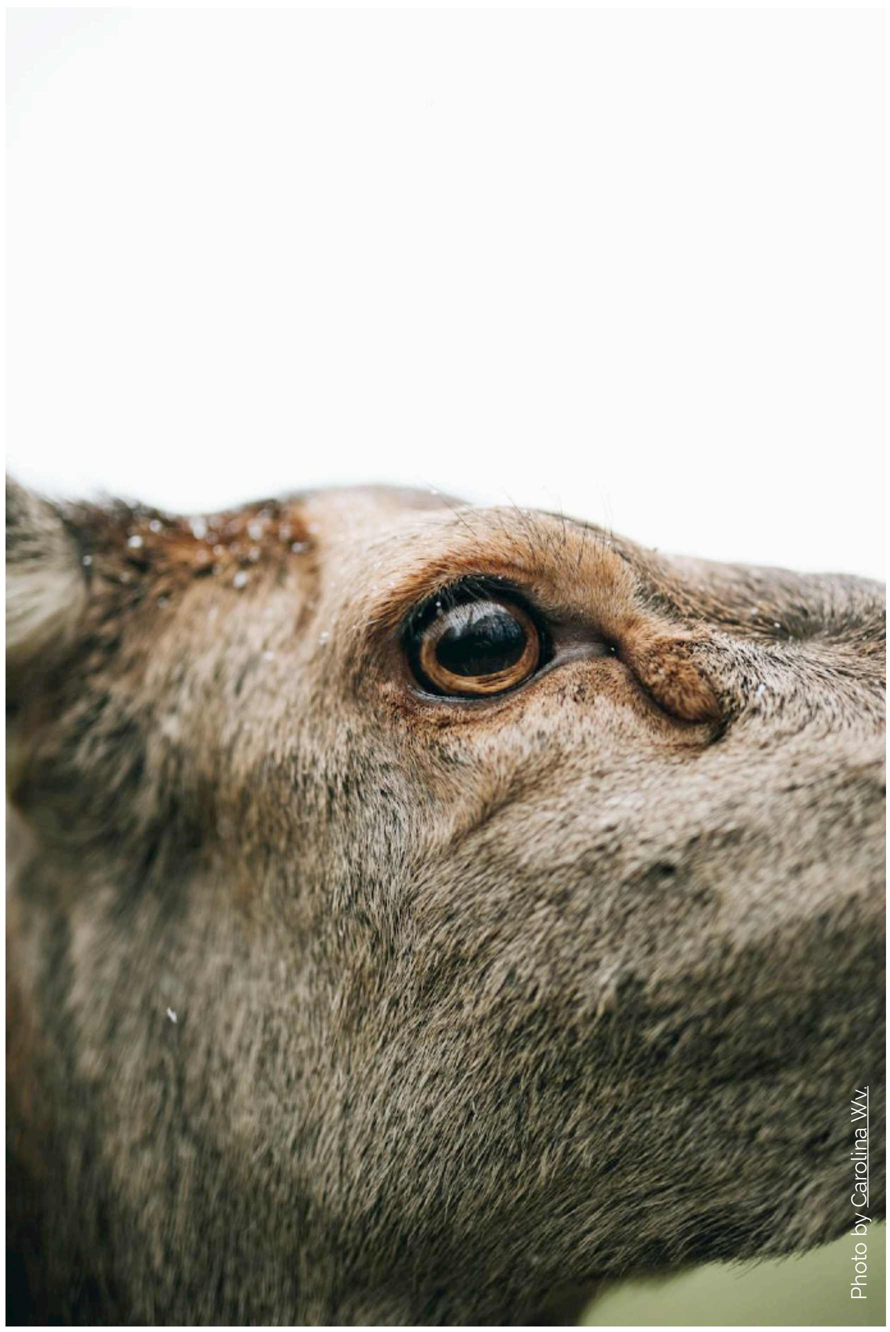
Photo by Carolina Wv.

Not only should the public be alerted to the need for hunting to help control deer density, but it is also essential that they be made aware that hunters are stewards of the environment. Opponents should know the facts. "Hunters also serve as advocates for the animals they hunt, promoting wildlife management and habitat protection," helping to alleviate negative opinion (Ryan et al. 315). To ensure increased support for hunters, there is a need to campaign for hunters as conservationists and provide tools to succeed with this quest. Efforts to petition additional participation include "Highlighting the role of ecosystem health and biodiversity in the long-term provision of hunting opportunities can increase message effectiveness and motivate hunters' ecosystem stewardship behavior" (Ghasemi et al. 12). Hence, wildlife managers need to keep hunters informed of ways they can help. This would provide confidence and promote participation, as hunters are currently declining in numbers. Incorporating the idea that hunters are guardians of the environment offers both the public and hunters the reinforcement needed to push forward together to boost morale (Ghasemi et al. 12). As a hunter myself, I have the desire to know my efforts are recognized and that I am making a difference in a positive way toward a better tomorrow.

Public opinion is believed to be one of the main reasons that hunting participation is on the decline. However, people can be influenced by the media and social media platforms (Byrd et al. 1). For example, *Time Magazine* included an article supporting hunting to control wildlife populations. Compared to negative responses to animal harvest photos being displayed on Facebook sites, the former suggests that the public can be supportive of hunting (Ghasemi et al. 12). However, often, the public does not want the realities of hunting in their face. Consequently, "the public and wildlife agency employees have been found to have differing levels of support for the lethal management of wildlife," with the consensus being that the environment will suffer without hunters (Byrd et al. 2). If people are not exposed to the brutality associated with hunting and only presented with positive aspects, then hunting would be more readily accepted as a means of wildlife management.

The public should also be well-informed of the financial contributions that hunters provide for the economy. Hunting is a big business: "In the United States, the revenue from hunting licenses provides revenue for conservation" (Byrd et al. 1). Revenue not only stems from licenses, but many other revenue streams associated with hunting. Hunters boost income for travel and hospitality industries, in addition to hunting gear retail profits, with communities benefiting from such revenues. Hunting also offers hundreds of thousands of job opportunities, including enforcement agents, biologists, guides, game wardens, and taxidermists, just to name a few. In the United States, there are 13.7 million hunters who spend more than $38.3 billion dollars annually on non-commercial hunting-related expenses, and billions of dollars are made in tax and other revenues (Arnett et al. 734). Hunters not only do their part in financially supporting wildlife agencies and conservation efforts, but they also provide a big boost to the United States' economy.

When given the opportunity, the public will participate in providing much needed feedback and advice about hunting issues. Public participation in surveys provided by various wildlife agencies concluded support of hunting under certain conditions and in mostly rural areas (Byrd et al. 1). However, many people do not support trophy hunting or hunting with dogs. Positive opinions promote hunting for food, hunting as a means of wildlife population control, to help reduce human-deer vehicle conflict, and hunting with safety training (Byrd et al. 1). There was also backing by farmers who raise livestock or have to protect their crops. In addition, people are in favor of hunting if they have friends or family members who participate and if they are over the age of 45 (Byrd et al. 1). The results indicate that wildlife management should look to demographics and marketing strategies as ways to increase positive reinforcement and acknowledge the important aspects of hunting.

Photo by Carolina Wv

Additionally, keeping lines open with the public helps promote awareness and support. My grandfather was the Director of the North Carolina Wildlife Commission and a wildlife biologist. When he retired, he went to work with the North Carolina Wildlife Federation and instituted the Camo Coalition. This organization reaches out to wildlife enthusiasts, stakeholders, and the public to alert them of important legislation related to wildlife issues. The Camo Coalition gives people an opportunity to react with their opinions and concerns to local politicians and make a difference. More groups such as this give the public a voice in wildlife matters and is a constructive way to connect on population management issues.

As society changes, with urban development and fast-paced lifestyles becoming the norm, finding the time and locations to hunt becomes a challenge. Other reasons for lower hunter participation as Riley et al. explain are"An aging hunter population and low recruitment of new hunters," affecting opportunities to train and influence younger generations (455). In addition, hunters prefer to score big bucks, rather than female deer or fawn. With efforts to control the population, bag limits during hunting season are fewer for bucks as compared to antlerless deer, with continued proposals to include no bag limits for females and fawn. Some states presently offer special permits or unlimited licenses for antlerless deer. There are incentive programs, including Hunter for the Hungry, in which hunters donate their harvest to provide food for those in need, but hunters are apprehensive about donating and consuming deer meat possibly affected by Chronic Wasting Disease (Riley et al. 459). Agencies should explore additional types of programs to encourage participation, but the struggle to increase hunter numbers remains an uphill battle. Other potential ways to increase hunter numbers, as Riley et al. note, "include social support, mentoring, and apprenticeship; however, wildlife agencies have little experience in influencing these factors to gain more hunters"; if agencies don't have the means, then experts should be called in to assist with recruitment strategies (459). Community involvement is a must because wildlife agencies alone are unable to remedy the situation (Riley et al. 459). Wildlife managers need to reach out to communities for assistance in enlisting hunters by offering training, contributions, incentives, and providing more locations for hunting. Agencies should be receptive to community involvement and volunteers to include activities, forums, meetings with stakeholders, surveys, and distributing informative data.


Photo by Carolina W.v.

National and state wildlife agencies should work together to champion newcomers to hunting. Programs are essential to procuring younger and more diverse people's interest in hunting. Volunteers are a vital part of assisting with "mentoring and educational programs, such as Pass it On, Youth Outdoor Skill Camps, Conservation Leaders for Tomorrow, and Becoming an Outdoors Woman," as every state should be focused on introducing curious new groups (Ryan et al. 312-3). To solicit these new memberships, researchers should streamline reasons people hunt: "Recruitment and retention efforts that keep recreational reasons such as closeness to nature may make hunting more appealing to those who are looking for an authentic outdoors experience" (Ryan et al. 313). Constructive appeals can spark a variety of interest. Typically, hunters fall into certain categories, and "Getting minorities and other non-traditional groups involved in hunting is vital to the future of the sport" (Ryan et al. 314). This suggests that managers should inspire outreach programs to secure more diverse participation. If wildlife agencies focus on groups that might not otherwise have the opportunity or resources to hunt, they could secure further appreciation and a larger hunter community base. Also, there is a need to promote volunteers and community supporters to help train and secure new hunter memberships.

With no end in sight to the overabundance problem, biologists look to other methods for a sustainable resolution. Alternative population control methods being explored include fencing, birth control, deer-resistant plants, controlled hunts, plastic tubing, repellants, reflectors, motion sensor sound devices, electric fencing, relocation, increase predator populations, and longer hunting seasons. All of these, even combined, can only help the situation to a small degree (Coté et al. 134-5). The main challenge are the high costs. Fencing, sound devices, and birth control methods are very expensive. Relocation is not only expensive but inhumane; deer become stressed and do not survive when moved to alternate locations (Coté et al. 134-5). Considering the small effect these methods would have on deer, biologists conclude that hunting remains the most successful route. However, researchers will not give up on new ideas to manage the dire situation.

Dangers associated with deer density and devastating effects on the environment must motivate the public to join forces and act now. If protecting the future of our forests and their inhabitants, safeguarding crops, caring for pollinators, reducing deer collisions, and eliminating tick-borne deer hosted diseases are not enough to light a fire at this moment, then society needs to consider the dire consequences for future generations. While deer are notably beautiful animals and an important part of nature, an overabundance of any animal has detrimental effects. Hunting has been an integral part of history and survival, and even though hunter numbers are in decline, hunting remains an important component in wildlife population management. Hunting is a resource that not only allows a connection with Mother Nature; in today's fast-paced urban society, this link should be nurtured and embraced as an important piece to the overall puzzle in protecting resources for our future. I believe that hunters should be celebrated as vital wildlife crusaders and conservationists with a profound interest in preserving our natural world. ❖

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The citation system used in this essay is MLA 9th.

FRANCESCO RAPARO

HE BILLIONAIRES' PLAYGROUND: UNDERSTANDING THE DANGERS OF DEEP-SEA TOURISM

TITAN SUBMARINE HISTORY

I decided to talk about the Titan, a submarine designed by OceanGate, a private American company based in the state of Washington. OceanGate claimed that they were number one in the field of submarines, and that their business was intended for research, expedition, and tourism (Joseph and Schmitt). The Titan was a submarine intended for tourism; to be exact, it allowed a group of five tourists to go to see the wreck of the ship Titanic, which sank on April 15, 1912. This submarine was the only one in the world that was able to go so deep for touristic use, and this was because it was an "experiment," i.e. both the shape and the materials of the submarine had never been used before.

I am talking about this story because after several successful missions, on June 18, 2023, shortly after the dive, the Titan imploded, with five people onboard: Stockton Rush, pilot and founder of OceanGate, Hamish Harding, British millionaire, Paul-Henri Nargeolet, French sea expert, Shahzada Dawood, Pakistani multimillionaire, and his son, Suleman Dawood, who was just 19 years old. All the crew members died (Almasy). This story was followed by the whole world, as it is unusual to hear that five multimillionaires are lost in the ocean inside a submarine that may have imploded. I remember that the newspapers were hopeful, and there was a countdown for the hours of oxygen left because the Titan had about a hundred hours of oxygen stored. The news was constantly coming out about this, and after a few hours we learned that there was a 19-year-old boy inside, so the story became even more sensationalistic.

This is not the first expedition for multi-millionaires; as the extreme tourism market expands, millionaires seek out ultra-exclusive and extreme travel experiences to enjoy with their friends, as reported by Garrett Madison, a mountaineer and tour guide who organizes extreme adventures, such as climbing mountains that have never been climbed, or doing very dangerous routes (Christian, "The Wild World"). With the advent of COVID-19, the bookings by people with significant assets has increased. Madison's clients say they want to suffer a little, and they are looking for adrenaline (Christian, "The Wild World"). This is a real

The Titan submarine under water. Photo credit: OceanGate Expeditions/Reuters via PBS.

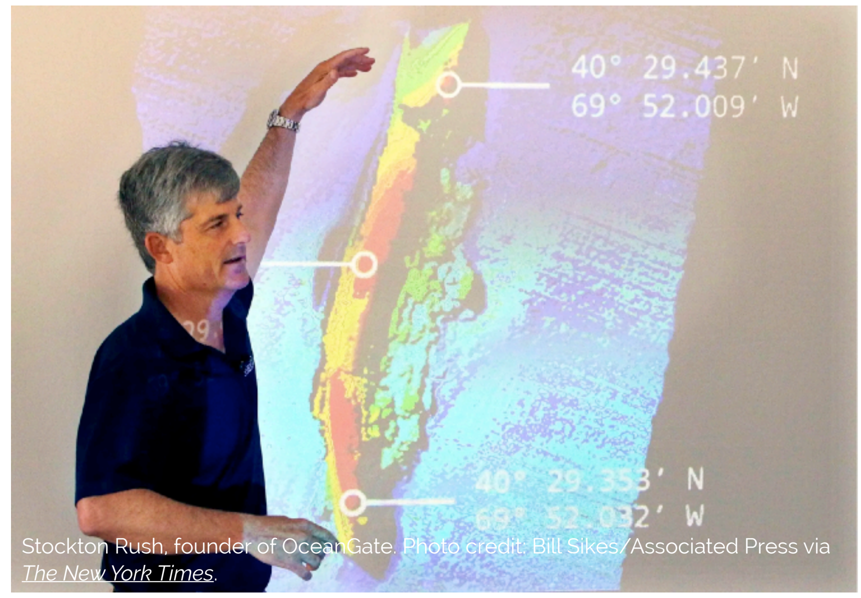
disease, in my opinion. Some millionaires cannot live without going on adventures and putting their lives at risk. Sometimes, as in the case of a solo mission, where there are no other lives at stake, if the person decides to risk his or her own life without bringing trouble to other people, it is fine. Other disasters, like that of the Titan, require thousands of people, including coast guard personnel, divers, and police, who have to clean up the mess that was caused by these mega-rich adventurers.

TITAN DISASTER

As previously noted, Stockton Rush founded OceanGate, the company that built the Titan. He aspired to be an astronaut as a youngster, he came from an aristocratic family, and he majored in aerospace engineering. However, he later realized that he would never travel to Mars and that everything he was passionate about was under the ocean (Greg). Rush established OceanGate Expeditions in 2009 with the help of a five-person submarine that he had acquired from a private owner and refurbished. The next year, the Antipodes submarine was unveiled, and it completed 130 dives in just two years. He started building his next ship, a submarine that was different from previous submarines since it required a mothership constructed of carbon fiber, along with two other smaller submarines. It was given the moniker Cyclops and functioned as prototype and platform for the Titan (Gilbert).

The fatal 2023 expedition began in St. John's, Newfoundland, at eight o'clock in the morning local time on June 18, 2023, at about 375 nautical miles (about 700 kilometers) east of the coast. The Titan left initially by icebreaker since that part of the ocean is rich in strong currents and ice. Once there, the passengers went inside the submarine, to be locked in from the outside by the operators. The mission began, and the small submarine started to descend. Things seemed to be going well, but after about an hour and forty-five minutes, communications broke down. But let's say it was not a huge problem because the submarine still had one hundred hours of oxygen remaining (Christian).

By the morning of June 19, the rescue mission was underway. The U.S. Coast Guard begun searching 900 miles (about 1,600 kilometers) east of Cape Cod, in cooperation with the Canadian Forces and commercial vessels in the area. "It's a remote area that poses a real challenge, but we're deploying all available resources to make sure we locate the boat," Coast Guard Rear Admiral John W. Mauger



Stockton Rush, founder of OceanGate. Photo credit: Bill Sikes/Associated Press via *The New York Times*.

said during a press conference (Christian "The last 96 hours).

Time was already against them. "When diving that far out in the ocean, as in the case of OceanGate, rescue takes about three to seven days to arrive," notes Peter Girguis, an oceanographer at Harvard University. And, surprisingly, the crew of the Polar Prince had taken nearly eight hours to alert the U.S. Coast Guard of Titan's disappearance. Not only were U.S. and Canadian authorities tasked with locating a submarine not even seven meters in an area twice the size of Connecticut and characterized by waters two and a half miles (about four kilometers) deep, but at the time of Mauger's press conference, the submarine had about 63 hours of oxygen left (Christian, "The Last 96 Hours").

The operations vehicle above found the Titan's track and picked up some noises coming from the seabed. The vehicle swept the ocean floor every thirty minutes, for two consecutive days. This is a common technique used for submarines that are missing. More rescue ships arrived. Jamie Fedrick, captain of the coast guard, reassured everyone by saying that theirs is to be considered a recovery mission since the passengers were likely still alive. Next, extremely high-tech equipment from all over the world arrived. To save time, a boat specializing in submarine recovery was loaded onto a plane, and then dropped near the search area (Christian). At this point, it was twelve hours until the oxygen would run out, and there was still no real lead.

The next morning, news that no one wanted to hear emerged: an icebreaker found the remains of the Titan about 1,500 meters from the seafloor via radar. So, at 11:45 a.m. on June 22, the search ended. The submarine had officially imploded, and all the passengers were declared killed. OceanGate was the first to break the news, writing a public statement. In the following days, it turned out that a ship had detected a loud sound a few hours after the submarine left, but the signal had not been taken seriously since the noise was unreliable. Given the events, that could have been the sound caused by the implosion (Christian, "The Last 96 Hours").

An implosion is a process of destruction by collapse within an object: an explosion expands the space around it while an implosion contracts it. In the case of the Titan, the implosion was caused by the high hydrostatic pressure of the surrounding water, and the process lasted only a fraction of a millisecond (Telly). At the depth of the Titanic, 3,800 meters, there are about 5,600 pounds per square inch of pressure, which is almost 400 times higher than the pressure we have at the surface ("What Happens"). The carbon capsule collapsed due to high pressure. The implosion occurred at 800 km depth. During an implosion, our brain does not have the physical time to process what is happening. As Italian journalist Emanuela Minucci puts it, "They certainly couldn't even realize they were going to die; in the end, of the many ways we can die, this is painless" (Minucci).

CONSEQUENCES AND MEDIA REACTIONS

After the incident, ironic videos and comments began to circulate on social networking sites such as Tikok, Twitter, and Facebook. Merriment best describes the tenor of many of the posts, including making fun of the video game controller used to pilot the Titan, the laughter of the billionaires inside the submarine, jokes about the effects of lack of oxygen on the human psyche, or the substitution of farting sound in place of sound (Gelt). People felt that this tragedy could have been avoided, and I will explore this question more.

As mentioned earlier, the Titan submarine, created by OceanGate, was a real experiment. The first factor to talk about are the materials used; in all the sources I consulted, it is clearly expressed that the Titan imploded mainly because of the use of the wrong materials which were different from the ones traditionally used in submarines. The materials used on submarines today are steel, titanium, and aluminum. This is to prevent the submarines from imploding, and they are called "marine metals," because of their high strength (Stening). However, there is a problem: these materials are very heavy, and, as a result, they are harder to take into the deep. Since the Titan aimed to go very deep, using traditional materials would have cost much more, with likely negative outcomes on the expedition, given the great depth. So, OceanGate decided to use carbon for the hull, a much lighter material than titanium and steel, but also much more fragile. In fact, this may have been the cause of the implosion. Mission after mission, the carbon suffered severe pressure and friction, and, consequently, it may have broken down, leading to the implosion of the Titan.

OceanGate, in addition to changing the materials used, also changed the traditional shape of a submarine. It chose a cylindrical shape, and it did so to be able to carry as many people on board as possible. The traditional shape is spherical, which is the perfect shape to suffer less friction in the water.

REVIEWS FROM FORMER CUSTOMERS

Below are reviews from passengers of recent Titan expeditions. They all suggest that the OceanGate was aware of the design shortcomings of its submarine. One review to mention is from the retired businessman and adventurer Arthur Loibl who said: "'The first submarine failed, then a dive to 1,600 meters had to be abandoned'" (Rumpf-Whitten). Loibl continues to note that his expedition was delayed because of issues with the electrical system. As his review suggests, "'Along with the nerve-wracking delay, the stabilization tube bracket—which balances the submarine—tore and had to be 'reattached with zip ties'" (Rumpf-Whitten). While Loibl wasn't himself troubled by these shortcomings, he speculated that the Titan's passengers must have endured "'hellish'" circumstances (Rumpf-Whitten). Loibl mentions that it takes a certain kind of person to embark on such expeditions: "'You need steady nerves, you must not suffer from claustrophobia, and you must be able to sit cross-legged for 10 hours'" (Rumpf-Whitten). As Loibl reminds readers, "'There's only 2.5 meters of space, it's four degrees, there are no chairs, no toilets" (Rumpf-Whitten).

The only positive review came from Mexican YouTuber Alan Estrada, who recounts the trip to the Titanic as the best he ever made in his life. He paid one hundred and fifty thousand dollars for the trip, since it cost that much in those days and it was one of the first expeditions. Estrada was able to make this trip thanks to some sponsors. He said that before you start the mission you have to sign papers saying that the company does not take any responsibility for your death, but he says that is normal and adds that all the participants were consenting adults. He concludes by saying that security measures were done with extreme care and attention. His expedition was one of the most successful ("Sottomarino").

NO SECURITY MEASURES

The company OceanGate had neglected the maintenance of the vessel and the safety measures that needed to be applied. The first unusual thing was that the submarine, before being thrown into the water, was sealed from the outside, which is very unusual. Suppose the submarine had returned to the surface a hundred miles from the predetermined point, the Titan would have been found after days of searching and the passengers would have suffocated to death inside given the inability to open the craft from the inside. It was also not equipped with a GPS, so in case of problems, it would have been very difficult to find the craft again. The submarine was being piloted from the interior. Stockton Rush revealed that the submarine is operated by an XBox game controller that is currently on sale on Amazon for $30. This suggests a lot about the safety measures of the craft. Images of the controllers showed the stretched and modified sticks to help control the Titan submarine (Tedesco).

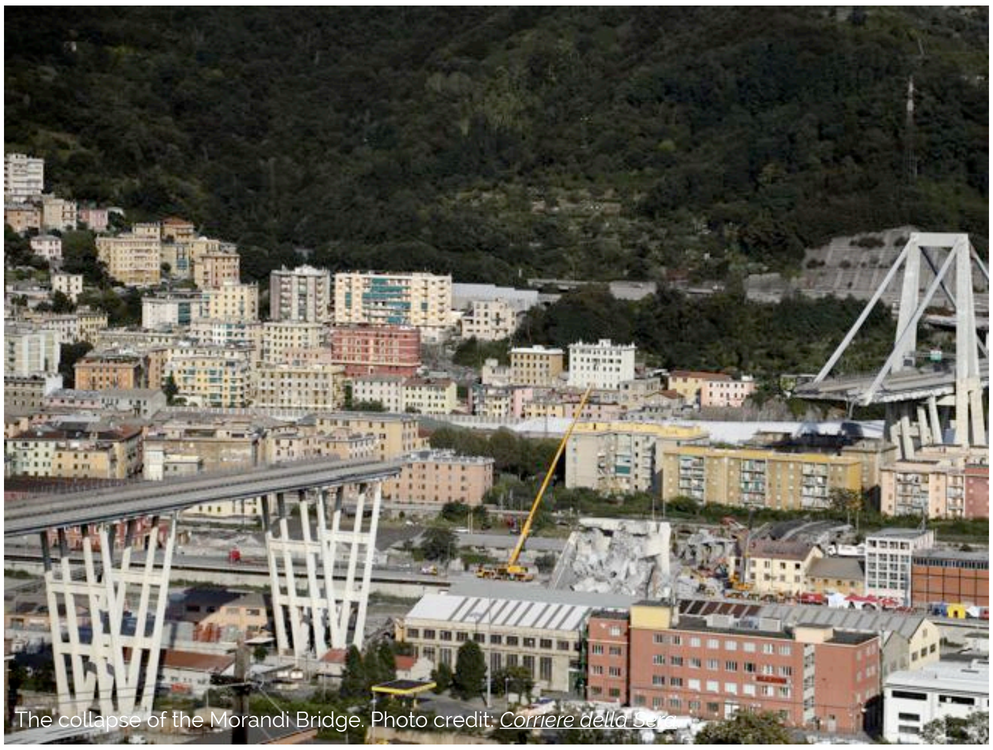
Years ago, David Lochridge, OceanGate's former director of marine operations, reported his concerns about safety: The issues were "OceanGate's refusal to conduct critical, but non-destructive, tests on the experimental hull design" (Tedesco). Although the company intended to use the submarine for expeditions up to 3,800 meters below the surface where the pressure approaches 400 bar, Lochridge claims that the observation hatch at the forward end of the submarine was built to withstand a certified pressure of 1,300 meters of water (roughly 130 bar). As Lochridge's report states, "OceanGate refused to pay the manufacturer to build a hatch certified to withstand the required depth of 4,000 meters" (Tedesco). Instead of taking these worries into account and implementing corrective steps to ensure Titan's safety, or using a certification agency to check it out, OceanGate did the exact opposite: Lochridge got fired (Tedesco).

Xbox controller used on the Titan. Photo credit: CBS via *The Sun*.

To say that, unfortunately, some companies prioritize money and neglect maintenance, since they are important costs. As a result, sometimes there are accidents, as in this case. This happens a lot. For example, in Italy, about two years ago, the Morandi bridge, located in Genoa, owned by Autostrade per l'Italia, a private company that manages Italian highways, collapsed. Forty-three innocent people died in that incident due to a lack of maintenance.

BILLIONAIRES' OTHER RISKY EXPERIENCES

There are many adventures that millionaires can embark on, including seeing the wreck of the Titanic, climbing Mount Everest, circling the ocean in an ultralight helicopter, and other such ventures. I think the most fascinating and beautiful one involves space tourism. And, yes, I am not talking about Star Wars or Star Trek, but the fact that, in recent years, many millionaires have investing in this sector: Jeff Bezos, the founder of Amazon, Richard Branson, founder of Virgin Group, and Elon Musk, CEO of SpaceX and Tesla (Debra). Bezos's passion for space is shared by Elon Musk, who, before founding Tesla, created SpaceX, a private contractor for NASA, and who has already taken a crew of astronauts into orbit last year. The South African billionaire who lives in Texas is convinced that the future of humanity lies outside planet Earth and that if the species does not migrate to space it will face mass extinction: "The alternative [to human extinction] is to become a space-traveling civilization and a species that resides on several planets," Musk said during a conference in Mexico in 2016 ("L'ossessione dei miliardari"). The billionaire has also expressed his desire to establish a city on Mars that will have a million inhabitants by 2050, and SpaceX is



The collapse of the Morandi Bridge. Photo credit: *Corriere della Sera*

already working on designing the vehicle to transport them. Although his company has achieved the most success and notoriety in the space industry to date, Musk has not yet been a passenger on any of his trips, and Bezos will cross this milestone before him ("L'ossessione dei miliardari").

Richard Branson is a co-founder of the British conglomerate Virgin Group with a strong presence in the world of air travel and tourism. In 2004, he founded Virgin Galactic, whose goal is to offer commercial space travel. Like the other billionaires, Branson has invested a large chunk of money in his own space company. Space travel starts at $500,000, and there are two ways for people to fly: either by rocket, where you can get to very high altitudes, or attached to helium-filled balloons. For for the latter, the maximum height is 30 kilometers, and the trip takes about twelve hours. Clearly, the price is not comparable between the two, as we are talking about $500,000 versus $50,000 for the second method. This new tourism has been strongly criticized by the public, perhaps because only very few people have the opportunity to experience the thrill of making this trip, given the price. Many of the articles on the issue focus on the same question: shouldn't the billionaires have thought of solving the problems on Earth first? Perhaps the most valid criticism is about the climate impact of these adventures, as pointed out by journalist Henry Mance of the *Financial Times:* "We are really promoting space tourism while asking ordinary citizens to limit diets, travel, and consumption to combat climate change" ("L'ossessione dei Miliardi").

CONCLUSION

To sum up, OceanGate's Titan tragedy serves as a sobering warning of avarice and irresponsibility in the realm of extreme tourism. The catastrophe exposed a string of deadly mistakes and carelessness that claimed nine lives. Titan passengers were placed in an exceedingly risky environment due to the use of incorrect materials, improper maintenance, inadequate safety measures, and a lack of regulatory control. This incident brought to light the increasing propensity of billionaires to pursue thrilling experiences at great personal and social cost. Significant moral and ethical concerns concerning the obligation of businesses providing extreme tourist experiences and the requirement for more stringent laws to guarantee participants' safety are brought up by the Titan disaster. Debate on whether resources and efforts should be directed toward tackling Earth's challenges, such as climate change, rather than pursuing adventures beyond our planetary home, is arising as some billionaires continue to invest substantial sums of money in space tourism.

This tragedy serves as a reminder of how crucial it is to strike a balance between our excitement for travel and adventure and our caution and regard for human life. To prevent such tragedies in the future, it is imperative that we learn from the past and prioritize safety, accountability, and ethics in the realm of extreme tourism. We can only fully appreciate the beauty and exhilaration of extreme experiences without sacrificing the participants' safety and well-being if we take a deliberate and mindful approach. Furthermore, it's important to strike a balance between space exploration and addressing pressing issues on Earth, including climate change. Putting money into space exploration shouldn't come at the expense of ignoring Earth's environmental problems. It is imperative that scientific advancements and research be directed towards resolving global climate issues, guaranteeing that space exploration and planet preservation go hand in hand.

Space tourism has the potential to take humanity to new heights by offering unforgettable experiences and igniting a feeling of wonder and exploration—but only if it is handled ethically and sustainably. However, it is essential that this development take place in a way that is ecologically responsible, providing a sustainable future for future generations. I believe that everyone is free to do what they want as long as they respect others and the environment. If in my bank account, instead of three or four figures, there were six or seven, honestly, I would try to enjoy life without going on risky adventures. Among the missions listed above, the only one I would do is climb Everest, but with long and careful preparation. ❖

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HUMANITIES

Photo by Felipe Balduino.

JONATHAN SKINNER

ANCIENT EGYPTIAN INSTRUMENTAL MUSIC

Scarce are those who would contest the essentiality of music. Its influence can be seen in every aspect of society, from the family home to the football stadium. While music has taken different forms as history has progressed, the fact that it's essential to human existence has been true ever since music's inception—a date which cannot be concretely established—and a prime example of this is the civilization of the ancient Egyptians. In fact, the society they had built was far more advanced than those of other peoples, as proof of the arts' existence in Egypt can be found as early as 4,000 BC, during the Fourth and Fifth Dynasties (Pulver, 1921). The ancient Egyptians built their entire culture around music, incorporating it into their religious observances, royal banquets, general entertainment for all, and everything in between. Such an extensive involvement with music would, naturally, produce not only a legion of musicians whose live were shaped by performing music, but also a wealth of musical instruments on which this music would be played. Many of these ancient Egyptian customs have had a large impact on our society today. We use many of the same instruments, although some have been modified or altered to improve playability or sound quality, assimilate music into many of the same parts of society, and take into consideration the same concerns the ancient Egyptians did. An understanding of this comes from an exploration of the four main periods of ancient Egyptian music and what those periods introduced to develop their respective musical ideas.

Arch or crescent harp in the Tomb of Ramses III, 1186-1155 B.C., Thebes. Illustrated in 1809. Photo credit: The New York Public Library.

Music was, like many other things, associated with the ancient Egyptian gods, and, initially, it was believed that Merit, a goddess also known as Meret, was the "personification of music"; in fact, "although she never became goddess of the people with cult chapels of her own . . . she was a 'chironomist goddess', whose major task was to establish cosmic order by means of her song and gestures" (Manniche, 1991, p. 57). This was mainly due to her association with some ancient Egyptian creation stories, as she is said to have been heavily involved in the symphony of creation (Mark, 2017). After some time, however, Merit's close association with music would be dropped and replaced by the goddess Hathor, who was said to bring joy and make use of a sistrum, a percussion instrument, to protect her land from evil (Mark, 2009). Such highly-regarded spiritual associations serve as the main reason why music saw such great development starting in the Fifth Dynasty.

While evidence supports the idea that Egypt had the capacity to develop a diverse array for instruments as far back as the First Dynasty (around 4,400 BC), Egyptian art did not become the prevalent force that it is known by today until the Fifth and Sixth Dynasties (Pulver, 1921). During this time, schools of music began to flourish in parts of Egypt such as Memphis, and tombs from these dynasties often housed both depictions of different musical scenes and "representations of excellent instruments" (Pulver, 1921). It is in these tombs where we first glimpse what may have been considered a typical ensemble in ancient Egypt. According to Jeffrey Pulver, a depiction in the Pyramid of Gizeh showed "two harpers, with large bow-shaped, six-stringed instruments, and three flautists" (1921, pg. 35). These two instrument categories, chordophones and aerophones, are the most prominent types of instruments in ancient Egyptian music, and these wind and stringed instruments made up most ancient Egyptian ensembles, although membranophones, such as barrel drums, and idiophones, such as cymbals and bells, would also be used when needed, particularly in religious processions and alongside trumpets in military functions (Köpp-Junk, 2018).

The popularity of music would spread throughout all of Egypt during the Sixth Dynasty, unfortunately causing the quality of the art to suffer somewhat (Pulver, 1921). While this allowed the masses to enjoy music more than they had been allowed before, the decline in quality would not slow, as later kings would fail to cultivate an environment in which music could thrive (Pulver, 1921). Thus, after the innovation which came from over a millennium of development, the first renaissance of Egyptian art would end as abruptly as it began in 3,300 BC (Pulver, 1921).

After silence for the next four dynasties, the second era of Egyptian artistic brilliance came during the Eleventh Dynasty and the reign of King Mentuhotep III (Pulver, 1921). Just as during the first period, depictions of music's flourishing are present in tombs and palaces, along with physical remains of instruments from the time (Pulver, 1921). Additionally, this period is where the first signs of outside cultural influence present themselves; while the impact of Asiatic influence is debated, its significance is not. Scholars theorize that some of the depictions in a tomb at Beni Hassan showed the biblical Jacob bringing his family to Egypt, with one of the men carrying the lyre that may have belonged to David (Pulver, 1921). On the other hand, the Greeks, rather than changing ancient Egyptian music, most likely based their musical system on the one set by ancient Egypt (Pulver, 1921). Today, a lot is owed to this Egyptian influence on Greek music due to its impact on European twentieth-century music theory and modern Western music theory by extension (Pulver, 1921). As an example, the tetrachord, adopted by the Greeks from Egypt and eventually brought to Europe, is an ascending scale of four notes "bounded by the interval of a perfect fourth"; that is, the lowest and highest notes of the scale are separated by five semitones (The Editors, 1998, para. 1). By combining two tetrachords which share no common tone together, the major scale is created; this scale is the basis for most instrumental music today and is the template from which all variations, such as minor and harmonic scales, branch from (Encyclopedia Brittanica, 1998).

The second era of Egyptian art lasted throughout the Eighteenth Dynasty, with another school of music and even more instruments created under the rule of Akhenaten III. By the Nineteenth Dynasty, a sense of sloth had again set in across the Kingdom and caused a decline in many aspects of Egyptian culture, including the arts, whose decline was initially negligible but became more severe once Rameses II came

Lute and double pipe players, and female dancers from a mural found in the Theban tomb of Nebamun, a nobleman of the 18th Dynasty of the New Kingdom, c. 1350 BC. British Museum, Room 61. Photo credit: Ashley Van Haeften via Wikimedia Commons.

to power (Pulver, 1921). Thankfully, the time between the second and third eras of Egyptian artistic development was short, as the Twentieth Dynasty and the reign of Rameses III particularly pioneered the third era of Egyptian musical culture (Pulver, 1921). This period, while much shorter than the others, accorded much value to music and art in ancient Egypt. More depictions of instruments, specifically harps, appear on various tombs, many of them featuring brilliant, gemstone-studded instruments which towered over the people drawn beside them (Pulver, 1921). Unfortunately, this was the only important aspect of this period, as although Rameses III was able to improve the arts during his reign, his successors did not share this interest, and thus, progress was stalled once again (Pulver, 1921).

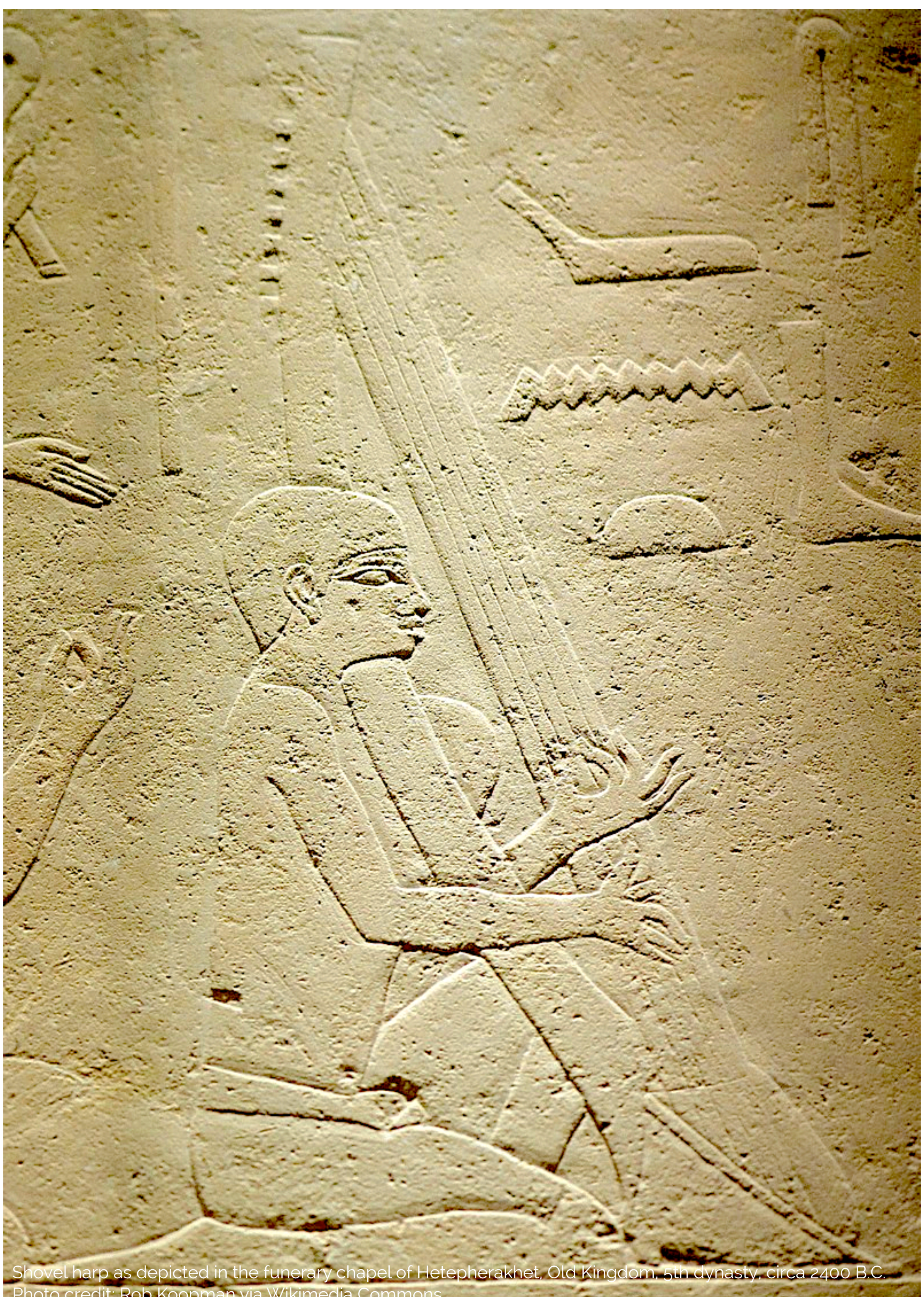
The fourth and final era of ancient Egyptian musical development comes in the Twenty-sixth Dynasty, when Psamtek I and other loyal Egyptian subjects brought the Kingdom together one last time (Pulver, 1921). This was perhaps the most distinguished of the four periods due to the prioritization of a new, higher standard of art as opposed to continuing what had already been achieved (Pulver, 1921). Like the third period during the Twentieth Dynasty, however, this period only lasted through the reign of Amasis II, phasing out even before the end of the Twenty-sixth Dynasty (Pulver, 1921). The Ptolemaic period solidified the end of ancient Egyptian musical development, as while imitations were attempted by artists of the time, it was no longer possible for any music which came out of Egypt to be "wholly" Egyptian (Pulver, 1921).

Although ancient Egyptian music died out many millennia ago, the period's instruments have remained topics of interest and have had impact on our music today. Harps of many kinds were used, including angular and different variations of arched harps (*Music in Ancient Egypt,* 2020). The shovel-shaped harp, which was used exclusively in the New and Middle Kingdoms, possessed five to seven strings and, as the name implies, a soundbox shaped like a shovel (Levy, 2020). The ladle-shaped harp differed in both string count and sound box design, as it usually had nine strings and sported a hemispherical sound box; additionally, the ladle-shaped harp was generally considered both a solo instrument and a pristine gift to offer a deity (*Music in Ancient Egypt,* 2020). The boat-shaped harp is the longest of the five arched harps due to its shallow sound box. It is a girthier harp with nine to twelve strings (*Music in Ancient Egypt,* 2020). The last of the arched harps, the shoulder harp, is different from the other four harps due to its portable design, small number of strings, typically four to five, and ability to be played in a variety of positions (*Music in Ancient Egypt,* 2020). The angular harp sets itself apart from all five arched harps, as not only do the two sections of its rectangular sound box form an angle at their meeting point—hence the name of "angular" harp—but it also boasted considerably more strings than an arched harp would, with many falling in between seventeen and twenty-one (*Music in Ancient Egypt,* 2020). Even though different harps were created for different eras of Egyptian rule, they were among the most popular instruments of their time due to their commonality and accessibility, as harps were a popular instrument for those with visual impairments.

Two more chordophones were popular in ancient Egypt, those being the lyre and lute. The lyre was brought to Egypt during the Middle Kingdom and shares similar structural aspects with the angular harp, having either a rectangular or trapezoidal sound box (*Music in Ancient Egypt,* 2020). These oddly shaped instruments were played primarily by women, although oversized lyres would be played by men, and, unlike most harps, lyres were played in ensembles rather than as solo instruments; they also had a strong association with deities (*Music in Ancient Egypt,* 2020). The lutes are strikingly different from harps and lyres, as they share many similarities to the modern-day guitar. A lute has a thin neck with a small number of strings and an ovular sound box. Lutes also found their place in ensembles, and thanks to their relatively small size, lute players had the freedom to dance, sing, and play simultaneously, contributing to its use in many important events, such as religious ceremonies (*Music in Ancient Egypt,* 2020). Today, many of these instruments have faded into obscurity or fallen into the vague classification of "exotic instruments," but the boat-shaped harp has avoided this fate, finding its place as one of the two primary orchestral chordophones along with the piano. Additionally, while the ancient Egyptian lute has not reemerged, the guitar finds niche usage in various wind ensembles.

While not as popular as the ancient Egyptian chordophones, aerophones were still used somewhat regularly. The most prevalent of these was the ancient Egyptian flute, being the oldest of the aerophones (*Music in Ancient Egypt,* 2020). The flute had three to four holes and was held in a posture similar to how the modern-day flute and clarinet are held; additionally, while the number of holes is small, a player changing the way they blow into the instrument would alter the note (*Music in Ancient Egypt*, 2020). Along with the flute, a "monkey-shaped ocarina" and another type of flute called a "*uffâtah*" were occasionally used but much less common (*Music in Ancient Egypt*, 2020). Today's clarinet shares similarities with the ancient one, both because of its structural similarities—it uses a single wooden reed with six holes on the front—and the ensembles it is used in, mostly with other flutes and the harp, both common instruments in orchestras. It differs from today's clarinet in the unique way of holding it as it was held in the same way one would hold a trumpet today. Finally, it produced a dissonance of notes unlike today's instrument (*Music in Ancient Egypt*, 2020). Ancient clarinets, however, would be phased out in the New Kingdom, replaced by the oboe, an instrument which is split into two tubes, one which plays the melody and the other which holds a note underneath (*Music in Ancient Egypt*, 2020).

The trumpet is an anomaly, being the only brass instrument in the grouping. The re-creations of ancient Egyptian trumpets seen in movies and television are surprisingly accurate when compared to their actual design: a long tube which spreads into a bell (*Music in Ancient Egypt*, 2020). With no extra holes, valves, or any other external method of modifying the note played, the only way for one to alter their notes is the change their embouchure; because of this design, the ancient Egyptian trumpet can only produce "the harmonic series of a note," that is, only notes which can be produced naturally with no tuning, and was mostly used in military operations, although it did occasionally see use recreationally (*Music in Ancient Egypt*, 2020). Unlike the chordophones, all four of these instruments are still in use today, and apart from the oboe, their designs have not been drastically altered. Further, their uses have remained almost unchanged. Even the trumpet, which was once used almost exclusively in military functions and is now a mainstay in orchestra ensembles, is still an icon of the military. One demonstration of this can be seen in the U.S. Army in the form of the Herald Trumpets, "The official fanfare ensemble to the President of the United States [which was] officially founded in 1959 . . . to add splendor to official military ceremonies" (*The U.S. Army*, n.d.).


Shovel harp as depicted in the funerary chapel of Hetepherakhet, Old Kingdom, 5th dynasty, circa 2400 B.C. Photo credit: Rob Koopman via Wikimedia Commons.

Aside from instruments, the importance of ancient Egyptian music can be seen in the design of the temples and tombs of the time, partially due to sacred music being a large part of ancient Egyptian music throughout its history, particularly during the Fifth Dynasty (Pulver, 1921). Because temples were commonly used for worship of their deities, acoustics were taken into consideration upon buildings' construction. Nada Ahmed Arisha, a lecturer of interior design at the October University of Modern Sciences and Arts, references the design of the Holy of Holies, noting the following:

> the ceiling narrows [in] gradually and the flooring rises until we reach [the] entrance of the Holy of Holies. According to the Acoustics of sound this [allows for] large voices and echoes throughout the temple during the hymns and ceremonies at the Holy of Holies. (Al Malt, 2017, cited in Arisha, 2022)

Perhaps the most prominent example of this Egyptian focus on both acoustics and sacred music to survive to the present day is the Coptic Orthodox Church. This sect of Christianity was created when St. Mark introduced the gospel to Egypt between 45-60 BC; Coptic life shares similarities with ancient Egyptian life due to both cultures involving music in everyday life (The Library of Congress, 2009). The Coptic church views heaven as a place of eternal praise to God, and because of this, worship services, and the music sung, are meant to give a glimpse into what heaven is like (The Library of Congress, 2009). As such, Coptic churches tend to be built as large cathedrals, making them optimal for singing praises (The Library of Congress, 2009).

These elements are not simply important because of their direct impact on our music today. Nearly all melodies from the ancient Egyptians are lost to time due to their lack of musical notation systems. Because of this, we must rely on song texts and physical representations of instruments to determine what the music of ancient Egypt may have sounded like (Köpp-Junk, 2018). Plenty of attempts to reconstruct some of these ancient melodies exist, one of which was made by Michael Levy, a modern composer for lyre. Levy discusses context clues used by those who rebuild ancient melodies in his video, "Reconstructed Ancient Egyptian Melody." (Levy himself did not do so). These include a remarkably intact three-holed Egyptian flute and depictions of a banquet scene on the walls of a tomb from which the melody was reconstructed (2009). Musically, the piece never changes keys, always remaining in the key of G major, and it particularly favors E natural and A natural as its root notes, demonstrating the influence of the tetrachord. The lyre was also capable of holding an E natural on one of its strings to allow the others to play the melody, similarl to the guitars we use today. Additionally, Levy's arrangement was free-metered, which means that there was no concrete time signature present. This allows for greater expression through the instrument itself. This freedom of expression is most likely due to music being used as ways of worshipping the ancient deities.

The music of the ancient Egyptians was formed through a complex series of periods which, in their own ways, contributed to human artistic growth. Things left behind from these periods have impacted how we as a culture view music today, from the instruments we use to the techniques and theory we use for composition. Even our approach to architecture was shaped by the priorities of the ancient Egyptians. This comes from the value the Egyptians placed on music, which has survived into our time. It is no wonder that we attempt to use what little we have to reconstruct these melodies which have faded away. As more is discovered about music in ancient Egyptian societies, more connections can be made between them and the modern day. ❖

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The citation system used in this essay is APA 7th.

CLARENCE ALEXANDER SANDERFORD
SWIFTIES: A CULT

INTRODUCTION

The word "cult" has many different meanings in modern speech, and because of its past connections to radical movements or fringe religious groups, it is frequently associated with negative connotations. However, because group dynamics, belief systems, and social structures are so complicated, it remains difficult to define a cult, according to both academics and practitioners. Fundamentally speaking, a cult is a group or movement that is defined by its members' strong sense of allegiance and commitment to a specific ideology, leader, or set of beliefs. Some cults may operate within moral and legal bounds, encouraging a sense of belonging and common purpose among members, while others may partake in destructive activities or display dictatorial control over their believers.


Swift at the American Music Awards of 2019, where she was named Artist of the Decade. Photo credit: Cosmopolitan UK via Wikimedia Commons.

Pop sensation Taylor Swift's passionate fan club, known as "Swifties," is a prime example of the contemporary phenomena of fandom at its most intense. These fans, who go by Swift's name, go beyond conventional ideas of celebrity devotion and create close-knit groups bonded by their love of Swift's music, image, and life story. Ever since her ascent to stardom in the mid-2000s, Taylor Swift has accumulated a devoted fan base that goes well beyond casual listeners. To show their commitment, Swifties take part in a wide range of activities, including going to concerts, buying merchandise, starting online forums, and starting social media campaigns (Wilkinson). Swift's ability to personally connect with her fans, in addition to her prolific songwriting and narrative style, has created an intensely emotional connection between artist and fan, which has fueled the ardor of the Swiftie community.

When one looks closely at the actions and customs of Swifties, one finds that their fandom is remarkably similar to those of cults. Swifties represent aspects of devotion and group dynamics typical of religious or ideological movements, from the creation of insular groups to the adoration of a charismatic leader. Using ideas from social psychology and religion, this essay will examine the many facets of Swiftie culture through the prism of cultic studies (Singer and Lilich). It will do this by shedding light on the intricate relationships that exist between identity construction, celebrity worship, and group loyalty.

Isolation

The establishment of a closed social environment where members are shielded from outside influences and are encouraged to stick together by common customs and beliefs is one of the characteristics that distinguish cults. Within cultic organizations, social isolation is a phenomenon that can take many different forms. It can include psychological seclusion from mainstream culture as well as physical confinement in shared housing. When it comes to Swifties, social isolation assumes a digital shape because the fandom largely communicates via social media and internet platforms. Although this online community helps fans who are spread all over the world connect and bond, it also creates an echo chamber effect where opposing viewpoints and critical thoughts are ignored or neglected (Aleo, Jerasa, and Nash). Swifties feel more a part of a supportive and cohesive group when they interact with like-minded people who share their affection for Taylor Swift in these virtual venues. Additionally, the proliferation of social media algorithms and carefully chosen material feeds can worsen the echo chamber effect by giving users' preexisting ideas and preferences priority over other content, which encourages groupthink and discourages critical interaction with opposing viewpoints (Aleo, Jerasa, and Nash). Swifties could thus discover that they are becoming more and more isolated within their virtual fandom bubble, protected from opposing viewpoints or outside criticism of their idol or shared identity.

Swifties may endure psychological segregation from mainstream society in addition to digital social isolation since their deep dedication to Taylor Swift and involvement in fan culture may defy social norms and expectations (Theberge). This sense of difference can reinforce feelings of alienation or estrangement from people outside the fandom, while also fostering a sense of solidarity and fraternity among fans who find understanding and acceptance inside the Swiftie group.

The Charismatic Leader

The presence of charismatic leaders who have a strong hold over their followers due to their charisma, personality, and perceived authority is another distinguishing feature of cultic groups. These leaders frequently exude traits that engender fidelity and dedication in their followers, earning them respect and unquestioning obedience. Regarding Swifties, the fan community unites around Taylor Swift, who plays the role of a captivating leader. Swift has a devoted following that goes beyond simple fandom thanks to her quick ascent to prominence, talent, charisma, and personable demeanor (Dow.). Swifties look up to her not just as an artist but also as a representation of strength, sincerity, and fortitude.

Swift has thus strengthened the emotional connection between artist and fan, creating a sense of intimacy and familiarity that goes beyond typical celebrity-fan connections. She has done this by connecting with her audience on a personal level through both her music and her interactions with followers on social media (Dajches and Aubrey). Because of this perceived intimacy, Swift is able to use her words, deeds, and artistic manifestations to greatly impact her fan base's beliefs, values, and behaviors. Additionally, Swift's fan base, which is primarily composed of women and young people, responds to her accessible and genuine image that she has developed through the clever use of social media and PR (Wilkinson). Swift solidifies her status as an artist, confidante, and role model by providing fans with intimate peeks into her personal life, honest reflections, and sentiments of thanks.

Taylor Swift is a charismatic person in the fan community because, to Swifties, she exemplifies the leadership, sincerity, and empowerment traits that they want to emulate. The cult-like dynamics that Swifties exhibit are a result of their admiration and reverence for

Photo by anna-m. w.

Swift, as they readily yield to her guidance and influence—often without hesitation or inquiry.

Thought Control

A key component of cultic groups is control over the thoughts, feelings, and behaviors of their members; this is frequently accomplished through a variety of influence and manipulative techniques (Singer and Lilich). Cult leaders control their adherents by imposing views, behaviors, and emotions on them that are advantageous to the group or the leader. Within the Swiftie community, the fan base's widespread exposure to Taylor Swift's music, persona, and storyline demonstrates power over actions, ideas, and feelings (Hill). The deep emotional attachment that Swifties have to her work and personal life is demonstrated by the way they consume music. They look forward to new songs being released, go to concerts, and participate in conversations about Swift's life and career on social media. Taylor Swift's songs frequently function as anthems of being empowered, heartbreak, resilience, and self-discovery, and as such, her music is a potent instrument for influencing her followers' emotional experiences. Swift evokes powerful emotional reactions and builds a sense of connection and identification among her followers by focusing on universal themes and emotions in her lyrics and songs.

Swifties' commitment to Taylor Swift goes beyond simple fandom because a lot of them see her as a role model and inspiration for their own life (Hill). Fans that identify with Swift's path and find themselves reflected in her story are drawn to her honest story of self-empowerment, triumph over hardship, and worldview adoption. Swifties' identities and actions are shaped by their allegiance to the fan community and its charismatic leader, and this alignment of values and beliefs with Swift's can have a substantial impact on their thoughts, feelings, and behaviors. Swifties show a readiness to follow fan conventions and expectations in order to feel like they belong in the fandom, whether by taking part in social media campaigns, buying products, or standing up for Swift when she is being criticized (Hill).

The development of an emotional connection between Swift and her followers strengthens the devotion and allegiance among Swifties, fostering a sense of duty to stand by and protect Swift from outside criticism or examination (Hill). This emotional commitment reinforces the cult-like dynamics seen in the Swiftie community by strengthening the power Swift and the fan base have over members' actions, perceptions, and feelings.

Rituals & Devotion

In cultic communities, rituals and ceremonies are important because they are symbolic representations of shared identity, values, and camaraderie. These customs frequently support the group's social cohesiveness, encourage a sense of community among participants, and give ordinary behaviors a deeper meaning. Rituals and ceremonies can take many different shapes within the Swiftie community; they can be unstructured customs or planned occasions that mark the fan calendar. These customs give Swifties a chance to get together, celebrate their mutual love of Taylor Swift, and reaffirm their dedication to the fan base. The annual December 13th celebration of Taylor Swift's birthday is one of the most well-known customs among Swifties (Theberge). Global Swift fandom comes together to celebrate this milestone with fan art, social media posts, and charity endeavors. In addition to honoring Swift's life and achievements, this widespread expression of love and gratitude strengthens the ties of friendship and support among followers.

Similar fan-driven rites and rituals accompany the release of new Taylor Swift songs or albums, reflecting the excitement and expectation surrounding these occasions. To support and celebrate Swift's most recent musical ventures, Swifties organize album listening parties, streaming parties, and organized promotional events. These moments become shared experiences among Swifties on digital platforms and in person. Swifties engage in a wide range of smaller-scale customs and activities that add to the fabric of fan culture in addition to these regular rituals (Hill). Fans' rituals, which range from dressing in synchronized outfits for performances to planning get-togethers for fans and hosting viewing parties for Swift's music videos or documentaries, reinforce their bond with Swift and with one another while also strengthening the sense of community and shared identity among them. As part of their fandom experience, Swifties may also participate in private rituals or practices. These might include acting out famous scenes from Swift's career in real life, incorporating Swift's lyrics into their social media bios or personal mantras, or listening to her music during important life events.

Cultic groups are characterized by their steadfast loyalty to a core ideology, doctrine, or figurehead (Singer and Lalich). The foundation of the group's cohesiveness is its devotion, which gives its members a sense of meaning, purpose, and belonging that goes beyond their own identities and concerns. For Swifties, the object of their adoration is none other than Taylor Swift, who fulfills the roles of both cultural icon and creative icon. Swift symbolizes an embodiment of their ideals, objectives, and sense of identity, therefore Swifties' loyalty to her goes beyond simple adoration for her music or celebrity position.

The core elements of the Swiftie ideology are her music, demeanor, and autobiography, which have a significant impact on the fan base's attitudes and actions. Swift provides her listeners with a lens through which to interpret their own experiences and emotions as she tackles themes of love, heartbreak, empowerment, and self-discovery in her lyrics (Wilkinson). Swift's relatability, honesty, and vulnerability appeal to followers on a deeper level and solidify their view of her as a cultural icon and moral authority. Swifties' love for Taylor Swift thus goes beyond just her music—it encompasses her personal life, charitable work, and public campaigning. Supporters stand by Swift throughout difficult times, stand up for her when she's being criticized, and rejoice over her accomplishments as though they were their own. In the fan community, Swift's words and deeds are closely examined and analyzed, and followers enthusiastically adopt her ideals and causes as their own. Swifties come together around a common philosophy based on their idol as a result of their shared beliefs and ideals with Taylor Swift, which helps to create a feeling of collective identity and purpose (Hill). Swifties show their dedication to the values and ideas that Swift embodies by supporting her philanthropic endeavors, attending concerts, and engaging in social media campaigns. This fosters a sense of unity and camaraderie within the fan base.

Swift's story of authenticity, resiliency, and self-empowerment strikes a deep chord with followers who identify with her journey. Swifties look to her tale for affirmation and inspiration, drawing strength and direction from her experiences for their own life. The relationship between Swift and her supporters is strengthened by their shared identification and upholding of principles, which firmly establishes Swift as a key role in the Swiftie movement.

ISOLATION: MEETING ONLINE

Online communities have completely changed the dynamics of fan culture by giving like-minded people a place to meet, communicate, and create virtual communities based on their common passions and interests. The emergence of digital venues where Swiftie fans can gather, interact, and work together in real time has been made possible by the widespread use of social media, fan forums, and online fan clubs. Members of these online communities are essentially exposed to content, viewpoints, and ideas that support their own beliefs and preferences, acting as echo chambers (Dajches and Aubrey). Social media algorithms enhance content that aligns with users' interests while sifting out opposing views, perpetuating the echo chamber effect by curating users' feeds based on their prior interactions and engagement patterns. Thus, Swifties are enveloped in virtual worlds where their adoration for Taylor Swift and her music is continually reinforced and heightened by constant exposure to fan-generated content, conversations, and stories, in addition to being acknowledged and validated. Because of their mutual passion for Swift, supporters of this closed-off online community become closer and work together to get through the highs and lows of fandom.

Nevertheless, the echo chamber effect can also keep Swifties away from opposing ideas, critical conversation, and contrarian perspectives, which would encourage critical interaction with outside viewpoints and reinforce groupthink (Hill). Dissenting opinions may be muted or ostracized in these virtual echo chambers, and alternate interpretations of Swift's songs, persona, or behavior may be rejected or ignored. This reinforces the group's shared identity and fan standards and expectations. As a result, Swifties feel more and more isolated from outside influences that could undermine or upend their sense of collective identity or loyalty to Taylor Swift. This is one way that the development of online communities and echo chambers adds to the social isolation that Swifties endure.

Online groups help Swifties feel more connected to one another and more like a family, but they also make the fandom more closed off to outside viewpoints and opposing beliefs. Positive depictions of Taylor Swift are frequently given priority and amplified in the digital areas frequented by Swifties, while unfavorable comments or criticism are minimized or ignored. When faced with opposing viewpoints or outside criticism of Taylor Swift, Swifties often adopt a defensive stance, seeing such remarks as assaults on their idol or group identity (Dow.). The suppression of opposing viewpoints, the construction of echo chambers that support preexisting ideas, and the development of a siege mentality that encourages a "us vs. them" mentality among supporters are just a few examples of how this defensive posture can seem.

Members of the Swiftie community may create intimate social relationships as a result of their close-knit group, which may deter people from voicing opposing opinions or challenging the dominant narrative within the fanbase. Dissent may be discouraged by a fear of rejection, mockery, or retaliation from other fans, which would serve to reinforce the group's adherence to accepted standards and expectations. Because of this, Swifties can discover that they are part of an ideological bubble in which critical thinking and opposing viewpoints are either discounted or delegitimized. This closed-off way of thinking can stifle the fandom's critical conversation and intellectual diversity, which prevents members from having as many possibilities for self-reflection, development, and education. Moreover, the exclusive character of the fandom could lead to a feeling of exclusion or elitism among Swifties, in which being a part of the fan group requires adhering to particular values, norms, or standards (Hill). The fandom's inner circle may reject or exclude those who break from the rules or don't live up to expectations, which serves to further reinforce the group's insularity and members' compliance.

This is one way that the insular structure of the Swiftie fan base perpetuates conformity and groupthink: opposing viewpoints are dismissed or silenced in the name of upholding a cohesive front in support of Taylor Swift. Online communities foster a sense of unity and companionship among fans, but they also present obstacles to critical thinking and intellectual diversity within the fandom, underscoring the intricate relationship that exists in contemporary cultic groups between social exclusion, cohesiveness, and ideological conformity.

AUTHENTIC EMOTIONAL BONDS: THE CHARISMATIC LEADER

As noted above, Taylor Swift's magnetic leadership is the driving force behind the Swiftie phenomenon. Swift has a loyal fan base that goes far beyond traditional celebrity adoration, thanks to her ascent to stardom and subsequent development into one of the most significant characters in the music industry (Wilkinson). Swift's ability to establish a close and intimate connection with her followers through her music and public presence has fostered a sense of intimacy and familiarity. Her mostly young, female fan following finds great resonance in her honesty, fragility, and relatability, which fosters a sense of identification and admiration that goes beyond the confines of conventional celebrity-fan interactions. Furthermore, Swift's adept use of PR and social media has strengthened her standing as a captivating leader in the Swiftie community. Swift has developed a persona of approachability and accessibility by her active participation with fans on social media sites like Tumblr, Instagram, and Twitter. This approachability and accessibility endears Swift to her followers and deepens their emotional bond with her.


Swift on her Reputation Stadium Tour (2018), the highest-grossing North American tour that year. Photo credit: Wikimedia Commons.


Photo by Mark Angelo Sampan

Swift's leadership also includes her support of topics like mental health awareness, LGBTQ+ rights, and gender equality in addition to her work as an entertainer (Avdeeff). Swift has established herself as a spokesperson and role model for her fan base by using her platform and power to support social and political causes. This has encouraged her followers to get involved with and support groups that share her values and ideas. The awe and respect that Swifties have for Taylor Swift is a sign of her captivating hold over her fandom. Swift's followers are greatly influenced by her words, deeds, and artistic creations; they enthusiastically accept her advice and want to live up to her ideals. By uniting followers behind a common idol and reaffirming their sense of self and purpose within the fanbase, Taylor Swift's captivating leadership functions as a centralizing force inside the Swiftie community (Singer and Lalich). Swift's influence is evident in every facet of Swiftie culture, profoundly influencing the attitudes, actions, and values of her fan base and emphasizing the cult-like dynamics that exist within the fan base. The admiration and imitation of Taylor Swift's persona by her fan base is one of the distinguishing features of her charismatic leadership among the Swiftie group. Swift's audience finds great resonance in her well-crafted persona of a personable, grounded individual, and many strive to adopt her lifestyle, values, and habits. Swifties look up to Taylor Swift not just as an artist but also as a representation of strength, sincerity, and resiliency. In their own lives, they look up to Swift as an inspiration and role model, trying to imitate her bravery, strength, and genuineness in the face of hardship (Hill).

Swifties' self-expression and identity construction are modeled after her public persona. Following Swift on social media, her personal style, and her sense of style are all points of inspiration for her fans, who use these aspects of her aesthetic to try and become more like their idol. Swift's autobiographical account of overcoming misfortune, self-realization, and personal development strikes a deep chord with supporters who identify with her journey. Swifties use her music and life experiences as touchstones to help them through their own hardships and obstacles in life (Theberge). They find comfort and affirmation in them. dditionally, Swift's support of causes like mental health awareness, LGBTQ+ rights, and feminism has encouraged her followers to get involved in and support social and political groups that share her beliefs (Driessen). Swifties see themselves as furthering Swift's activism by leveraging their platform and combined voice to make the world a better place. The extent of Taylor Swift's captivating effect among the fandom is demonstrated by the admiration and imitation of her persona among Swifties. Fans find great resonance in Swift's relatability, genuineness, and activism, as they strive to live up to her beliefs and principles. This demonstrates how Taylor Swift's magnetic leadership transcends her position as a performer and includes her impact as a cultural figure and role model for the Swiftie community (Wilkinson). Swifties' devotion to and imitation of Swift's character highlights the cult-like dynamics seen in the fan group by reinforcing their sense of self and mission within the fanbase.

CONFORMITY AND LOYALTY: THOUGHT CONTROL

Controlling the actions, ideas, and feelings of its members is a crucial component of cultic groups. Swifties' strong emotional attachment to Taylor Swift's songs, persona, and private lives serves as proof of this control. Swifties experience and express their emotions through the potent medium of Taylor Swift's music. Swift's songs strike a deep chord with her listeners who find comfort, validation, and catharsis in her music since they frequently tackle universal topics like love, heartbreak, empowerment, and self-discovery. Swifties relate to her music on an emotional level; they use it as the soundtrack to their lives and take inspiration from her messages of honesty and resiliency. Swifties' emotional attachment to Swift goes beyond her music, though, encompassing both her private and public personas. Followers keep a tight eye on Swift's relationships, activities, and professional achievements, and they eagerly absorb rumors, rumors, and news about her personal and professional life (Theberge). Swifties consider Swift as more than just a celebrity; rather, they see her as a friend, confidante, and inspiration for their own life. As such, they have a personal stake in her happiness, success, and well-being.

The strong emotional bond that fans have with Taylor Swift and her music serves to bolster the influence that Swift and the fan base have over each other's actions, perceptions, and feelings. Because of their strong emotional ties to Swift, Swifties have a strong sense of loyalty, dedication, and protectiveness for their idol, which makes them stand by her when she faces criticism, controversy, or hardship. Additionally, because of the intense emotional attachment that Swifties have to Taylor Swift, they may be easily manipulated or taken advantage of by outside parties looking to profit from their adoration of Swift for themselves (Aleo, Jerasa, and Nash). Swifties are vulnerable to frauds, scams, and predatory activity that masquerades as fan interactions. This emphasizes the importance of critical thinking and alertness within the fan community.

Swifties feel pressure to live up to fan norms and expectations within the Swiftie community, on top of their deep emotional commitment in Taylor Swift and her music. In order to maintain adherence to established group dynamics and collective identity, members are under pressure to comply. This pressure is used as a tool for controlling members' behaviors, thoughts, and emotions. In every area of their lives, Swifties are supposed to show unflinching devotion to and support for Taylor Swift. This expectation shows up in a number of ways, such as buying Swift's CDs and merchandising, going to her concerts, and using social media to promote her art. Conformity is important in the fan community because breaking these standards can lead to social rejection or criticism from other fans (Dajches and Aubrey). In addition, Swifties frequently face peer pressure to take part in fan-organized events and activities including voting campaigns, streaming parties, and coordinated social media campaigns. Fans are driven to live up to these standards even when they don't match their own priorities or preferences because they want to be accepted and validated by their fellow fans. Furthermore, Swifties could experience pressure to embrace particular viewpoints or attitudes in order to conform to the dominant storyline within the fanbase. Fans may become hostile or resistant to opposing viewpoints or dissenting beliefs, which makes them self-censor or repress their own emotions to prevent conflict or rejection.

As a way for Swifties to show their devotion to their idol, they may feel pressured to align their personal lives with Swift's ideals, lifestyle, and aesthetic (Aleo, Jerasa, and Nash). This can put a lot of pressure on fans to live up to fan norms and expectations. Fans who find it difficult to live up to unattainable standards of perfection may experience feelings of inadequacy or insecurity as a result of the pressure to replicate Swift's persona.

LIVING LIFE THROUGH TAYLOR: RITUALS & DEVOTION

In cultic organizations, rituals and ceremonies are important in forming the group identity and cohesiveness (Singer and Lalich). The Swiftie community celebrates their mutual dedication to their idol, Taylor Swift, by commemorating key moments in her career through a variety of rituals and ceremonies. Recalling important moments in Taylor Swift's career, like album releases, music video debuts, and award show appearances, is one of the most well-known customs among Swifties. In order to support their idol, Swift, and to raise her chart position, fans gather to take part in streaming parties where they all listen to and promote her songs together. Swifties plan watching parties and live-tweeting events in tandem with the premiere of brand-new Taylor Swift music videos or documentaries. Within the fan community, these communal experiences build a sense of camaraderie and collective joy by enabling followers to express in real-time their excitement and reactions.

Swifties honor not only Taylor Swift's career accomplishments but also significant personal anniversaries, like her birthday and the release date of her first album. In order to commemorate the occasion and show their unwavering devotion to their idol, Swift's admirers resort to social media to share fan art, intimate tales, and touching remarks (Hill). Thus, they participate in fandom rituals that involve artistic and creative expression, like making fanfiction, fan art, and fan films that are influenced by Taylor Swift's persona and music. Through common artistic pursuits, fans can establish connections with their idol and with one other through these fan-generated works, which function as displays of creativity and devotion. Swifties actively participate in a wide range of fan-organized events and activities that aim to reaffirm their collective identity and sense of community, in addition to celebrating major milestones in Taylor Swift's career.

The Swiftie Secret Santa, an annual gift exchange program run by fans throughout the holiday season, is one of the most well-known fan-organized occasions. Participating Swifties sign up from all around the world, trading presents and bringing festive cheer to the fan base (Wikinson). As fans unite to celebrate the spirit of giving and to share their love for Taylor Swift, this event helps fans connect and become friends. Similar to this, Swifties host fan events and get-togethers in cities all over the world, giving fans a chance to interact in person and exchange stories about what it's like to be a part of the Swiftie community. These get-togethers, which frequently align with Taylor Swift's promotional activities or concert tours, enable fans to connect over their mutual love of Swift's music and make enduring memories. Swifties also promote Taylor Swift and her music by participating in fan-driven projects and campaigns. Fans coordinate their efforts to promote Swift's work and increase her effect in the music industry and beyond, through everything from voting campaigns and streaming parties to charity donations (Wilkinson). These group efforts provide members a feeling of accomplishment and purpose while also showcasing the power and solidarity of the fan community. Swifties also plan fan events and tributes as inventive means of showing their love and admiration for Taylor Swift. Fan-made videos, group artworks, or internet fanzines honoring Swift's career, accomplishments, and impact are a few examples of these initiatives. Swifties demonstrate their dedication to their idol and add to the lively and dynamic fan community culture by taking part in various fan-organized events.

Swifties are known for their intense loyalty to Taylor Swift and her core principles, which include resilience, empowerment, and honesty (Theberge). This philosophy is based on Taylor Swift's songs, persona, and autobiography, which shapes the identities, attitudes, and actions of her fan base. Swifties embrace Taylor Swift's principles and convictions, making them their own and incorporating them into their own life. Swift's message of self-expression and empowerment strikes a deep chord with her followers, who find courage and motivation in her songs and life story. Swifties strive to live true lives and accept their actual selves in the face of hardship, trying to emulate Swift's principles of vulnerability, honesty, and sincerity. Swifties actively participate in and support topics like feminism, LGBTQ+ rights, and mental health awareness that are consistent with Taylor Swift's ideals and beliefs (Avdeeff). Swift's fan following, who see themselves as extensions of her activism and use their combined voice and platform to influence positive change in the world, finds great resonance in her support for these issues. Swifties exhibit steadfast allegiance and love for Taylor Swift, who is revered as a major role model by the fan base. They stand with Swift when she is the target of criticism or controversy because they see her as a representation of authenticity, fortitude, and strength in a world that is frequently turbulent and unpredictable.

Swifties frequently embrace Taylor Swift's life story as the cornerstone of their own identity, seeing her hardships, victories, and experiences as a reflection of their own. Swift's path from a young, budding artist to a worldwide sensation strikes a profound chord with her followers, who identify with her narrative of tenacity, fortitude, and self-discovery. Supporters make connections between their own experiences and Taylor Swift's, taking comfort and validation from her songs and autobiography. Swifties use her lyrics as a means of self-expression and introspection since they relate to her themes of love, heartbreak, empowerment, and growth. Furthermore, Swifties' acceptance of Taylor Swift's story goes beyond simple fandom to include their interactions and daily life. Adherents assimilate Swift's principles, convictions, and perspective into their own personas, molding their outlooks, conduct, and interpersonal interactions in alignment with their devotion to the celebrity (Hill).

Swifties see themselves as active characters in Taylor Swift's story, adding to it continuously with their advocacy, support, and involvement in her professional and personal lives. Supporters view themselves as collaborators and allies on Swift's path, sticking by her side through both success and failure.


Swift performing in 2022. Photo credit: Wikimedia Commons.

SWIFTIES' RELIGION: DURKHEIM, WEBER, MARX, AND FREUD EXPLAIN

According to Durkheim's functionalist theory, religion facilitates social integration and cohesion in society. In a similar vein, the Swiftie community can be viewed under this prism since it serves as a foundation for camaraderie and shared identity among its constituents (Pope). Swifties develop close-knit communities that transcend regional and cultural divides as a result of their common love for Taylor Swift and her music. For its members, the fanbase acts as a support system, giving them a feeling of acceptance, unity, and belonging in a world that can otherwise feel alone or fractured. The customs and festivals upheld by the Swiftie community strengthen social ties and promote a feeling of shared identity among followers (Pope). Swifties gather together to share experiences, feelings, and memories that deepen their bonds with their idol and each other, whether it's by marking album releases, Swift's birthday, or fan-organized events. The digital format of the Swiftie community makes it possible for group emblems, customs, and ideologies to spread quickly among online communities, which in turn helps to create a worldwide fan base that is bonded by a shared love of Taylor Swift. The idea of the collective conscience, which holds that people are united in society by shared values and beliefs, is reflected in the Swifties' sense of worldwide solidarity. All things considered, the Swiftie community is a prime example of Durkheim's functionalist theory of religion since it fosters social integration and cohesion among its constituents (Pope). Swifties create links of solidarity and a collective identity via their mutual love of Taylor Swift and her music, which transcend personal divides and foster a feeling of cohesion and acceptance throughout the fan base.

According to Weber's theory of charismatic authority, charismatic leaders have an alluring personality and exceptional traits that compel their followers to be loyal and devoted (Dow Jr.). Taylor Swift is the epitome of a charismatic leader in the Swiftie community, inspiring admiration and devotion from her fan base. Swift has a loyal fan base that goes far beyond traditional celebrity adoration, thanks to her ascent to prominence and subsequent development into one of the most significant characters in the music business. Swift's relatability, honesty, and vulnerability appeal to her audience, which is primarily made up of young women. Swift's adept use of PR and social media has strengthened her standing as a captivating leader in the Swiftie community. Swift has developed a persona of approachability and accessibility by her active participation with fans on social media sites like Tumblr, Instagram, and Twitter. This approachability and accessibility endears Swift to her followers and deepens their emotional bond with her. Swift's support of causes like feminism, LGBTQ+ rights, and mental health awareness has further solidified her position as a spokesperson and role model for her fan base, encouraging them to interact with and support causes that share her values and beliefs (Avdeeff). The awe and respect that Swifties have for Taylor Swift is a sign of her captivating hold over her fandom. Swift's followers are greatly influenced by her words, deeds, and artistic creations; they enthusiastically accept her advice and want to live up to her ideals. By uniting followers behind a common idol and reaffirming their sense of self and purpose within the fanbase, Taylor Swift's captivating leadership functions as a centralizing force inside the Swiftie community (Dow.). Swift's influence is evident in every facet of Swiftie culture, profoundly influencing the attitudes, actions, and values of her fan base and emphasizing the cult-like dynamics that exist within the fan base.


Photo by Sebastian Ervi

Marx's thesis of alienation emphasizes how human experiences and emotions can be commercialized by capitalist systems, which causes people to feel estranged from one another (Ollman). The commercialization of fandom culture and the corporate exploitation of fan labor are two examples of how the commodification of fan experiences and emotions is seen within the Swiftie community. In nations with capitalist economies, fandom has grown more and more commercialized as businesses want to benefit from fans' emotional commitments. The monetization of fandom takes many forms, such as ticket sales, item sales, and streaming subscriptions, all of which take use of the emotional bonds that fans have with their idols to generate revenue (Ollman). Swifties may feel more alienated from the music industry due to its corporate orientation, since they may see themselves as passive consumers rather than active contributors to the creation of culture. The monetization of Taylor Swift's music and persona by record labels, streaming services, and event promoters can alienate fans by making them feel cut off from their idol's genuine artistic expression (Ollman). While Swifties may be expected to perform unpaid or inadequately compensated labor in support of their idol, the exploitation of fan labor by corporate organizations may exacerbate sentiments of alienation among the fan base. This can involve actions that help Taylor Swift and her affiliated brands succeed commercially, like planning fan gatherings, promoting Swift's songs on social media, and taking part in fan-driven marketing efforts. Marx's theory of alienation offers a framework for comprehending how human experiences and emotions can be commercialized in capitalist systems, resulting in a sense of estrangement and detachment among people (Ollman). The cult-like dynamics seen in the Swiftie community are mostly attributed to the selling of fan experiences and emotions, underscoring the intricate relationship that exists in contemporary society between capitalism, fandom, and emotional labor.

According to Freud's theory of group psychology, people identify with a strong leader or group to feel secure and like they belong, often as a replacement for parental figures (Pick). Through this lens, the identification of fans with Taylor Swift within the Swiftie community may be explained, as they develop emotional bonds with their idol that satisfy psychological needs for guidance, acceptance, and connection. Since many of Swift's admirers lack loving or caring connections in their own life, she acts as a sort of surrogate parent, offering consolation, assurance, and direction (Pick). In a world that is frequently chaotic and unpredictable, Swift's music, persona, and autobiography provide fans with a sense of comfort and stability, enabling them to draw a sense of identity and belonging from their devotion to their idol. Furthermore, it is possible to see Swifties' identification with her as a type of transference, in which admirers project their own goals, anxieties, and ambitions onto their idol (Pick). Swift's music and demeanor may resonate with fans who relate to her personal growth, victories, and problems on a profoundly intimate level. The parasocial bonds that fans build with Taylor Swift may represent an instance of attachment behavior, in which followers go to their idol for emotional intimacy and closeness in order to satiate unfulfilled desires for validation and connection. Fans get a feeling of closeness and familiarity with their idol through their interaction with Swift's music, social media presence, and public demeanor; this helps to create a sense of acceptance and belonging within the fan group. Freud's theory of group psychology offers a framework for comprehending how the identification of Swiftie admirers with her satisfies psychological needs for guidance, acceptance, and connection. The fan community's cult-like characteristics are mostly attributed to Swifties' emotional attachments to their idol, underscoring the intricate interactions between psychological processes, celebrity worship, and social dynamics in contemporary society (Pick).

ETHICAL CONCERNS

Keeping ethical considerations front and center is crucial as we examine fandom culture, especially as it relates to the Swiftie community. While fandom culture is frequently praised for its sense of belonging and common interest, it can also be a complicated and subtle environment where people negotiate social dynamics, emotional investments, and personal identity (Busse). Within the fan community, respecting each person's autonomy and agency is an important ethical issue. It's necessary to critically analyze the cult-like traits that have been seen in fandoms, such as the Swiftie community, but it's also critical to acknowledge and support fans' rights to interact with their idols and interests in ways that are personally meaningful and rewarding (Busse). This entails appreciating the ability of fans to assess their own views and actions critically and to negotiate the intricacies of fandom culture in a way that is consistent with their goals and values.

The possible pathologizing or stigmatization of fandom culture raises another ethical concern. Fandoms, like the Swiftie community, are frequently the target of misunderstandings, prejudices, and unfavorable representations in the media. Given that many people, especially underrepresented groups that might find acceptance and validation within fan networks, rely on fandom culture as a source of identity, community, and belonging, it is imperative that we approach our analysis with empathy and compassion. When talking about fandom culture, vocabulary and terminology should be used responsibly. Words like "cult" have serious implications and may arouse unfavorable opinions that inaccurately portray fan communities (Hill). It's critical that we speak carefully and precisely, staying away from sensationalism and exaggeration that could further stigmatize fan culture. Ethical considerations also include safeguarding the privacy and welfare of fans (Busse). The ethical handling of fan data must be given top priority by researchers and observers of fandom culture, and we must make sure that fans' private information and experiences are treated carefully and discreetly. This entails getting research participants' informed consent, as well as honoring fans' limits and choices about how they interact with fandom culture.

It's critical to recognize the limitations of the application of religious theory to fandom culture, even though it can provide insightful information about the dynamics of fan communities. Examples of this include the functionalist theory of Durkheim applied to Swifties or Weber's theory of charismatic authority applied to Swifties. One drawback is that drawing parallels between fandom culture and religious phenomena is reductionist in character (Hill). Although there are some similarities between fandom culture and religious rituals, fandoms are not always the same as established religions in terms of their functions or goals. Fandoms are complex, multidimensional groups that are influenced by a variety of elements that don't always fit easily within religious frameworks, such as social, cultural, and technical influences. There's a chance that the application of religious theory to fandom culture may oversimplify the dynamics and distinctive qualities of fan communities, leaving them with an incomplete picture (Hill). Fandoms are by nature dynamic and fluid places where people negotiate belonging, identity, and agency in ways that may be different from those found in traditional religious hierarchies and institutions.

It can be deceptive and stigmatizing to characterize fan communities like the Swiftie community using religious words like "cult." Connoting negativity, the word "cult" may arouse sensationalized images of fan conduct that are not true to the real-life experiences of fans (Singer and Lalich). This can undermine attempts to recognize and appreciate the diversity of fan communities by fostering preconceived notions and preconceptions about fandom culture. It is possible that the agency and autonomy of fans in creating their own identities and experiences within fan groups would be overlooked if religious philosophy is applied to fandom culture. Although religious theory offers useful frameworks for examining social cohesiveness and group dynamics, it's crucial to remember that fans actively contribute to the norms, beliefs, and customs that define their particular fandoms (Hill).

In the middle of all the examination and research that goes into fandom culture, it is critical to acknowledge and value the good that fan communities, like Swifties, bring to both people and society as a whole. The ability of fandom culture to create a sense of community and belonging among people who have similar interests and passions is one of its positive aspects (Wilkinson). Fan communities offer places where people can meet others who share their interests, become friends, and develop a sense of identification and belonging that they might not have in other spheres of their lives. Many fans, especially those from underrepresented groups, view fandoms as welcoming and supportive communities where they can be themselves and receive support from others. Since fans create fan films, fan novels, and fan art to honor and reimagine their favorite media, fandom culture presents chances for artistic expression and cultural production. In addition to showcasing the enthusiasm and inventiveness of their creators, these fan-generated creations add to the range and depth of cultural output in modern society. In order to explore and interact with media in meaningful and life-changing ways, people can join lively and active fandoms. Since fans get strength and inspiration from their idols and preferred media, fandom culture may also help people grow personally and feel more empowered. People may gain abilities, self-assurance, and resilience via their involvement in fandom culture, which will benefit other facets of their lives (Dajches and Aubrey). Fandoms give members the chance to express themselves creatively and personally, which enhances their general sense of contentment and well-being.

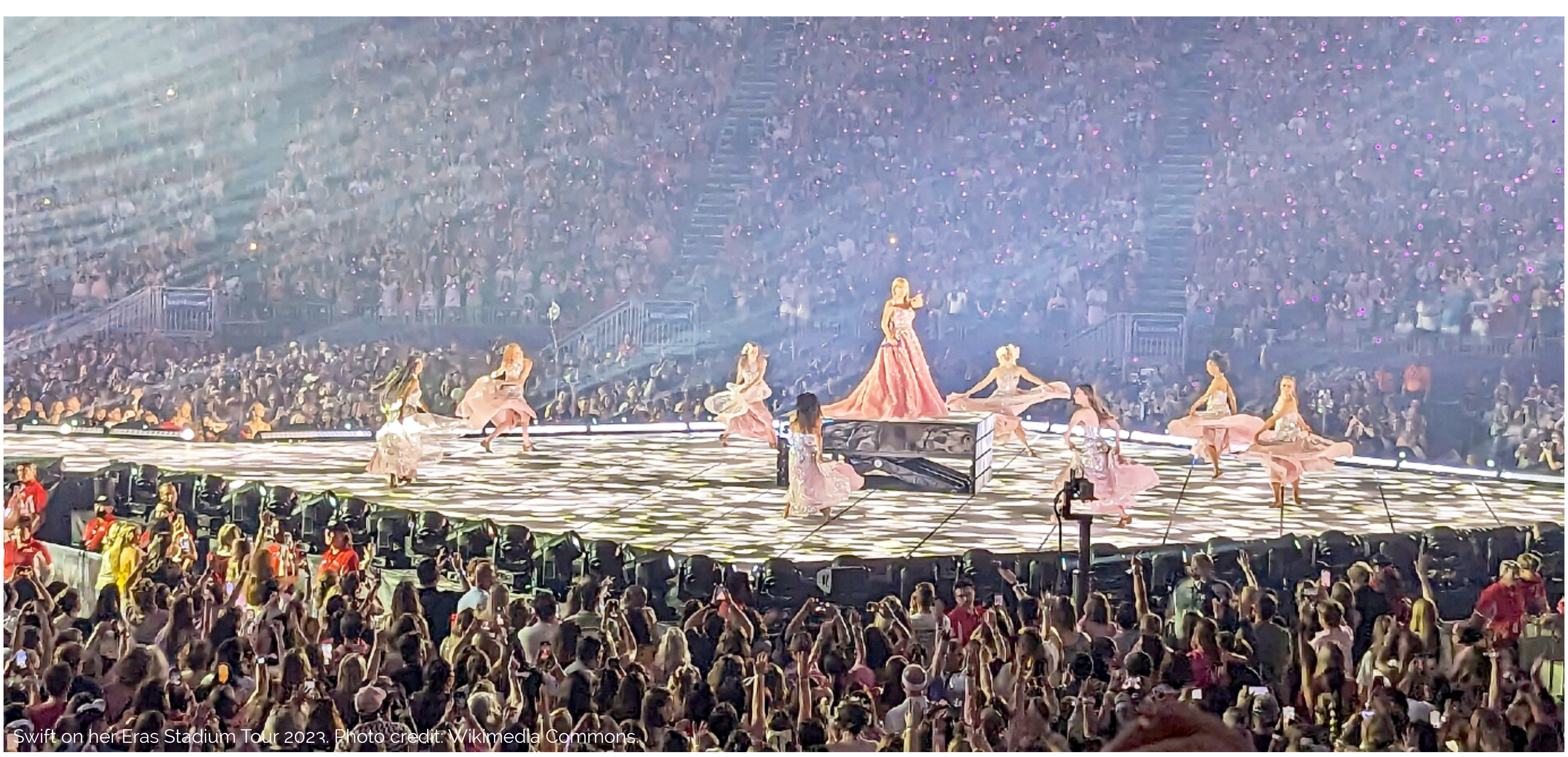
Fandom culture can encourage advocacy and social activism among its adherents. Swiftie fans are among the fan communities that frequently organize around social and political issues, using their combined voice and platform to spread awareness, stand up for underrepresented groups, and improve the world. Fandoms are places where people may gather to change the world and support social justice causes that share their values and opinions.

CONCLUSION

In summary, our analysis of Swifties and fandom culture via the prism of major theological doctrines has shed light on the nature, traits, and importance of fan communities in modern society. In the course of our investigation, we have found similarities between fandom culture and religious phenomena in a number of areas, such as the creation of group identities, the impact of charismatic leaders, the performance of rituals and ceremonies, and the devotion to major ideologies or individuals. Through the application of theoretical frameworks like Weber's theory of charismatic authority, Marx's theory of alienation, Freud's theory of group psychology, and Durkheim's functionalist theory, we have been able to comprehend the intricate relationship between social dynamics, cultural influences, and individual agency within fan communities such as the Swiftie community.

But given the constraints and moral issues that come with integrating religious theory with fandom culture, it is crucial that we approach our analysis critically and cautiously. Religious theory can be helpful in comprehending some facets of fandom culture, but it might fall short in addressing the subtleties of fan identities and experiences as well as the diversity, complexity, and agency of fan communities. Our analysis of fandom culture has brought to light the beneficial effects that fan communities have on people and society, such as establishing a feeling of community, permitting artistic expression, encouraging personal development and empowerment, and galvanizing advocacy and social activism. We can better understand the influence that fan communities have on people's lives, cultural output, and societal change by understanding the complex nature of fandom culture and its significance in modern culture.

Our research clearly shows that fandom culture, including the Swiftie community, is a vibrant and rich part of modern society that needs further investigation and comprehension. We can obtain important insights into the intricacies of social interaction, cultural expression, and human identity in the digital age by studying and interacting with fan groups in intelligent and respectful ways. By analyzing Swifties and fandom culture, it is clear that fan groups have traits similar to those of religious phenomena, as described by major religious doctrines. While using these theoretical frameworks offers insightful understandings of the dynamics and importance of fan communities, we must approach our study critically and cautiously, taking into account the complexity, diversity, and agency that are inherent to fan cultures. It is evident that fan communities, especially Swifties, play a vital role



Swift on her Eras Stadium Tour 2023. Photo credit: Wikimedia Commons.

in forming people's identities, promoting social relationships, and supporting artistic output and social activity, despite the limitations and ethical issues associated with studying fandom. We may learn more about the complex nature of fan communities and their effects on people and society by acknowledging the positive parts of fandom culture and addressing future directions and recommendations.

Seeing Swifties as a contemporary cult has significant ramifications for how we comprehend fanbase culture, celebrity adoration, and social relations in current society. The parallel calls for a critical examination of the dynamics of fan communities, the impact of charismatic leaders, and the development of collective identities within fandom culture, even though it may first elicit negative connotations. We can better understand the power dynamics, emotional investments, and social dynamics at work in fan communities such as the Swiftie community by identifying the cult-like traits that are commonly found within them. Fan cultures generate profound emotional connections and a sense of belonging, which are exemplified by their loyalty to a fundamental philosophy, establishment of close-knit communities, and dedication to a major character.

Recognizing the cult-like elements of fandom culture forces us to think about the moral ramifications of fan interaction, especially in light of concerns about harm, exploitation, and manipulation. Although fandom culture can present significant chances for empowerment, creativity, and connection, it is crucial to guarantee that fans' autonomy, agency, and well-being are valued and safeguarded in their dealings with public figures, businesses, and media outlets. Tthe analogy drawn between fan groups and cults emphasizes the importance of critical media literacy and education in enabling fans to engage in fandom culture in a knowledgeable and perceptive manner. We can reduce the dangers of exploitation and manipulation while establishing a climate of respect, inclusivity, and empowerment within fan communities by encouraging critical thinking abilities, media literacy, and ethical involvement.

In conclusion, examining Swifties as a contemporary cult challenges us to analyze the dynamics, intricacies, and ramifications of fandom culture in our day and age. We can learn more about the transformative potential and moral dilemmas present in fandom culture by critically analyzing the cult-like traits seen in fan communities. Let us approach our study with sensitivity, respect, and a dedication to improving the well-being and autonomy of fans in how they engage with media and popular culture as we continue to investigate and connect with fan communities. ❖

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LAYALI KASEM

BETWEEN FREEDOM AND CONSTRAINT: FINDING MY LANGUAGE

I have to admit that trying to decide how to write this essay was a lot tougher than I expected. Even now, my eyes keep wandering to that first word, "I," and it still looks so strange to me, like a sore thumb, sticking out in what should be a "professional" essay. And yet, within that struggle, within that contradiction, I've also found my muse. See, usually, the words flow from my fingers, and I type and type and type until I realize that I've gone 737 words over the necessary word count. I do this often, and so writing has become second nature to me. Sometimes, it's like I'm not even generating the thoughts; they're simply appearing at my fingertips like muscle memory. And therein lies the heart of my discovery: I've always written with the words flowing from my fingertips, but without roots in my heart. Because I've been conditioned that way, constricted that way. Because I've been told that when I refer to myself and my opinions, it should be as "the reader" or "the audience," but never as myself. This language that I've been taught, that I'm hoping to one day master, is supposed to be my freedom of expression, and yet, I often find myself leashed. More often than not, I'm writing more for others, expressing opinions that aren't mine, for the sake of a single letter in return. I sell them my language, and they can only give me a letter back, notwithstanding the 2,499 surplus words I was asked to give them. My language, a supposed liberation for all my thoughts, too often takes the shape of an invisible cage, a measure of control.

For the first time in a *long* time, I'm writing an essay without thinking about transitions and topic sentences, without crafting a carefully constructed thesis to develop my argument. I'm simply writing; using the English language to express myself as was intended. As *is* intended, though not often executed.

Language is supposed to be a form of communication, and yet, oftentimes, it becomes a mode of indoctrination. We're taught as children how to speak correctly, how to never fully individualize ourselves within the language that we use. We're given guidelines on how we should express ourselves in an organized manner: introduction, body paragraphs, and a neat conclusion to tidy things up. This notion of "organization" is ingrained in us, so much so that now I feel anxious when I'm not given a writing

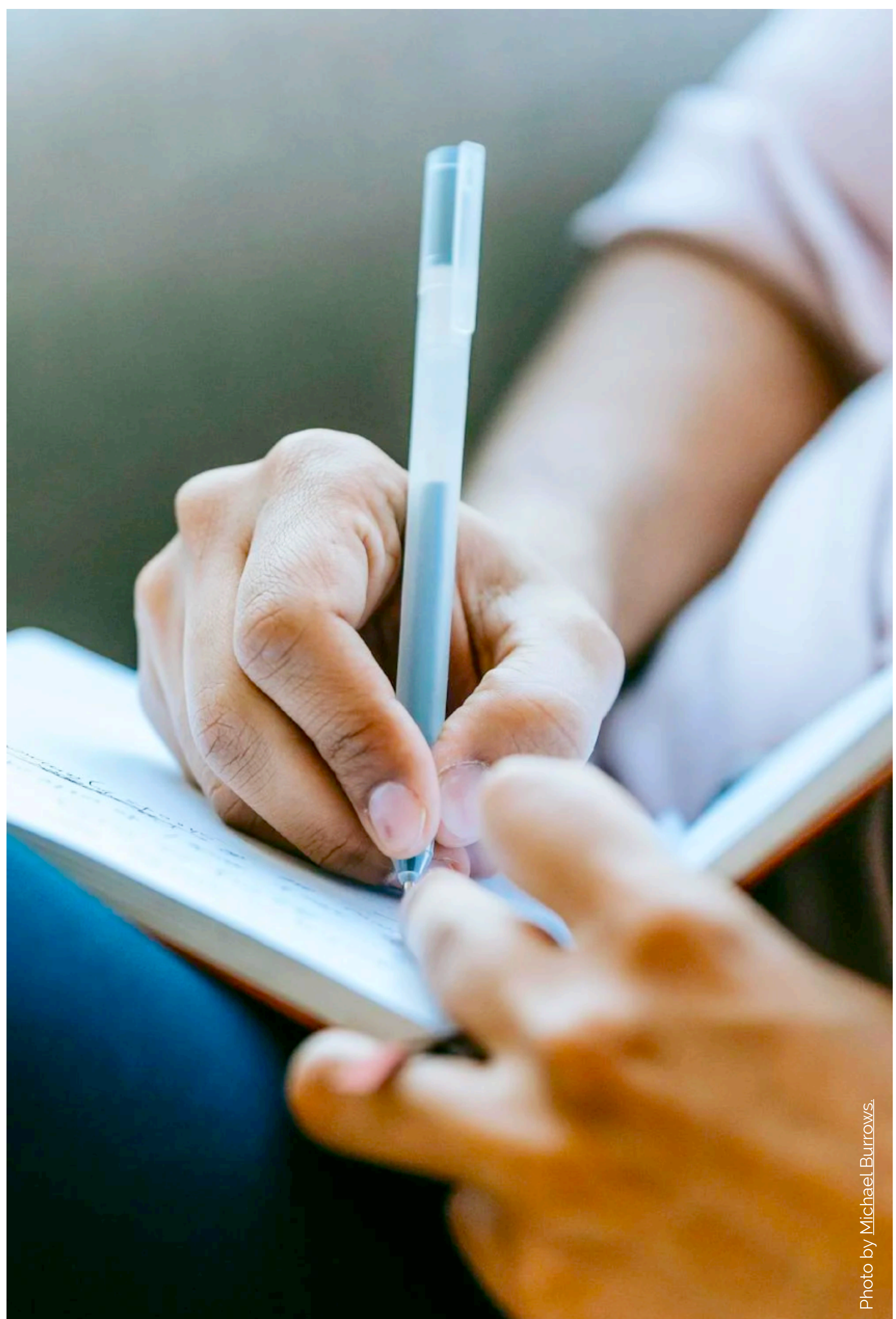

Photo by Michael Burrows.

Photo by Andrea Piacquadio.

through the tongue. Speaking is how we showcase our interior to the exterior world around us; it's how we cement our existence in an otherwise indifferent world. It's also another facet of language that's been targeted by the masses. When I have an opinion, I often find myself, almost instinctively, beginning my argument with "I think" and "My opinion is" rather than simply stating my claim. It's a bit ironic because it's the exact opposite of what I'm asked to do in writing, which is to diminish my use of "I," and yet it has the same effect: it weakens the importance of what I have to say. When I preempt a sentence with hedging phrases like "I think that maybe," I'm hinting at my inner uncertainty, giving way to another, stronger argument. Rather than simply announcing my belief or intention, I'm already negotiating with you, already putting myself in a weaker position. Because I can't simply say what's on my mind, can I? No, that would be blasphemy, methinks. I wouldn't want to offend anyone by simply speaking my mind because that isn't the purpose of language. At least, not the way I've been taught it. Language is a conduit, an extension of every individual's identity. But only when it's convenient to those who dictate what we say.

prompt and told what direction to steer my essay. Personal writing poses more of a challenge to me than writing ten pages about Hamlet's erroneous conscience. How is it that I can assume a hundred different voices when exploring an author's perspective and the point of view of his characters, but I have trouble when tasked with simply expressing my own voice in writing? Again, I make the claim that society has wired us this way. It's not about what *I* can contribute; it's about commenting on the contributions of others. The key to subjugating a people is not in the number of soldiers you have, it's in your ability to quell the minds of individuals. When a person can't even use the word "I" with complete assurance, what kind of resistance or insurrection does the status quo have to fear?

I've been writing about writing all this time, but writing is not the only mode of language that's utilized. In fact, the primary method in which most of us choose to express ourselves is

And when language is constricted, when people have to constantly tiptoe around their own beliefs, reigning in their speech out of a fear of being excluded, then a piece of that identity has been stripped away. Exactly as intended.

I often reflect on how I used to cripple myself by trying to limit my use of language. Years ago, I can vividly recall feeling uncomfortable when speaking Arabic in front of others. Elementary-school-me tried her best to never let a sliver of Arabic slip from her tongue for fear of feeling out of place, naïvely overlooking the fact that the way she looked and dressed would always make her stand out. Back then, my greatest fear was in being seen, so I limited my language, never responding back to my parents on Awards Day in Arabic, always feeling embarrassed when they pronounced my name the correct way ("Ley-æ-li"). Now, I look back at the lost little girl and I want to shout at her in this beautiful Arabic language that she was always so embarrassed of: !شو مالك، إنتي[1]

And yet, for as much as she disappoints me, I find myself thinking about her often. Because the plight of that ten-year-old girl hasn't simply faded away. Yes, I've become more confident in my connection with Arabic, but now I sometimes find the same restrictions in English. The climate nowadays demands that you surrender a part of yourself, a fraction of your beliefs, and lock them away. Having an opinion and articulately voicing it through language can be a dangerous thing. You can have a voice, of course, but only to the extent that it affirms the status quo. So, when I speak today, it's always with the knowledge that words are like daggers; you can wield them or they can wound you in the long run.

I'm going to have to be honest with you and concede that I've been glancing at the word count quite often as I've been writing this essay and I *never* do that. I can't recall the last time I was so fixated on word count or page numbers, or the last time I was incessantly reading over and muttering my writing out loud. Even now, I'm struggling to write this, struggling to articulate my thoughts. And, perhaps, that's because for the longest time, I've written and spoken without much thought. Well, at least, without much *personal* thought. Because I know what's expected, and I deliver. And therein, I've discovered something both intriguing and terrifying. Language is a mode of expressing thought, so when you cripple it, when you strangle the flow of thought to speech, you inevitably affect the formation of thoughts themselves. And when you're no longer thinking about what you're writing or saying, almost as if on autopilot, what semblance of identity could you possibly possess? Remember that measure of control I mentioned? Well, I think I found the primary target of that control. Because when you target an individual's language, you're really aiming at extinguishing their sense of identity. When a person's head is always filled with the thoughts of others, they have no time for their own thoughts. And so, as we tout this First Amendment to all these other "third-world countries" and celebrate its forwardness, we're silently being taken down from the inside. Instead of being individuals, we're shoved into this collective and taught that we're unable to survive outside of it. I wonder about that. I really do wonder if it's all in my head, but who knows if I'll ever speak these words aloud?

I've arrived at the end of my voice. Who knows if I'll ever get the opportunity to write something like this again, something so far removed from anything I've ever written? I have to say that even amidst my struggle, I've really enjoyed it. Because, while I do believe that language has been used and continues to be used as a measure of control by the masses, that does not mean that I'm not grateful for this language. In fact, I love language arguably more than the average individual. It's just that I've never explored my relationship with language in such a way. It's always been a tool, not an integral part of my identity as I've come to realize. Language isn't just my muse, it's a dominant part of who I am and how I express who I am. It's how I can organize all these wild thoughts, how I can make sense of the purpose of language, and how I can fight back. You see, in the words of Caliban, "You taught me language, and my profit on't / Is, I know how to curse" (Shakespeare 1.2 363-364). ❖

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The citation system used in this essay is MLA 9th.

[1] What's wrong with you, girl?

SOCIAL SCIENCES & EDUCATION

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SHANICE TILLERY

DOES PRODUCT TYPE AFFECT BRAND LOYALTY AMONG DIFFERENT AGE GROUPS AND GENDER IDENTITIES?

ABSTRACT

Brand loyalty is a crucial tool when it comes to the survival of a company, as most sales from businesses come from those who are repeat customers. Among current adult generations, the youngest, Millennials and Generation Z, have been identified in the existing literature as the least brand-loyal, and Baby Boomers and Generation X as the most. However, such descriptions could be misleading since different generations could prefer brands among some specific product categories but not others. Similar conclusions could be drawn for those of different gender identities since gender stereotypes could influence the types of products people with different gender identities prefer. The total sample size of this study consisted of 421 participants, with the median age being 52, and the gender identity breakdown being 52.7% male and 47.3% female. After analyzing the data from a 42-question survey asking participants about their brand loyalty for various product categories, results indicated that beauty products, such as makeup foundation and makeup concealer, and writing utensil products, such as pens and mechanical pencils, had the lowest overall means for brand preferences, and products such as cola, toothpaste, laundry detergent, deodorant, and mobile phone had the highest overall means. Concerning age, Generation Z and Millennials were almost perfectly in sync with brand product preferences. Baby Boomers appeared to have many significant differences from other generations in terms of brand preferences for certain products. These differences were often seen when comparing their responses with Millennials and Generation Z. Females preferred beauty and hygiene products, and males preferred technological products. Further research is needed to explore these results and answer future questions.

Keywords: *Brand Loyalty, Brand Preference, Product Preference, Gender Identity, Generation, Age Groups*

INTRODUCTION

The purchasing power of consumers can be viewed as one of the most important characteristics of a commercial company's survival. Both consumers and companies understand this very well. As a result, many marketing tactics are implemented and used by companies, of any size and niche, to attract and retain customers. Understanding the consumer base, what they want, and what they view as desirable is also important. Yet, marketing becomes more challenging as new generations become adults. As each new generation gets old enough to make its own financial decisions, members of older generations begin to die off. This indisputable dynamic introduces a completely new demographic that expresses new outlooks on life and ways of viewing the world, politics, and each other. As such, companies must know how to gain and retain new consumers. Overall, the goal is to ensure that the brand stays desirable enough so that consumers keep purchasing it. The way this is done is through the concepts of brand loyalty and product preferences. However, with the current diversity of age groups in the United States, it could be the case that each generation has different preferences regarding product categories and brands since individuals who grew up during different periods may focus on prioritizing different things. The same could be assumed for those of different gender identities as well since gender stereotypes could influence the types of products and brands men and women tend to prefer.

WHAT IS BRAND LOYALTY?

Even though attracting new customers is necessary, it is arguably more important for a company to retain its current customers since making consumers loyal to a brand ensures the survival of the company that owns said brand (Mellens et al., 1996). This concept is aptly known as brand loyalty. There are many ways to define and interpret the concept of brand loyalty. The definition that will be used here is from a 1996 article by Mellens, Dekimpe, and Steenkamp called "A Review of Brand-Loyalty Measures." The authors credit the formation of this definition to authors Jacoby and Chestnut, who coined the definition in 1978. This definition states that brand loyalty is "the biased behavioral response expressed over time by some decision-making unit concerning one or more alternative brands" (Jacoby and Chestnut, 1978, as cited in Mellens et al., 1996, p. 509).

Exhibiting Bias

What this parameter of the Jacoby and Chestnut (1978) definition of brand loyalty entails is that there must be a systematic tendency to buy from a certain brand or certain group of brands. A decision-making unit's (discussed in more detail below) choice should also follow a specific process (Mellens et al, 1996). A zero-order process means that each brand choice by a consumer is carried out within a certain probability "which is independent of the consumer's past purchasing decisions" (Mellens et al., 1996, p. 509). Zero-order behavior is not part of the construct of brand loyalty, and nothing that the consumer does or is exposed to alters the probability in any way (Massy et al, 1970). Zero-order behavior should not be considered a part of the construct of brand loyalty because doing so would imply that brand loyalty is not influenced by marketing of any kind, which is rarely accurate in the real world. It would also imply that a verbal statement of a preference towards a brand is enough to indicate brand loyalty when that is not true either. In reality, brand loyalty only entails the purchase of a brand (Mellens et al., 1996).

Having a Behavioral Response Rather Than an Attitudinal Response

Behavioral responses refer to the consistent, physical actions of consumers, such as repeatedly buying the same brand of the same product. Attitudinal responses refer to the emotional connection to the brand's product, such as trust in the quality of services. Most operational measures of brand loyalty can be

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classified as either behavioral or attitudinal (Mellens et al, 1996). Behavioral responses define brand loyalty in terms of the actual purchases of a brand that are observed over different periods. Attitudinal responses define brand loyalty by making brand loyalty distinguishable from repeat buying. Although both are important, the disadvantages of attitudinal responses involve them "not being a valid representation of reality, incidental, and more difficult to collect" than behavioral responses (Mellens et al., 1996, p. 512).

Expressed Over Time

An incidental bias is a kind of bias that develops unintentionally, as it is done without a decision-making unit realizing that they are biased toward one brand over another. Incidental bias toward a brand does not guarantee brand loyalty since the process is dynamic. For example, someone who walks into a laundry detergent aisle specifically looking for the brand Gain is exhibiting intentional bias. Someone who walks into a laundry detergent aisle and happens to pick up Gain simply because it is cheaper than the others that are available at that time is exhibiting incidental bias. Because of this, consistency over certain periods is needed to truly establish whether an individual is loyal to a brand (Mellens et al., 1996). This means that it is not ideal to consider only the number of times someone has purchased the brand, but also the purchasing pattern over successive purchasing occasions.

A Decision-Making Unit Makes the Choice

Decision-making unit could be either a person, a household(s), or a firm (Mellens et al., 1996). The decision-making unit does not have to be an actual purchaser of the product or brand, either. For example, in a household containing a nuclear family, one or both parents may be making the purchases while the other members of the household request for the specific products or brands to be purchased for them.

One or More Brands Are Selected Out of Numerous Other Brands

Consumers can be loyal to more than one brand; such findings have been demonstrated by many different researchers (Mellens et al., 1996). This is necessarily true for goods that are low-involvement. Low-involvement brands are products that are purchased frequently by a consumer without much thought or effort, as they do not have a great impact on the consumer's lifestyle (Monash Business School, 2023). An example would be if Coca-Cola is not available to a consumer, purchasing Pepsi or Dr. Pepper in its place would not be a difficult decision for that consumer.

One issue is that it is difficult to distinguish between being loyal to multiple brands and simply switching brands. Differences between the two are evaluated through whether the brand purchased is the only brand available, or if multiple brands other than the one(s) being purchased exist in that specific location (Mellens et al., 1996). The latter indicates brand loyalty.

Result of Psychological Processes

Although Jacoby and Chestnut did not include the element of psychological processes in their definition, Mellens (et al., 1996) believed it was important. This is because no decision can be made without the aid of some psychological process.

Consumers do not always seek information about brands or products they buy; more information is still available through avenues such as advertising campaigns. This allows consumers to form certain beliefs about the brand or product being advertised (Mellens et al., 1996). Based on the beliefs accumulated by the possible consumers, this could allow them to evaluate the brands for themselves and develop a commitment to them over time.

WHY IS BRAND LOYALTY IMPORTANT?

Brand loyalty is important to businesses, as it helps to establish a consumer base for the products being sold and used (Mellens et al., 1996). It is critical for the survival of a company to retain its current customers, as it gives them a competitive edge over companies that do not retain their current customer base (Mellens et al., 1996). Brand-loyal consumers reduce the marketing costs of the firm as the costs of attracting new customers are about six times higher than the costs of retaining a current customer (Rosenberg & Czepiel, 1983). Brand-loyal consumers are also willing to pay higher prices for products and are also less price-sensitive than consumers who don't display brand loyalty (Krishnamurthi & Raj, 1991; Reichheld & Sasser, 1990). It was even found in an article by Kopp and Mansa (2023) that companies with high scores of brand loyalty grow revenues 2.5% faster than industry peers. Further, 65% of the revenue most companies acquire comes from repeat business (Kopp &

Mansa, 2023). As a result, brand loyalty has been observed as an asset for businesses everywhere, and it is a major source of these brands' equity (Mellens et al., 1996). Although brand loyalty is important, new consumers must be considered when marketing and advertising because current consumers will not be around forever. This, in turn, could lead to a push to attract new, loyal consumers to their brand.

MEASURING BRAND LOYALTY

According to one model, brand loyalty can be measured through twelve metrics (Bisschoff & Moola, 2014). The twelve metrics are customer satisfaction, switching costs, brand trust, relationship proneness, involvement, perceived value, commitment, repeat purchase, brand affect, brand relevance, brand performance, and culture (Bisschoff & Moola, 2014). These metrics were discovered through a factor analysis that identified the most important elements of brand loyalty (Bisschoff & Moola, 2014; Punniyamoorthy & Prasanna Mohan Raj, 2007). Each of these elements is discussed in more detail below.

Customer Satisfaction

Customer satisfaction connects consumers learning from prior experiences to their explanations of their after-purchase behaviors (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007). The after-purchase behavior could be complaining, word of mouth, repurchase intention, and product usage. Customer satisfaction has a noteworthy influence on an individual's intention to repurchase a product and after-purchase complaints. A higher level of customer satisfaction will lead to a higher level of brand loyalty (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007).

Switching Costs

Switching costs occur when consumers face the unavoidable costs of switching between varied brands to use their products or services (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978). At a minimum, there are three types of switching costs (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978). Those types are transaction costs (expenses incurred when buying or selling a good or service), learning costs (only occurring when the consumer ends up switching to a supplier new to them), and contractual costs (financial costs associated with terminating a relationship with an existing provider and starting a new relationship) (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978). Switching costs have been shown to have positive effects on prices and profits, deterring new businesses from being created and entering the market (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978). Switching costs have also been linked to competitive phenomena such as price wars, which occur when businesses offer deep discounts to attract new customers or encourage individuals who have purchased the brand previously to return (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978).

Brand Trust

Brand trust exists when the consumer has confidence in the business's reliability and integrity (Bisschoff & Moola, 2014; Punniyamoorthy & Prasanna Mohan Raj, 2007; Jacoby & Chestnut, 1978). It has been suggested that trust positively affects commitment and is the basis for loyalty to a brand (Bisschoff & Moola, 2014; Garbarino and Johnson, 1991; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007). Garbarino and Johnson (1991) discovered a strong relationship between loyalty and brand trust. Their research suggests that there is a distinct need for trust in developing favorable attitudes toward brands. So, the higher the trust in a brand, the more likely it is for brand loyalty to develop.

Relationship Proneness

Relationship proneness is a characteristic of the buyer and is defined as a consumer's stable and conscious tendency to engage in relationships with sellers or brands from a particular product category (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978). In addition, relationship proneness is a conscious tendency to engage in relationships as opposed to a tendency to engage in relationships based on convenience (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978). For example, if an individual decides to purchase a specific brand of toothpaste since it is the cheapest option, then it cannot be a result of brand loyalty because it was done out of convenience rather than genuine preference. If an individual decides to purchase a particular product category from a brand they have a positive experience with, then it is done from a genuine preference and the result of brand loyalty.

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Involvement

Product involvement describes the ongoing commitment on the part of the consumer regarding thoughts, feelings, and behavioral responses to a product category (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007). Involvement is further defined as a consumer's motivation for product purchase that affects their information processing strategies when forming a brand preference, so the choice is more automatic at low levels and more deliberative at high levels (Friedmann & Lowengart, 2019). The more money someone is willing to spend on a product or brand, the higher the product involvement level tends to be as well. An example of this would be the purchase of motor vehicles (typically a car, truck, or SUV), as they are expensive, and often much research is done by consumers before the purchase takes place. Studies have also suggested that a higher level of involvement with a brand leads to a higher level of brand loyalty among consumers (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007).

Perceived Value

Punniyamoorthy and Prasanna Mohan Raj (2007) describe perceived value as the consumer's overall assessment of the utility of a product based on perceptions of what its components are. Components are things such as the core item/service and its packaging. The four most common components that represent perceived value are functional value (derived from the product quality and expected performance of the product), emotional value (derived from the feelings or affective states that a product generates), price-worthiness factor (derived from the product due to the reduction of its perceived costs), and social value (derived from the product's ability to enhance social self-concept) (Punniyamoorthy & Prasanna Mohan Raj, 2007). The higher these components are, the higher the rate of brand loyalty (Punniyamoorthy & Prasanna Mohan Raj, 2007).

Commitment

Brand commitment, according to Kim and colleagues (2008), occurs when consumers pledge themselves to purchase a particular brand. Customer commitment is a central construct in the development and maintenance of marketing relationships because it is a key psychological force that links the consumer to the selling organization (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007). Intuitively, affective commitment would lie at the heart of a consumer-brand relationship because consumers come to be identified and involved with many of the brands they regularly consume

(Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978). Further, there is overwhelming evidence to suggest that the higher the level of commitment, the higher the level of brand loyalty (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007).

Repeat Purchase

Repeat purchase behavior is a term that refers to the extent to which consumers re-purchase the same brand in a given period (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007). The strength of brand loyalty based on behavior is a direct function of the repetitive occurrence of purchase or consumption behavior (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Kim et al., 2008; Punniyamoorthy & Prasanna Mohan Raj, 2007). The consumer establishes a systematic biased response or habit simply due to the frequency of encounters. The higher the repeat purchase behavior, the more likely brand lalty is to develop.


Photo by David Gomes

Brand Affect

Brand affect is defined as the potential of a brand to elicit a positive emotional response in the average consumer because of its usage (Chaudhuri & Holbrook, 2002). The effect is characterized in terms of two independent dimensions: positive and negative. Several authors suggest that consumers strive to experience positive affect and avoid negative affect (Bisschoff & Moola, 2014; Chaudhuri & Holdbrook, 2002; Jacoby & Chestnut, 1978). Positive affect is developed through positive customer interactions, such as a friendly customer service experience (Bisschoff & Moola, 2014). Negative affect is developed through unpleasant customer interactions, such as a product not working as advertised (Bisschoff & Moola, 2014). Consumers who have a positive effect relating to a product are more likely to be brand loyal (Bisschoff & Moola, 2014).

Brand Relevance

Since businesses, nonprofits, and governmental entities are increasingly embracing branding and spending more money on marketing, their brand messages need to become more complex and orchestrated to carry more meaning and establish effective brand relevance (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978). A brand needs to stand for something that matters to consumers' needs, wants, and morals while also standing out from the competitors in all other aspects (Bisschoff & Moola, 2014). Brands that are relevant to consumers' needs and wants have a positive impact on the relevance of a brand to consumers (Bisschoff & Moola, 2014). For example, an individual who cares deeply about lowering waste in the environment could gravitate toward buying clothing brands that use recycled materials to make their clothing.

Brand Performance

Brand performance is the customer's evaluation of the performance of a product or service following the consumption experience (Bisschoff & Moola, 2014; Chaudhuri & Holbrook, 2001; Jacoby & Chestnut, 1978). Brand performance, according to Musa (2005), is the subjective evaluation of the core product, which encompasses both intrinsic (e.g., effectiveness) and extrinsic (e.g., packaging) characteristics. Direct seller performance refers to performance-delivery elements, including the direct salesperson's characteristics and services offered (Bisschoff & Moola, 2014; Chaudhuri & Holbrook, 2001; Jacoby & Chestnut, 1978; Musa, 2005).

Culture

Kotler and Keller (2006) regard culture as the most important consumer buying force in society. Grant (2005), as cited in Bisschoff and Moola (2014), confirms that young individuals remain loyal to family brands until other factors take over. Mann (2007) maintains that family and culture play an integral role in purchasing behavior and brand loyalty. Simons (2004), as cited in Bisschoff and Moola (2014), adds that family introduces a psychological dimension to brand loyalty in that it indirectly assures security and trust through generations of use. Simons (2004) also maintains that nostalgia is a related factor that keeps individuals loyal to classical brands.

HOW DOES BRAND LOYALTY DEVELOP?

Brand-name products operate in highly competitive markets (Kopp & Mansa, 2023). To thrive within this dynamic, most, if not all, companies use tactics such as monitoring buying trends, analyzing spending data, and designing advertising campaigns using that data (Kopp & Mansa, 2023). Brand loyalty develops because of both perceived high product quality and brand recognition. It may not matter how much money is poured into advertising, as products that are perceived as low quality can kill customer retention. Brand-loyal customers believe that a certain brand represents both higher quality and better service than its competitors (Kopp & Mansa, 2023). Brand-loyal customers might make fewer total purchases, but the profit margins on their purchases are larger (Kopp & Mansa, 2023). So, with that being the case, excellent customer service as well as good product quality aids in customer retention. Although good customer service can be expensive, involving services such as chat representatives available 24/7, managers of social media pages, and phone operators, it can be worth it as first-rate customer service has been found to increase brand loyalty (Kopp & Mansa, 2023). When this happens, consumers view the company and brand as genuinely caring about the issues they raise with the staff (Kopp & Mansa, 2023). Rewards programs, online communities, brand ambassadors, and brand recognition (more information on brand recognition below) are further tools to maintain customer retention (Kopp & Mansa, 2023; Keller, 2008).

Attractive packaging is also important in creating brand loyalty as it catches the attention of consumers and helps the brands stand out from their competitors (Keller, 2008). This helps to make a brand recognizable. Brand recognition, also known as brand awareness, occurs when consumers recognize and recall specific brands (Keller, 2008). Although brand recognition is not the same thing as brand loyalty, both brand loyalty and brand recognition are important in terms of marketing and advertising efforts.

Brand Recognition

Brand recognition could even be viewed as a method that is used to help develop brand loyalty. It can also be defined as the ability consumers have to identify a specific brand by its attributes over a competing brand (Kenton, 2022). In other words, if a decision-making unit can recognize a brand through visual or auditory cues alone, then the attempt at brand recognition is considered a success. Keeping the product or brand in the consumer's mind is the main goal. This concept is used in advertising and marketing and is considered successful when people can recognize a brand through visual or auditory cues. The marketing departments of big companies are typically the ones who will produce the cues that are then marketed to potential consumers (Kenton, 2022). These cues could be mascots, logos, slogans, packaging, colors, or jingles rather than a company's name (Kenton, 2022). These recognition attempts are especially important when it comes down to so-called stealth marketing, such as product placement. The logo, mascot, jingle, or other cues could be simple ways to help consumers distinguish which product belongs to the brand they are being exposed to. Marketing research is conducted to determine whether these recognition attempts are successful.

Product Placement

Product placement occurs when businesses or manufacturers pay for their products or brands to be placed into social media posts or scenes in television shows and movies (Sanborn, 2023). This practice is conducted with the intent to expose a business's product to more potential consumers in a non-overt way through a popular celebrity, online influencer, or franchise. Some examples of this would include the toy Etch-a-Sketch featured in the Disney-Pixar movie *Toy Story* and singer-songwriter Rhianna Fenty tagging her brands (Savage X Fenty, Fenty Beauty, and Fenty Skin) as well as brands such as Puma on her Instagram posts.

Advertising, Marketing, and Children

Children live and grow up in a highly sophisticated marketing environment that influences their preferences and behaviors (Calvert, 2008). As marketing and advertising support the United States economy, promoting the sales of goods and services consistently to the next generations is key to keeping a company's income for the near future (De Veirman et al., 2019). Paid advertising towards children has often involved television spots that feature toys and food products which are usually high in fat and sugar and low in nutritional value (Calvert, 2008). More modern marketing approaches have led to online advertising and product placement in films, online, and video games geared towards children (Calvert, 2008). Calvert (2008, p. 205) states that even though companies have been marketing toward children for decades, two trends have increased companies' interest in children's marketing in recent decades:

> First, both the discretionary income of children and their power to influence parent purchases have increased over time. Second, as the enormous increase in the number of available television channels has led to smaller audiences for each channel, digital interactive technologies have simultaneously opened new routes to narrow cast to children, thereby creating a growing media space just for children and children's products.

As most of this information comes from a source that was published in 2008, it is important to acknowledge that in the late 2010s and early 2020s, online sites and social media platforms, such as YouTube, TikTok, and Instagram, have introduced many more gateways for companies to spread their marketing influence on young people.

These days, children spend many hours using the Internet (De Veirman et al., 2019). This is understandable, as there are numerous options of online media for children to explore. 81% percent of U.S. parents let their children under eleven watch YouTube (De Veirman et al., 2019; Smith et al., 2018), where they are usually exposed to advertising before the video chosen starts playing. Brands are also found in these online videos (De Veirman et al., 2019; Weiss, 2018). This online marketing trend is not only present in the United States. In 2019, 72% of people in Mexico who parent children aged 3 to 13 stated that advertising is the reason why their child picked a specific brand or product (Navarro, 2023).

Product placement and sponsored segments are integral parts of keeping popular social media stars' careers up and profitable. This subtle advertising makes the formatting seem less intrusive and harder to recognize, especially for younger children (De Veirman et al., 2019; Hudders et al., 2017). An example of this phenomenon is a YouTube channel with a total of over 55 billion views by the name of "Ryan's World." Ryan's World channel revolves around a young boy by the name of Ryan Kaji who reviews toys with his parents and sisters. Many brands sponsor and send products to online influencers and channels, such as Ryan's, to get eyes on their products and increase profit. The spending total of all advertising marketed toward children reached a total of $4.2 billion in 2018 (Navarro, 2023). The total amount of advertising was predicted to be $4.6 billion by 2021, $4.99 billion by 2022, and $6.16 billion by 2023 (Navarro, 2023; Dencheva, 2023). It was also predicted that $1.7 billion of the predicted spending in 2021 would be used for digital advertising formats (Navarro, 2023).

With children being the next generation of consumers, it is important to consider what each adult-aged generation values as well. This helps contextualize a concept such as brand loyalty because the members of these adult-aged generations were once children exposed to advertising and marketing. The advent of technologies such as smartphones and the Internet is relatively recent. So, understanding where each adult-aged generation stands regarding brand loyalty could lead to some insight when examining the possible role technological innovations have played in the development of brand loyalty.

PRODUCTS OF INTEREST FOR BRAND LOYALTY RESEARCH

Products that are needed and used by most individuals in their daily lives, such as food or soap, typically spark the interest of researchers in brand loyalty. Farley (1964) conducted a study to establish a connection between product variation and brand loyalty. The products used by Farley's study included canned peas, rice, scouring cleanser (used to clean pots, pans, toilet bowls, bathtubs, etc.), canned tuna and bonito (a fish related to tuna and mackerel), liquid bleach, canned peaches, frozen biscuits, toilet tissue, toilet soap, all-purpose flour, frozen orange juice concentrate, cake mixes (white, yellow, and chocolate), margarine, regular coffee, instant coffee, and canned citrus juice. It was discovered that consumers were less loyal to products that had a wide variety of brands available (Farley, 1964). Published in 1964, this source and the products used for the study are obviously dated.

Grabsy and colleagues (2021) conducted a study to establish a connection between different combinations of products in similar categories and brand loyalty. Their study included products such as shampoo, conditioner, cake, donuts, laundry detergent, canned fruit, fresh produce, milk, baking soda, air freshener, toothpaste, toothbrushes, and deodorant (Grabsy et al., 2021). It was discovered that consumers who purchase from two categories are on average 2.4 times more likely to purchase a brand extension (products produced to expand brand reach to different product categories, such as the production of both shampoo and conditioner) in the second category if they had purchased the same brand in the other category (Grabsy et al., 2021). This trend is more prevalent for brands that produce complementary categories, most notably shampoo with conditioner and blush with foundation (Grabsy et al., 2021).

From Farley (1964) and Grabsy (2021), it can be inferred that when conducting research (more specifically, a survey) into brand loyalty it is important to focus on everyday household products. Everyday household products typically include hygiene products, such as body wash, and food products, such as cola. It could also be important to focus on the number of brands present in different product categories, including whether complementary products purchased are of the same brand or not. This information could be used as a point of interest when attempting to establish whether someone has a brand preference for multiple different products.

PRODUCT PREFERENCES AND GENDER IDENTITY

Although it might be expected that there would be significant gender differences regarding brand loyalty, it is considered an insignificant factor by most researchers (Munef et al., 2009). A study published in 2009 (Munef et al., 2009) showed minimal differences in brand loyalty

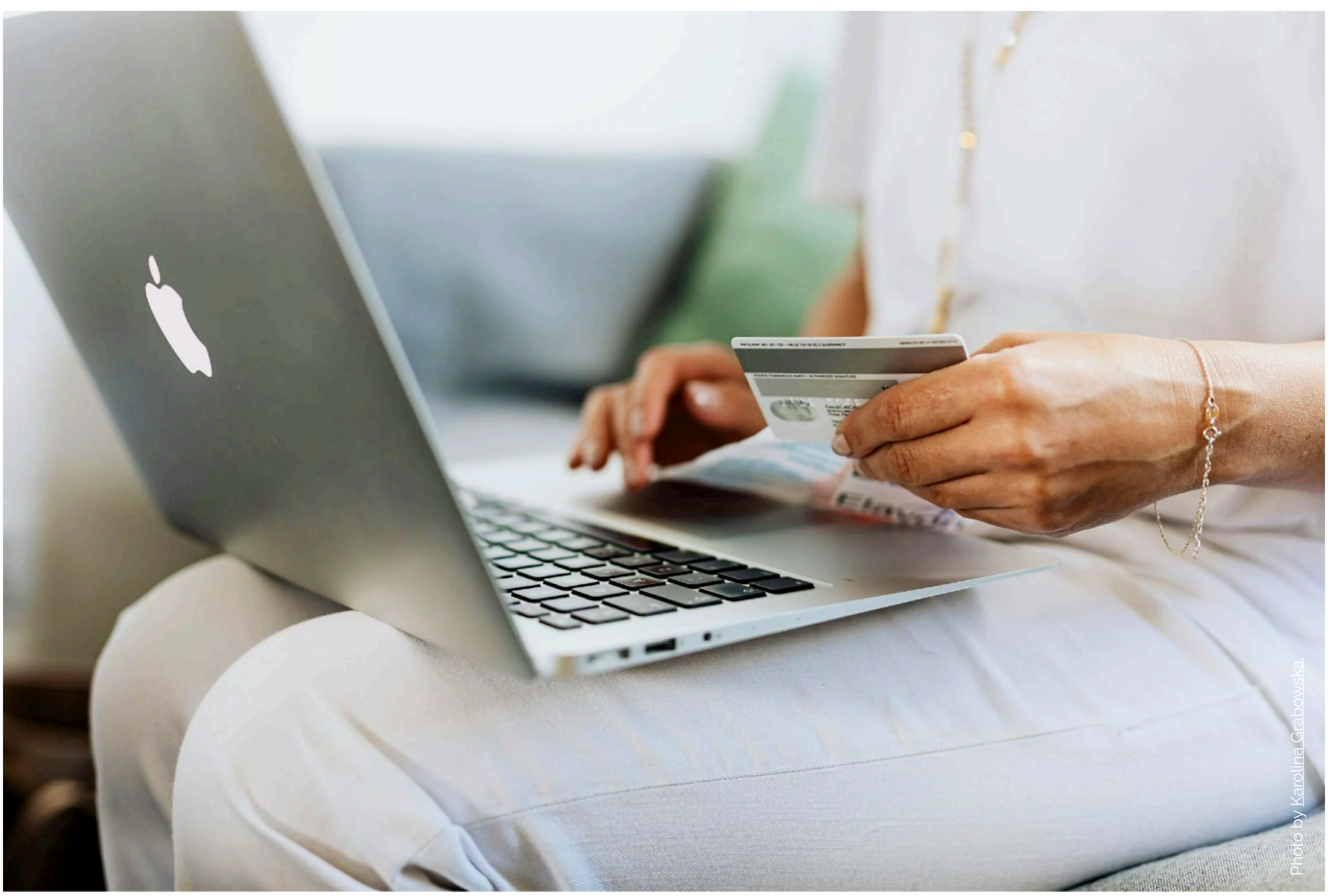

Photo by Karolina Grabowska

between male and female customers. Even with this being the case, the influence of the situational factors—personality differences and age specifically—involved with brand loyalty, development cannot be denied concerning gender stereotypes (Munef et al., 2009; Worth et al., 1992). A study conducted by Worth, and colleagues (1992) indicated that individuals who self-identified their personalities as stereotypically masculine would lean more towards preferring products that were described using masculine terms, and individuals who self-identified as stereotypically feminine would prefer products described in feminine terms. Stereotypically masculine individuals are associated with Type A personalities, which are aggressive, ambitious, controlling, and highly competitive workaholics who lack patience (Planned Parenthood, 2023; Sissons, 2022). Stereotypically feminine individuals are associated with Type B personalities which are relaxed, flexible, patient, emotional, and expressive (Planned Parenthood, 2023; Sissons, 2022). What these findings indicate is that gender stereotypes associated with personality Type A (stereotypically masculine) and Type B (stereotypically feminine) are important for developing preferences for certain products and brands, not necessarily an individual's gender identity (Dai et al., 2023; Friedmann & Lowengart, 2019). Although gender identities of individuals have not been found to have an impact on the development of brand loyalty, age and an individual's generation have been found to impact brand loyalty (Munef et al., 2009).

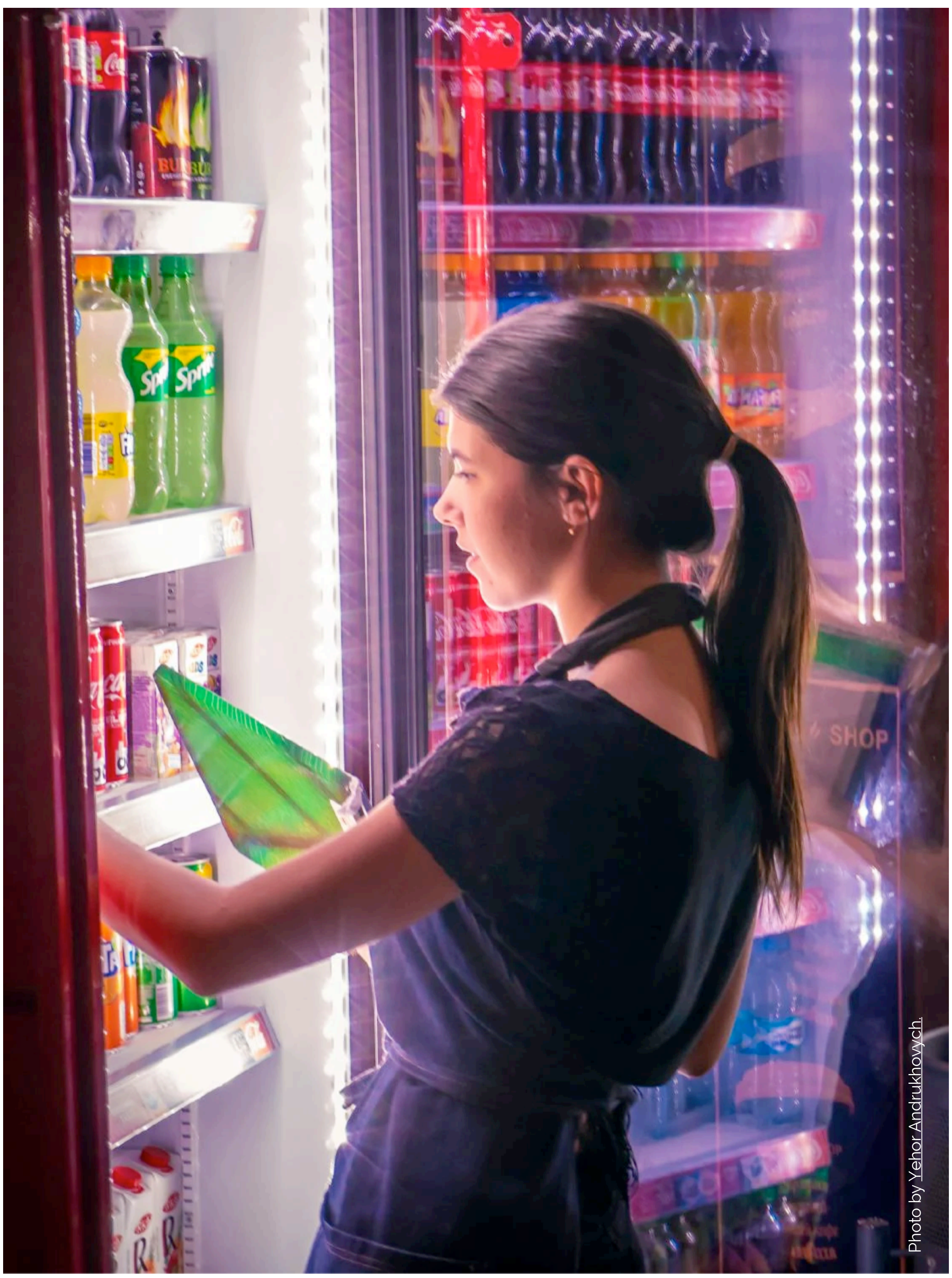

Photo by Yehor Andrukhovych

CONCEPTUALIZATION OF THE GENERATIONS

Conceptualizing generations is difficult, as numerous sources tend to set the parameters for each generation differently. For the sake of the present research, the focus will be placed on the five adult-aged generations. Conceptualizing what years encapsulate those generations will be done using the sources of Dimock (2019) and Gandhi (2023). The sources were chosen because they specifically laid out the characteristics of each generation, both living and non-living. The generations being examined are the Silent Generation (1925-1945), Baby Boomers (1946-1964), Generation X (1965-1980), Millennials (1981-1996), and Generation Z (1997-2012).

Each generation has been through its own trials and tribulations resulting from living through various historical events. As Gandhi said, "Our environment is the invisible hands that shape human behavior" (Gandhi, 2023, para. 1). More specifically, events such as wars, recessions, and pandemics have shaped how we as individuals and as generations think, act, and live our everyday lives. Below is one author's (Gandhi, 2023) conceptualization that contrasts the values of each adult generation.

Silent Generation (1925-1945)

The Silent Generation gained its name in 1951 in *Time* magazine (Time, 1951). The reason for this is that the generation before them, the Greatest Generation, came of age during the Great Depression and World War II; in contrast, the Silent Generation did not experience nearly as much disruption, hence the label "silent." The Silent Generation was born during the Korean War, World War II, and the Great Depression. As a result, they desire stability. They respect authority figures and are also very loyal to their employers, having been noted as working for the same companies for many years (Gandhi, 2023). As of 2024, the Silent Generation is between the ages of 79 and 99 years old.

Baby Boomers (1946-1964)

Baby Boomers are named such because, when World War II and the Korean War ended, soldiers were able to return home and start their families. This led to the birth rate increasing significantly. Baby Boomers were notable for their desire for change and progress as young adults. A large subset of this generation participated in the civil rights and feminist movements. They were also at the forefront of efforts to promote social justice and equality. This generation was also referred to as the "Me Generation" by writer Tom Wolfe (1976) since they focused a lot on self-fulfillment. Baby Boomers were the first generation to grow up with widespread access to technology such as television, so they were considered technologically innovative. They have also played a significant role in developing and adopting innovative technologies (Gandhi, 2023). As of 2024, Baby Boomers are between 60 and 78 years old.

Generation X (1965-1980)

Generation X was named by photographer Robert Capa because of their unique styles of clothing, attitudes, outlooks, and mentalities (Ulrich, 2003). Capa viewed their unique styles and outlooks on life as skeptical of traditional values and institutions. It is unknown what year he coined this term (Ulrich, 2003). Members of Generation X tend to value independence, display technological savviness, and desire work-life balance. As more women entered the workforce, more children were left to care for themselves after school, which led many in Generation X to become more self-sufficient as children than those in previous generations. As a result of this independence, valuing their time outside of work is important. Widespread personal computer ownership and access to the Internet were more common during this time, so becoming more knowledgeable about how to use personal computers and the Internet became a hallmark for this generation (Gandhi, 2023). As of 2024, Generation X is between 44 and 59 years old.

Millennials (1981-1996)

Also referred to as Generation Y, Millennials were defined by Howe and Strauss in their 1991 book called *Generations: The History of America's Future, 1584-2069*. Millennials are described as entrepreneurial, highly educated, and flexible with their opportunities. Because they came of age during the Great Recession in 2008, they faced a tough job market. This pushed many Millennials to figure out ways to make their own money, such as starting their businesses. There are a lot of Millennials who are highly educated and have been exposed to a wide range of ideas and perspectives. This has led them to pursue careers within their passions rather than out of necessity. Not restricted to a traditional nine-to-five job, many Millennials are also flexible when it comes to employment and are willing to work independently, remotely, or as freelancers. For this reason, some members of generations older than Millennials view them as narcissistic and vain, even nicknaming them the "Me Me Me Generation" (Gandhi, 2023; Time, 2013). However, others view them as the most diverse and socially conscious generation (Time, 2013; Gandhi, 2023). As of 2024, Millennials are between 28 and 43 years old.

Generation Z (1997-2012)

Generation Z, also known as the iGen or Zoomers, are digital natives, socially and politically aware, and diverse. Members of Generation Z are the first generation born into the age of widespread, easily accessible digital technologies such as smartphones, laptops, and tablets. Being more liberal and progressive than generations before them, both social and political issues are big areas of concern for members of Generation Z who are often active in efforts to bring about positive change. This positive change is usually within the realm of prioritizing LGBTQ rights, racial and gender equality, and climate change awareness. Generation Z is also the most ethnically and racially diverse generation in American history. This diversity is reflective of this demographic's push to increase acceptance and understanding of different cultures, gender identities, and backgrounds (Gandhi, 2023). As of 2024, Generation Z is between 12 and 27 years old.

BRAND LOYALTY THROUGH GENERATIONS

As they are the most recent adult-aged generation, members of Generation Z are key in the strategy of brands to remain competitive in the long term (Cagnin & Nicolas, 2022). However, the loyalty of Generation Z is more difficult to gauge compared to that of other generations; this is related to their specific expectations and the way brands handle them (Cagnin & Nicolas, 2022). The expectations are related to the observed or assumed values and relevance of a company. The more companies' values and relevancy resonate with Generation Z, the more trust they will develop with the brand. Currently available research shows that, out of Generation X, Millennials, and Generation Z, Generation X is the most brand-loyal, while Generation Z is the least brand-loyal (Brooks, 2023; Faria, 2023; Lamb, 2017). According to an article published by Forbes in 2016, "erosion of consumer loyalty among the most esteemed brands represents a changed philosophy of buying" (Kusek, 2016, para. 4). Lamb (2017) found that Generation X is intensely brand-loyal compared to Millennials and Baby Boomers.

Why is Generation Z Considered the Least Brand-Loyal?

Brooks (2023), conducted a study that involved 6,000 Generation Z individuals. Results indicated that awareness and familiarity metrics, which are linked to brand loyalty, are quickly losing relevance, especially among Generation Z, a generation that is not interested in holding onto the past (Brooks, 2023). Only 37% of Generation Z were considered brand-loyal, which is quite low compared to 56% of Baby Boomers (Brooks, 2023). They found that the reason for this could go back to the fact that Generation Z has many options for online shopping; they do research on companies and their products before purchasing, and they shop based on their values (Brooks, 2023; James 2022). Specifically, Brooks discovered that 60% of Generation Z agree that the brands they purchase are an expression of who they are, and 77% don't want to feel like they're put in a box when shopping (James, 2022). Another study by PwC (a consulting firm for businesses and brands) corroborated this when discovering that 73% of Generation Z say it's hard to save money right now, and 56% say inflation has created more financial stress in their lives (James, 2022). This causes issues as retailers do not seem to know how to connect with Generation Z and generate brand loyalty (James, 2022). This research implies that generational shifts seem to be powerful motivators when it comes to Generation Z and brand preferences or loyalty.

Need for Additional Research

Although informative, the existing research about generational categories, product preferences, and brand loyalty is relatively general and apparently does not explore brand loyalty in specific product categories. There are currently no studies that provide a concrete explanation as to what product categories have the highest or lowest brand loyalty, with much research focusing on a specific product. In addition, although research has been conducted relating to brand loyalty differences among generations, there are no studies available that offer a concrete explanation as to which products and brands different generations prefer. However, it is known that low-involvement products and high-involvement products elicit some type of brand loyalty response (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007). High-involvement products have the highest degree of brand loyalty while low-involvement products have the lowest degree of brand loyalty (Bisschoff & Moola, 2014; Jacoby & Chestnut, 1978; Punniyamoorthy & Prasanna Mohan Raj, 2007), but its specific product categories have not been identified as having high or low involvement.

Research into brand loyalty and product preferences regarding gender identity is also sparse. Yet, the research available seems to indicate that an individual's gender identity itself does not influence brand loyalty (Munef et al., 2009). It has been determined that personality types attached to gender stereotypes are more important influences on the development of brand loyalty (Dai et al., 2023; Friedmann & Lowengart, 2019; Munef et al., 2009). But would this same conclusion be reached if research were conducted on specific product categories?

To address these gaps in the literature, in this study a 42-question questionnaire was devised to assess participants' preferences regarding 35 different products from a wide array of categories. In comparison to previous research, the current study also sought to be a more in-depth examination of gender identity and generation as related to brand loyalty in specific product categories. Overall, then, this study aimed to fill in the gaps between what is known about brand loyalty and what is not known regarding generation, gender identity, and specific product categories.

METHOD

Questionnaire

Before participants began the questionnaire, informed consent was obtained. If consent was not given, the questionnaire automatically ended. If consent was given, participants continued to the 42-question survey. The first six questions were used to gather data on demographic information, the next 35 questions gathered data on brand preferences related to certain product categories, and the last question asked if the participant has any brand preferences for products that were not listed in any previous questions. For the 35 questions examining brand loyalty categories, participants were asked to indicate on a 1 to 7 scale (1 = strongly disagree and 7 = strongly agree) the extent to which they preferred a specific brand within that product category. The survey was created using Qualtrics software, and it was distributed to participants electronically through Lucid Theorem.

Participants

Participants were recruited using the online platform Lucid Theorem, which provides access to a variety of potential participants across the United States. Participants were paid a small stipend (approximately $1) in exchange for their time in completing the survey. The total sample size of this study consisted of 421 participants, but only 415 of the participants filled out the survey to completion. Out of all 421 participants, 52.7% identified as male, and 47.3% identified as female. These participants ranged between 18 and 99 years of age, the mean being 52 years old.

Generational Categories

Among the participant sample of 421, Generation Z made up 4.8% of participants, Millennials made up 24.5% of participants, Generation X made up 32.8% of participants, Baby Boomers made up 33.5% of participants, and the Silent Generation made up 3.1% of participants. There was missing age data for 1.4% of participants (see **Fig. 1**). According to one source, in 2024, Generation Z made up 20.88% of the adult population in the U.S., Millennials made up 21.67%, Generation X made up 19.61%, Baby Boomers made up 20.58%, and the Silent Generation made up 5.49% (Statista, 2024). The remaining 11.57% make up Generation Alpha. Thus, in the current sample, Generation Z was underrepresented, while Generation X and Baby Boomers were overrepresented. Millennials and the Silent Generation are fairly representative in this sample compared to the United States population.

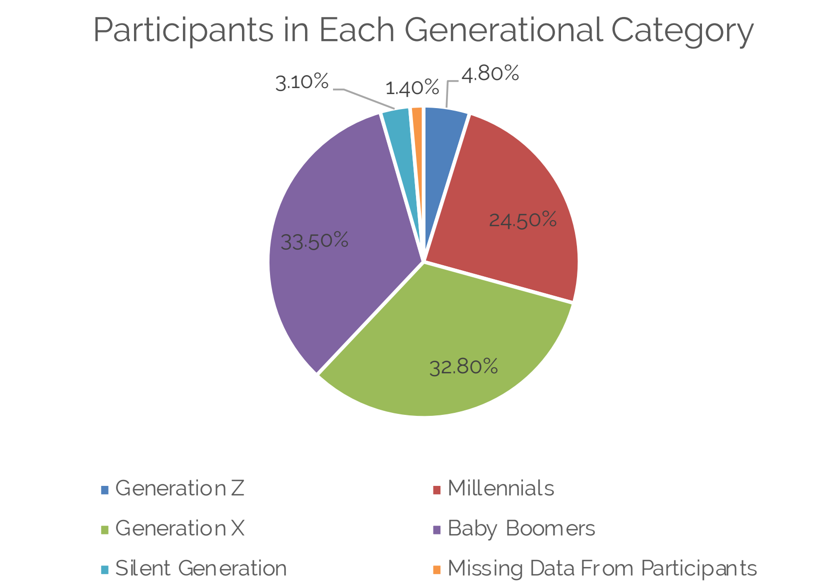

Fig. 1. Percent breakdown of participants in each generational category.

Racial Categories

Regarding racial categorization, 74.3% of participants were White, 19.0% were Black, 2.6% were Asian, 0.5% were Native Hawaiian/Pacific Islander, 0.5% were American Native/Alaska Native, and 2.9% selected the Other category (see **Fig. 2**). According to United States Census estimate for July of 2023, 75.5% of the population is White, 13.6% of the population is Black, 6.3% of the population is Asian, 0.3% of the population is Native Hawaiian/Pacific Islander, 1.3% of the population is American Native/Alaska Native, and the remaining 3% of the population makes up the Other category for race (United States Census Bureau, 2024). After comparing this study's participants to the United States Census, racial categories appear to be represented relatively fairly in this study.

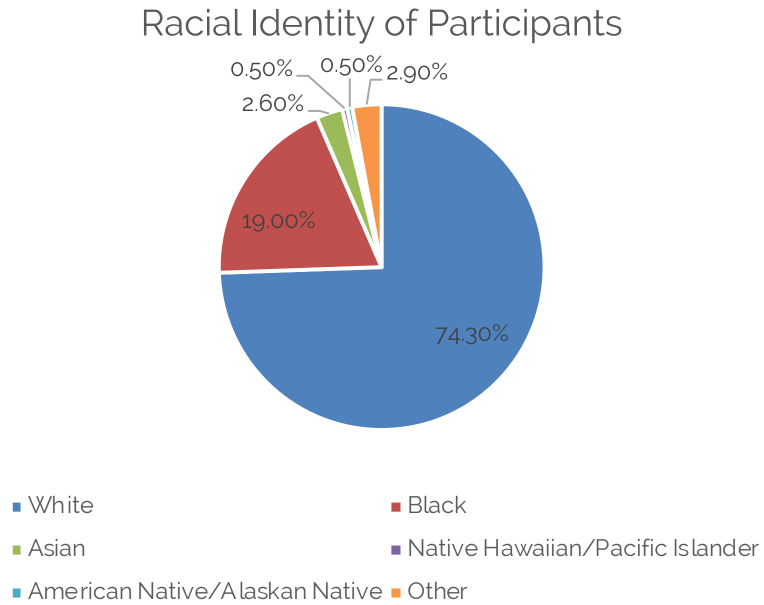

Fig. 2. Percent of responding participants who identify with specific racial categories.

Religious Affiliation

Regarding religious affiliation, 55.3% of participants were religiously affiliated, 38.2% were not religiously affiliated, 6.2% chose that they may be religiously affiliated, and 0.2% of participants chose "Other" for religious affiliation. According to the United States Census, U.S. law prohibits the Census Bureau from requiring anyone to disclose their religious affiliation (United States Census Bureau, 2020). As a result of this, the overall U.S. population's religious affiliation cannot be compared to the responding participants, at least from Census data.

Employment Status

Regarding employment status, 30.9% of participants were not employed, 40.1% were employed full-time, 11.9% were employed part-time, and 17.1% chose "Other" for employment status.

RESULTS

To explore the product categories in which participants had the strongest brand preferences, means were calculated on a 1-7 scale, with 1 indicating a very weak preference and 7 indicating a very strong preference. See **Table 1** for the means and standard deviations for product brand preference, in order from lowest to highest mean. The five products with the lowest means were mechanical pencils, makeup concealer, makeup foundation, pens, and video game consoles. The five products with the highest means are mobile phones, deodorant, laundry detergent, toothpaste, and cola.

Product	Mean	Standard Deviation
Mechanical Pencils	3.39	1.79
Makeup Concealer	3.54	1.95
Makeup Foundation	3.63	2.00
Pens	3.79	1.89
Videogame Console	3.84	2.04
Bottled Water	3.94	1.86
Facial Cleanser	4.20	1.78
Bleach for Laundry	4.21	1.85
Mustard	4.24	1.84
Facial Tissue	4.25	1.76
Orange Juice	4.25	1.77
Conditioner	4.33	1.83
Body Wash	4.42	1.87
Desktop Computer	4.43	1.86
Toothbrush	4.46	1.75
Body Lotion	4.46	1.85
Ketchup	4.46	1.88
Mouthwash	4.46	1.76
Potato Chips	4.47	1.71
Sliced bread	4.48	1.75
Paper Towels	4.51	1.80
Shampoo	4.55	1.77
Home Brewed Coffee	4.56	1.88
Bar Soap	4.58	1.84
Peanut Butter	4.59	1.77
Laptop	4.62	1.80
Breakfast Cereal	4.79	1.71
Mayonnaise	4.80	1.86
Toilet Paper	4.83	1.79
Dish Detergent	4.87	1.77
Cola	4.96	1.85
Toothpaste	4.97	1.69
Laundry Detergent	5.09	1.76
Deodorant	5.15	1.71
Mobile Phone	5.23	1.69

Table 1:. Means and standard deviations for different product categories, in order from lowest means to highest means. *Note*. Mean relates to the average choice on a scale between 1 to 7 by participants of the survey.

In an open-ended question in which participants could disclose any additional product categories for which they had brand loyalty, several product categories were mentioned at least twice. Products that were not included in the survey but elicited a brand preference were cars, ice cream, shoes, jeans, butter, cheese, pet food, tea, and milk. Additional analyses were conducted focusing on product category preferences between gender identities and generations.

Gender Identity Analyses

To explore the potential differences in product category preferences between males and females, analyses of variance (ANOVAs) were conducted that compared the mean ratings of males and females for each product category. A number of these ANOVAs revealed significant gender differences. Specifically, there were significant ANOVAs for shampoo (F [1, 419] = 4.37, p = .037), conditioner (F [1, 417] = 28.36, p = <.001), facial cleanser (F [1, 418] = 12.61, p = <.001), bar soap (F [1, 415] = 6.13, p = <.014), body lotion (F [1, 415] = 22.54, p = <.001), makeup foundation (F [1, 417] = 54.73, p = <.001), makeup concealer (F [1, 417] = 35.67, p = <.001), video game consoles (F [1, 415] = 9.87, p = .002), laptops (F [1, 418] = 16.56, p = <.001), and desktop computers (F [1, 418] = 20.69, p = <.001). See **Table 2** for details about how the means within each of these product categories differ between the gender identities of participants.

Product	Gender Identity	Mean	Standard Deviation
Makeup Foundation	Male	2.99	1.85
	Female	4.35	1.91
Facial Cleanser	Male	3.20	1.75
	Female	4.53	1.76
Makeup Concealer	Male	3.03	1.89
	Female	4.12	1.84
Body Lotion	Male	4.05	1.84
	Female	4.89	1.76
Conditioner	Male	3.90	1.92
	Female	4.82	1.58
Desktop	Male	4.82	1.75
	Female	4.01	1.89
Laptop	Male	4.95	1.70
	Female	4.25	1.84
Videogame Console	Male	4.15	2.10
	Female	3.53	1.92
Bar Soap	Male	4.37	1.86
	Female	4.81	1.77
Shampoo	Male	4.38	1.90
	Female	4.74	1.60

Table 2: Significant mean differences in product categories between males and females. *Note*: Products are in order from highest to lowest mean differences between males and females.

Generational Analyses

To explore potential generational differences in product category preferences, analyses of variance (ANOVAs) were conducted that compared the mean ratings of each generation for each product category. A number of these ANOVAs revealed significant generational differences. Specifically, there were significant ANOVAs for conditioner (*F* [4, 408] = 4.16, *p* = .003), orange juice (*F* [4, 407] =2.71, *p* = .030), bottled water (*F* [4, 406] =4.42, *p* = .002), facial cleanser (F [4, 409] =4.10, p = .003), body wash (*F* [4, 407] =9.49, *p* = <.001), makeup foundation (*F* [4, 408] =3.34, *p* = *.010*), makeup concealer (*F* [4, 408 =5.73, *p* = <.001), video game console (*F* [4, 406] =14.25, *p* = <.001), laptops (*F* [4, 409] =6.84, *p* = <.001), desktop computers (*F* [4, 409] =3.43, *p* = .009), mechanical pencils (*F* [4, 409] =7.12, *p* = <.001), and pens (*F* [4, 408] =5.08, *p* = <.001). See **Table 3** for details about how the means within each of these product categories differ regarding various generations.

Product	Generation	Mean	Standard Deviation
Conditioner	Generation Z	5.35_{b}	1.14
	Millennials	4.58_{ab}	1.64
	Generation X	4.43_{ab}	1.83
	Baby Boomers	3.95_{a}	1.96
	Silent Generation	3.69_{ab}	1.70
Orange Juice	Generation Z	4.68_{ab}	1.79
	Millennials	4.67_{a}	1.69
	Generation X	4.16_{ab}	1.84
	Baby Boomers	4.02_{b}	1.69
	Silent Generation	3.77_{ab}	1.96
Bottled Water	Generation Z	4.68_{abc}	1.86
	Millennials	4.42_{a}	1.72
	Generation X	3.75_{bc}	1.84
	Baby Boomers	3.69_{bc}	1.89
	Silent Generation	3.00_{abc}	1.73
Facial Cleanser	Generation Z	4.90_{ab}	1.55
	Millennials	4.62_{a}	1.66
	Generation X	4.21_{ab}	1.77
	Baby Boomers	3.85_{b}	1.82
	Silent Generation	3.54_{ab}	1.89
Body Wash	Generation Z	5.48_{abd}	1.49
	Millennials	5.02_{abd}	1.59
	Generation X	4.53_{abc}	1.75
	Baby Boomers	3.78_{d}	1.94
	Silent Generation	3.96_{abcd}	2.18
Makeup Foundation	Generation Z	4.63_{a}	1.75
	Millennials	3.88_{ab}	1.99
	Generation X	3.72_{ab}	1.94
	Baby Boomers	3.31_{b}	2.03
	Silent Generation	2.77_{ab}	1.30

Makeup Concealer	Generation Z	5.00_{a}	1.72
	Millennials	3.85_{abd}	1.97
	Generation X	3.59_{bcd}	1.91
	Baby Boomers	3.12_{cd}	1.88
	Silent Generation	2.92_{bcd}	1.44
Videogame Console	Generation Z	4.63_{ab}	1.87
	Millennials	4.83_{ab}	2.01
	Generation X	3.91_{ad}	1.97
	Baby Boomers	3.15_{cd}	1.82
	Silent Generation	2.31_{c}	1.65
Laptop	Generation Z	5.33_{ab}	1.44
	Millennials	5.26_{b}	1.62
	Generation X	4.46_{ac}	1.84
	Baby Boomers	4.31_{ac}	1.77
	Silent Generation	3.54_{c}	2.03
Desktop Computer	Generation Z	4.95_{ab}	1.43
	Millennials	4.90_{a}	1.77
	Generation X	4.33_{ab}	1.87
	Baby Boomers	4.20_{b}	1.84
	Silent Generation	3.62_{ab}	2.14
Mechanical Pencil	Generation Z	4.95_{d}	1.64
	Millennials	3.77_{ab}	1.76
	Generation X	3.34_{bc}	1.84
	Baby Boomers	3.05_{c}	1.68
	Silent Generation	2.69_{c}	1.32
Pens	Generation Z	5.20_{a}	1.54
	Millennials	4.07_{ab}	1.82
	Generation X	3.77_{b}	1.95
	Baby Boomers	3.52_{b}	1.83
	Silent Generation	2.85_{b}	1.52

Table 3: The significant mean differences in product categories across generations. *Note.* Differing subscripts indicate significant mean differences among generations for each product category listed.

DISCUSSION

Regarding overall brand loyalty for product categories, the categories of mechanical pencils, makeup concealer, makeup foundation, pens, and video game consoles have the lowest overall means for brand preferences (**Table 1**). This result is not that surprising in that four out of these five products can be grouped into similar low-involvement product categories, those being beauty products (makeup foundation and makeup concealer) and writing utensils (mechanical pencils and pens). These products are assumed to not be used by some individuals consistently, or perhaps not at all. There is no defined risk if these products fail since none of them are inherently necessary to keep an individual's everyday life functioning and some can be purchased inexpensively.

The products cola, toothpaste, laundry detergent, deodorant, and mobile phone had the highest overall means for brand preference, yet there does not immediately appear to be any indication that these products are from related categories (see **Table 1**). However, in looking a little deeper, these product categories are perhaps used by individuals on a consistent enough basis to cause them to become high-involvement products. There is a defined risk for each product if they fail since they are all used by individuals on a consistent enough basis to notice the quality. Some of the products can also be relatively costly, specifically mobile phones and laundry detergent.

The gender identities of participants in the current study were 52.7% male and 47.3% female. Staying in line with products that would be stereotypically feminine, females were found to have stronger brand preferences for the products makeup foundation, makeup concealer, facial cleanser, shampoo, bar soap, conditioner, and body wash than males did (see **Table 2**). On the other hand, males had stronger brand preferences for the products of video game consoles, desktop computers, and laptops than females did (see **Table 2**). It could be assumed that these trends were observed because of gender stereotypes, with those identifying as female having strong brand loyalty for beauty products, and those identifying as male having strong brand loyalty for electronics. As noted above, items stereotypically related to femininity and masculinity are often dictated by gender stereotypes. Also recall that Type A personalities are usually associated with the stereotypical view of masculinity and Type B personalities are associated with the stereotypical view of femininity, although this personality type dichotomy was not assessed in the current study.

Throughout the study, it was also observed that Generation Z and Millennials happened to not have many varying opinions from each other when it came down to brand preferences for products (see **Table 3**). The only products that Millennials and Generation Z differed from each other were mechanical pencils (**Table 3**). Baby Boomers and Silent Generation individuals happened to not have any varying opinions from each other when it came to brand preferences for products either (see **Table 3**). The reasoning for this could go back to what each generation happens to value and grew up with.

As previously noted, Generation Z and Millennials are very close in age, yet they do not immediately appear to value the same things. Generation Z values social justice in the form of LGBTQ rights, racial equality, gender equality, and combating climate change. On the other hand, Millennials seemingly only value pursuing higher education and starting their businesses. Even though this might be the case, the reason why this is happening could result from how similar their life stages are since both Millennials and Generation Z are comprised of young adults who are in their twenties and thirties.

Generation X, Baby Boomers, and Silent Generation are also closer in age and, by extension, life stages. This is not surprising since they do appear to value the same things. Generation X, Baby Boomers, and Silent Generation individuals had hardly any differing opinions on brand preferences for the product categories of interest (**Table 3**). The only exception is the product body wash, with the difference being between Generation X and Baby Boomers (**Table 3**). It is also interesting to note that in **Table 3** for many product categories, Baby Boomers appeared to differ in their brand loyalty from youngest generations the most frequently, in fact indicating lower brand loyalty in many cases. The reason for this could extend to the fact that many of these products most likely did not exist when Baby Boomers were coming of age (e.g., bottled water).

Generation X appeared to not have too many varying opinions from any of the other generations regarding product preference. Generation X's age range was essentially in the middle since they encompassed those in their fifties and sixties, meaning that those of younger and older generations could still have common ground concerning a few products. Generation X and Silent Generation opinions on product brand preference did not vary for any product of significance besides video game consoles (**Table 3**).

The average age of participants in the sample for this study was 52 years of age, which is an age range within Generation X as of 2023. Individuals who are no longer enrolled in educational institutions do not pay much attention to the types of writing utensils they use. It can be theorized that as individuals get older, using beauty products or writing utensils could also have less of an impact on their lives. This conclusion is in line with the findings that Generation Z had the most brand preference towards the products pens and pencils, and makeup foundation was seen to have the largest mean disparity between Generation Z against the three oldest generations, Generation X, Baby Boomers, and Silent Generation (**Table 3**). It can also be theorized that even though each generation values different things if their age ranges are close enough, they could develop brand loyalty or preferences for similar products. For many product categories examined in the study, Baby Boomers' mean brand loyalty scores were lower than Millennials and Generation Z, but their responses were typically very similar to Generation X (**Table 3**). This is counter to what was expected based on some existing literature (e.g., Brooks, 2023; James, 2022) but again may relate to some product categories not existing when older generations were children, adolescents, or young adults.

DIRECTIONS FOR FUTURE RESEARCH

In this study, attitudinal responses were recorded rather than behavioral responses. The reason for this is that there was not enough time allotted to pursue creating and conducting more research. Even though Mellens and colleagues (1996) believed that behavioral responses were more reliable for data collection, it would be valuable for future research to ensure that both attitudinal responses and behavioral responses are measured. This information will provide more insight into how attitudes and physical actions could co-exist in the development of brand loyalty.

Assessing how the 12 metrics of brand loyalty are influenced by specific product categories would also be a great asset to future research (Bisschoff & Moola, 2014). Satisfaction, switching costs, brand trust, relationship proneness, involvement, perceived value, commitment, repeat purchase, brand affect, brand relevance, brand performance, and culture were also listed as being instrumental in the development of brand loyalty (Bisschoff & Moola, 2014). Valuable insight would be gained by creating a survey to address how each of these metrics influences brand loyalty in specific products amongst the generations and gender identities. There was not enough time allotted for this study to go through with the creation of this survey. Original plans for this study did include the creation of a survey that would incorporate the 12 metrics of brand loyalty to analyze what metrics are most influential in developing brand loyalty for what specific product categories.

Even though prior research indicated that gender identities do not have any influence on product preference or brand loyalty (Munef et al., 2009; Worth et al., 1992), further research must be done to confirm this, as the results from this study seem counter to that notion (Munef et al., 2009; Worth et al., 1992). Gender stereotyping is believed to be one of the main contributors, and these stereotypes are often connected to Type A or Type B personality traits. So, questioning participants on which personality traits they believe describe them would be the most reliable option to collect data. This was also not included in this study because of time constraints. Time constraints also prevented a more extensive investigation of participants' memories of the ages at which they developed brand loyalty for specific product categories.

A lengthy survey consisting of all the aforementioned topics could be posted and sent out to have information on behavioral responses, attitudinal responses, the 12 metrics of brand loyalty, and the personality types of the participants. This could be done so that information is collected from the same individuals. ❖

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The citation system used in this essay is APA 7th.

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THE POWER OF CHURCH: RELIGIOSITY'S IMPACT ON COLLEGE STUDENTS' ATTITUDES TOWARD LGBTQ+ ISSUES

ABSTRACT

With a growing presence and visibility of LGBTQ+ individuals, their presence has increased in religious spaces as well. Different religious denomination have begun allowing gay marriages, with gay and lesbian pastors emerging. Misconceptions and stereotypes have arisen among both groups, as religious groups have been criticized for rejecting LGBTQ+ individuals, and vice versa. The influence of each group on one another has not gone unnoticed. College students may be a part of LGBTQ+ groups, with others in religious groups. Some students may fall into both categories.

The purpose of this study was to investigate the impact of religiosity on college students' attitudes toward LGBTQ+ issues. A 19-question survey was created by the author, and the survey was distributed among students at a private liberal arts university in the South. The hypothesis was that college students who report frequently attending church are less likely to support LGBTQ+ issues than those who report infrequent or no church attendance. The data suggested that the hypothesis was supported. Those who reported frequent church attendance had a lower level of support for LGBTQ+ issues than those who reported infrequent or no church attendance. A secondary area was explored examining parental influence on an individual's beliefs towards minority groups which yielded mixed results. For future research it is suggested to use a larger sample size and investigate the independent variable in tandem with other religion-centered variables.


Photo by Andrew Patrick

INTRODUCTION

From local to worldwide, religion provides a sense of unity among communities. Religion varies around the world, but its influence is profound. Religion can possibly guide many factors in an individual's life, including one's friendships, sexuality, and political beliefs. The strength that religion has in shaping one's beliefs is not always seen to be positive. According to Henry, Perrin, and Smith (2022) religion has been believed to be a catalyst for creating prejudice, specifically towards the LGBTQ+ community, while also forwarding the idea of brotherhood. The idea of brotherhood is unifying while also creating prejudice against out-groups, which may, in turn, confuse the beliefs of many members in the religious group.

Research illustrates the relationship between religious beliefs and negative prejudice and views toward gay and lesbian civil rights (Baker and Brauner-Otto 2015). With such a troubled relationship between religion and LGBTQ+ individuals, stereotypes and impressions have developed over time that paint both in a negative light. Baker and Braun-Otto (2015) show that when it comes to beliefs and attitudes about gays and lesbians, the Christian evangelical community is the most gullible and prone to these negative beliefs. This support the idea that religiosity, how committed one is to their religion, may play a part in one's attitudes towards gay or lesbian individuals. Wright (2014) has shown that there may be other factors in play, such as deeply-rooted beliefs by which certain religions have abided for decades. What isn't shown in the literature is if this relationship has developed in a more positive direction, and whether the negative impact that religion has shown in the past has changed, or not.

The research by Wright (2014), Baker and Braun-Otto (2015), and Henry et al. (2022) use countrywide to worldwide samples, unlike the current study which is focused on a smaller sample of college students. Wright (2014) investigates the effects of four different independent variables, and how they influence an individual's ethical stance on gay and lesbian sexuality. The three hypotheses have differing independent variables, with different factors stated to be important. These four independent variables are religious affiliation, type of religious beliefs, political beliefs, and the effect of religion on social aspects of an individual. Two of these independent variables delve into different aspects of religion, with Wright (2014) concluding that frequency of religious attendance is not related to one's ethical stance on gay and lesbian sexuality by itself, and that social isolation can work in tandem to influence one's beliefs. Baker and Brauner-Otto (2015) and Henry et al. (2022) conducted similar studies, with social aspects used as another independent variable, or a moderator or mediator to their religion-related independent variable.

In contrast, this study will focus solely on frequency of church attendance as an indicator of religiosity or of the extent of one's commitment to their religion. For the purpose of this study, religiosity measured by how often an individual attends church or a place of worship. To this extent, this focus on frequency of church attendance, while not enough to illustrate the effect of religiosity, will provide information about the relationship between religiosity and how it affects an individual's beliefs towards gay and lesbian rights.

The purpose of this study was to determine if religiosity plays a part in an individual's beliefs toward LGTBQ+ issues. The author hypothesized that college students who frequently attend church are less likely to support LGBTQ+ issues than those who infrequently attend church. See **Fig. 1** for the conceptual model of the hypothesized impact of religiosity on opinions towards LGBTQ+ issues.

A secondary question investigated parental influence on an individual's beliefs towards minority groups, including LGBTQ+ individuals. While religion is a form of socialization that could influence an individual's formation of beliefs, parental influence was investigated with a secondary question, due to their nature as a primary form of socialization.

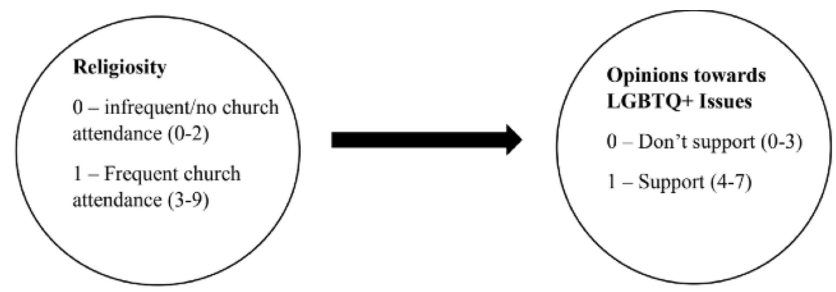

Fig. 1. Conceptual Model of the Hypothesized Impact of Religiosity on Opinions towards LGBTQ+ Issues in College Students.

METHOD

The purpose of the study was to examine how religiosity may play a part in influencing an individual's opinions towards LGBTQ+ issues. The data were gathered using a survey created by the author of the study, for the SOC 315 class project. The survey consists of 19 questions addressing one's commitment to attending their place of worship (described as churches, synagogues, and other potential locations), their beliefs towards sexualities other than heterosexuality, and questions about parental influence on beliefs. The data were collected in the spring of 2024 from 50 students, from a small private liberal arts university in the South. The anonymity and confidentiality of respondents was assured, and all subjects consented to participate in the study.

The author requested the assistance of other professors at the university, unrelated to the study, in order to gather the respondents from students in their classes. Participants from multiple lower-level social science courses were invited to complete the surveys. The author then handed out the surveys to the class, describing the process to the individuals before allowing them to begin filling out the survey. The time allocated was 10 minutes, and all respondents were able to complete the surveys within this time period. Ninety-eight percent of the surveys were usable, with a response rate of 100 percent.

Measures

The independent variable of "religiosity" was operationalized as "frequency of church attendance," with "frequent church attendance" coded as one, and "infrequent to no church attendance" coded as zero. These were coded to measure one's commitment to their religion. Three questions measured frequency of attendance. Two of the questions asked respondents about how often they attended church and how often they worshipped at church. Each of these questions had six possible answers. These were created to cover the possible number of times an individual goes to a place of worship or goes with the intent of worshipping. The purpose was to separate those who went to church, and those who went with the purpose of worshipping. The answers "not at all," "only went once," and "rarely/special occasions" were coded as zero. These signified a low score on the "frequency of church attendance" scale and the answers "not at all" and "only went once" were also used to filter out respondents for the following question. After that, the following answers had scores of one up to four. Each answer that signified higher frequencies had higher possible scores. As an example, if an individual answered "daily" for both questions, they would score a four on each of them as it is the highest possible score. The final question asked if the respondents worshipped more at church or at home. This was framed as a yes or no question, with "yes" being scored as one, signifying a higher score, and "mo" being scored as zero. The total score possible for the independent variable was nine. Scores of zero to two were considered low frequency of attendance (0), while scores of three to nine were considered high frequency of attendance (1).

Four questions were related to opinions toward LGBTQ+ issues, operationalized as: level of support for gay and lesbians, or LGBTQ+ individuals. Higher scores on these questions would signify a higher level of support on the scale created. One was coded as "support, "and zero as "don't support." Seven was the highest score possible for the dependent variable. Scores of zero to three were considered "low levels of support" while scores of four to seven were considered "high levels of support." Three of these questions utilized a four-point Likert scale, ranging from "strongly agree," to "strongly disagree." Two of these had "strongly disagree" and "disagree" coded as zero. "Agree" was coded as one, and "strongly agree" was coded as two. The third question utilizing this scale reversed this scoring system, so that "strongly disagree" would score a two. The secondary question was: how important are parents' influences on an individual's opinions towards minority groups? Three questions were asked related to the secondary question. It was coded as one being "parents' influence is important" and zero being "parents' influence is of little importance." With a total score of six, zero to two was considered little importance, while three to six was considered high importance.

Method of Analysis

Cross tabulations were used to test the hypothesis and examine the secondary question. Frequencies were used to describe the data.

RESULTS

Out of the 49 respondents, 30 (61%) reported infrequent/no church attendance. Nineteen (39%) reported frequent attendance. Nineteen (39%) of the total respondents reported that they don't support, while 30 (61%) reported that they do support LGBTQ+ issues. Out of the 30 who reported infrequent/no church attendance, 24 supported LGBTQ+ issues, while only six reported low levels of support. Out of the 19 that reported frequent church attendance, 13 reported low levels of support, while six reported high levels of support.

Independent Variable

Frequency of Church Attendance

Dependent Variable: Opinions Towards LGBTQ+ Issues	(0) Infrequent/no attendance	(1) Frequent attendance
(0) Don't support	6	13
(1) Support	24	6
	30	19

Table 1: Crosstabulation of the Impact of Religiosity on Opinions Towards LGBTQ+ Issues, Raw Numbers (N=49)

Table 2 describes the percentages of the hypothesized impact of religiosity on opinions towards LGBTQ+ issues. The hypothesis of this study was that individuals with frequent church attendance were less likely to support LGBTQ+

issues than those who infrequently or don't attend at all. The hypothesis appears supported, as 68 percent of those that frequently attended church reported low levels of support compared to the 20 percent of those who infrequently/don't attend reported low levels of support. This indicates that frequent church attendance may impact an individual's level of support for LGBTQ+ issues. The secondary question was then examined.

Independent Variable

Frequency of Church Attendance

Dependent Variable	Opinions Towards LGBTQ+ Issues	(0) Infrequent/no attendance	(1) Frequent attendance
	(0) Don't support	**20%**	**68%**
	(1) Support	80%	32%
		100%	100%

Table 2: Crosstabulation of the Impact of Religiosity on Opinions Towards LGBTQ+ Issues, Percentages (N=49)

Table 3 indicates the results of the secondary question which examined the importance of parental influence on an individual's opinions towards minority groups. Twenty-two (45%) of the respondents reported that parental influence was of little importance, while 27 (55%) of the respondents reported that parental influence was important in their views towards minority groups. Twenty-two of the respondents reported not supporting minority groups, while 27 reported supporting minority groups. Out of those who deemed parental influence not important, 13 of them supported minority groups, while nine of them did not. Similarly, out of the 27 that deemed parental influence important, 13 of them reported not supporting minority groups, while 14 of them did.

Table 4 describes the percentages yielded by the secondary question. The secondary question was "Does parental influence have an impact on an individual's beliefs towards minority groups?" With that in mind, 41% of those who deemed parental influence rarely/not important reported not supporting minority groups. Forty-eight percent of those who reported that parental influence was important reported not supporting minority groups. While there seems to be a difference between these two percentages, they are still very close.

Independent Variable

Importance of Parental Influence

Dependent Variable	Opinions Towards Minority Groups	(0) Rarely/Not Important	(1) Important
	(0) Don't support	9	13
	(1) Support	13	14
		22	27

Table 3: Crosstabulation of the Impact of the Importance of Parental Influence on Opinions Towards Minority Groups, Raw Numbers (N=49)

Independent Variable

Importance of Parental Influence

Dependent Variable	Opinions Towards Minority Groups	(0) Rarely/Not Important	(1) Important
	(0) Don't support	41%	48%
	(1) Support	59%	52%
		100%	100%

Table 4: Crosstabulation of the Impact of the Importance of Parental Influence on Opinions Towards Minority Groups, Percentages (N-49)

DISCUSSION

This study investigated the impact of religiosity on an individual's opinions toward LGBTQ+ issues. The results support the hypothesis. 68% percent of those college students who responded that they frequently attended church reported lower levels of support for LGBTQ+ issues in comparison to the 20% of those who infrequently or did not attend church who reported low levels of support. While there was a higher number of those who infrequently/did not attend church, the number was not substantial, so it could be concluded that the results were relevant. As the population was from a liberal arts school in the South, which is predominately religious, it was surprising to see a lower number of those who attended church, but it could be a result of the limited measure of the independent variable. A possible factor could be what the respondents' determined "home" was depended on if they were commuters or lived on campus. How an individual may behave at "home" could be different compared to campus, affecting how much they attend church or even worship at all.

The investigation of LGBTQ+ issues is also a limitation. LGBTQ+ issues like gay marriage are widely accepted, but also controversial. Social desirability is a factor when considering the respondent's answers, as what they answer may differ from what they deem as "morally correct". While a weakness of surveys in general is that the respondent may not always answer truthfully, social desirability adds a layer that cannot be ignored. Attempting to simplify the broad variable of religiosity, frequency of church attendance treaded the line of being too simple as well. It failed to account for if an individual may be extremely religious but worship more at home. While there was a question related to home worship, 42 percent of the original 50 respondents reported worshipping at home. The same could be said for the dependent variable, as LGTBQ+ issues are simplified in this study, due to both time constraints and the sample size. The small sample size also was a limitation. The respondents coming from lower-level classes also provided more uncertainty that they may not understand the complexity of LGBTQ+ issues. If more respondents were taken from upper-level social science classes, or if the sample was larger, the results would have been more interesting to analyze. While the simplicity of the independent variable may have been seen as a weakness, it also provides insight into how frequency of church attendance may be a factor to consider in future research. The literature investigated in this study utilized multiple variables to measure religiosity and concluded that frequency of attendance is something that should have been investigated more deeply as a sole variable.

This study serves to fill in the gaps in the literature investigated, as the aforementioned factor was investigated as a sole variable in this study. This study could be considered a success in that respect. However, it does fail to investigate how the variable of frequency of attendance can work with other variables like social factors, or political affiliation. As the literature concluded that frequency of attendance does not have significance when investigated with social factors like social isolation, this study may drive others to reexamine how frequency of attendance can fit. The secondary question also failed to yield relevant results. This may need to be re-examined with improved measurements of variables related to parental influence, or improved measurements of the outcome of parental influence.

Practical application could be the education of lower-level classes at universities, specifically, the teaching of sociology classes or courses that focus on sexuality. Both religion and education are integral to the development of opinions towards LGBTQ+ issues, and while this study concluded that frequency of attendance plays a significant role in this development, education may need more development in lower-level social science classes. ❖

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The citation system used in this essay is APA 7th.

ALICIA HARP

THE RISE CLIMATE CHANGE CONSPIRACY THEORIES

Human beings are natural skeptics. We become skeptical or enter a state of denial whenever we are told that we are the cause of something. When it comes to scientific research, we are incredibly skeptical of whether or not to believe the scientific consensuses. We, as a society, are notorious for being skeptical of many claims made by the scientific community, for example, vaccinations, evolution, and many other areas of scientific research. Skepticism itself is not all negative; in fact, it can be beneficial as it entices scientists to examine all claims in order to maintain certainty that there is sufficient evidence to back up their findings. However, there is a fine line between being skeptical of science and simply denying scientific claims all together. Denial can result from scientific findings being delivered in a manner that does not align with how people view certain things. Unfortunately for the scientific community, climate science has been met from initial skepticism to outright denial of climate change's existence.

The denial of climate change as well as human activity as its cause has resulted in the growth of conspiracy theories surrounding the topic. Many deniers believe that climate change is simply a hoax perpetrated by corrupt scientists and politicians. Conspiracy theorists allege that the science surrounding climate change and its cause has been either invented or distorted by scientists and politicians for ideological or financial gain. Conspiracy theorists speculate that the idea of climate change was "invented" for reasons such as higher taxation, control of society's consumption patters, or for a more authoritative government to come into power (Climate Change Denial, 2024). It is certain that there will always be anomalies in scientific research. Some of the arguments raised by climate change deniers were valid points, and these arguments resulted in further research by climate scientists to clarify the results that were initially published. Being that many climate conspirators are climate change deniers and not simply skeptics, once scientists have resolved a problem, deniers will always try to find a new one (Weart, 2011).

Much of the climate disinformation spread in the past, commonly paid for by fossil fuel companies, stated that climate change is a scam or that the threat to humanity is exaggerated.

While these falsehoods are still present today, attacks on climate solutions are becoming more prominent, regardless of who might fund them (Shaprio et al., 2023). Some of the solutions for climate change have been presented in the form of renewable energy like solar power and wind power. Conspiracy theories regarding wind turbines are being spread claiming that they can cause cancer or birth defects in animals. The concept of "15-minute cities," a city where amenities can be easily accessed by a short walk, have been proposed as an idea to fight climate change. As they typically do, conspiracy theorists believe that this concept is simply a way to restrict people's freedom or to trap them in an "open-air prison" (Shaprio et al., 2023). The conspiracy theory that climate change is a hoax perpetrated by corrupt scientists and politicians has begun to creep into other conspiracies regarding climate solutions. This presents a big problem for climate scientists and those who want to slow climate change. The misinformation spread by politicians, fossil fuel corporations, and deniers makes finding a solution to this problem nearly impossible.

Many of those who oppose or deny scientific consensus likely have reasons for their beliefs. Whether they be shaped by religious or ideological beliefs, there is typically an underlying root to how one encounters scientific agreement. The reasons for climate change deniers' reasoning can be placed into two categories: religiosity and political affiliation. Regardless of their reasonings, both groups deny the scientific consensus and may strive to disprove or strike doubt in those who do affirm the existence of climate change.

The correlation between people's beliefs in climate change and their ideology, religiosity, and cultural beliefs has been demonstrated in many studies; the same goes for one's belief in evolution and the Big Bang. Kenneth Miller, a biology professor at Brown University, notes that if we posit that people's core beliefs are the problem and proceed to attack them, disregarding the culture they stem from, failure is inevitable (Vaidyanathan, 2014). Instead of attacking these beliefs, Miller references certain ties between science and religion to demonstrate the possibility for the two to coexist and inform each other. For instance, Georges Lemaitre, the scientist who laid out the mathematical principles for the Big Bang, also happened to be a priest. Another instance of science and religion coexisting is demonstrated by two popes who have expressed their beliefs in evolution (Vaidyanathan, 2014).

Photo by Markus Spiske

Although it has been shown that it is possible for religion and science to coexist, many Christians do not believe in some scientific claims. With Christianity being the dominant religion in the United States, many Christian Americans do not follow the scientific consensus around climate change, including that human activity is its cause (Barone, 2022). Among the many Americans who are devoted to religion, about 61% are climate skeptics (Barone, 2022). These religious climate skeptics either believe that the Earth's warming climate is caused by natural patterns, or they feel the scientific evidence stating that climate change is a result of human activity is unconvincing (Barone, 2022).

A report on the survey by the Pew Research Center states that "highly religious Americans are more inclined than others to identify with or lean toward the Republican party" (Barone, 2022). A majority of United States Republicans follow a Christian denomination, whether that be Catholicism or Protestantism. Therefore it does not come as much of a surprise that a majority of climate change deniers support the Republican Party. Included in the report by the Pew Research Center, Republicans are notorious for being less likely to believe that human activity is warming the Earth compared to Democrats, and they do not consider climate change to be a serious problem for the country (Barone, 2022).

Climate science was not always as political as it is today (Runciman, 2017). Politicians saw this issue as a means to gain support for their party. Democrats affirm that climate change is an issue, with approximately 78% seeing it as a major threat to the well-being of the United States (Tyson et al., 2023). Conversely, a majority of Republicans do not view climate change as a major threat; in fact, only about 23% view the matter as a serious issue (Tyson et al., 2023). Members of the Republican Party are constantly trying to refute the issue and the scientific evidence supporting it. There was a consistent theme among the Republican Party and the presidential candidates for the 2016 election that human-caused climate change is a "hoax" created by enemies of the United States. While the presidential candidates were divided on a multitude of subjects, climate change was not one of them; in fact, none of the Republican candidates were willing to take the issue seriously (Runciman, 2017). Most Republicans, approximately three-quarters of the party, see the economy as a more important priority than climate change.

As noted above, the belief that climate change is a hoax is most popular among supporters of the Republican Party. Many politicians affiliated with the Republican Party, like Donald Trump, have released numerous statements and claims that climate change is not a big deal and "may affect us in 300 years" (Montanaro, 2023). Referencing times from their youth where talk of global cooling became popular, they see this as valid reasons to discredit stories regarding global warming and climate change (Runciman, 2017). It is fair to assume that many may be skeptical of the scientific consensus due to the constant change in terminology. Going from global cooling and global warming to climate change and global heating now,, deniers may see this as a means of scientists trying to keep up their "hoax" or charade. Many, claim, like my father for example, that the change in terminology is simply a means of justifying the scientific consensus when it gets "disproven."

New York Times reporter Paul Krugman wrote in an article that the terrifying political and climate news correspond with one another. He ask "Why, after all, has the world failed to take action?" and "Why is it still failing to act even as the danger gets ever more obvious?" (Krugman, 2019). While there are a variety of answers to Krugman's questions, one of the most prominent factors is thought to be America's Republican Party. According to Krugman, the Republican Party is the world's only major climate-denialist party. Prior to Republicans' cries that everything is "fake news," they refused to accept scientific claims that did not align with their political preferences. Krugman states that "climate denial was, in many ways, the crucible for Trumpism." Before they began to assign blame for any negative development to the "deep state," they were insistent that global warming as a hoax perpetrated by a "vast global cabal of corrupt scientists" (Krugman, 2019).

The answer to Krugman's question, "Why have Republicans become the party of climate doom," involves money: "In the current cycle, Republicans have received 97% of political contributors from the coal industry, and 88% from oil and gas" (Krugman, 2019). Greenhouse gas emissions, caused by human activity, are the main contributor to the damage done to Earth's climate. The majority of greenhouse gases stem from the use of coal and oil. Taking these facts into consideration, it is to be expected that oil, gas, and coal companies are also major climate change deniers. Whether their disbelief in the scientific consensus is due to the science or due to the fear that their businesses will suffer if climate policies are put into place is still up for debate. ExxonMobil, one of the world's dominant oil companies, has known as early as 1981 that their business practices were harming the global climate (Goldenberg, 2018). Disregarding this knowledge, they proceeded to spend millions in promotion of climate denial (Goldenberg, 2018). The Republican Party, as well as coal, oil, and gas companies, are essentially working together to spread disinformation and promote climate denial.

In terms of the news media, it comes as no surprise that much of the misleading claims regarding climate are predominantly spread on the political right (Shapiro et al., 2023). News media outlets like *The Daily Wire*, *The Daily Mail*, *The New York Post*, and FOX News, along with Republican spokespeople like Joe Rogan and Alex Jones, are a few of the main contributors to climate disinformation. Tucker Carlson, one of the previous hosts of FOX News, made unsupported claims regarding dead whales washed ashore on New Jersey, New York, and Massachusetts beaches to spread disinformation regarding climate solutions like wind turbines: "The government's offshore wind projects, which are enriching their donors, are killing a huge number of whales, right now" (Shapiro et al., 2023) Carlson's false statements contribute to some of the conspiracy theories surrounding climate change solutions and further the denial and distrust in scientists.

Regarding news media on the political left, much of the media produced is more informative in content, while also working to debunk some of the fake news spread by the political right's news outlets. It is tricky, however, when it comes to debunking some of these claims as such efforts can result in the opposite outcome that news outlets are trying to achieve. When debunking these falsehoods, reporting on them can bring more attention to the false claims itself, resulting in added skepticism of the scientific consensus and the work scientists are doing to help solve the problem (Shapiro et al., 2023).

When it comes to evidence both for and against climate change conspiracy theories, the evidence against the theories far outweighs the evidence supporting them. A scientist at the Lawrence Livermore National Laboratory, Benjamin Santer, stated in 1995 that "the balance of evidence suggests a discernible human influence on global climate" (Vaidyanathan, 2014). This marks the first time that the International Scientific Organization had linked human activity to the climate changing. Following Santer's statement, he became the target of attacks from climate change deniers. Being accused of political tampering and scientific cleansing, his research funding had been questioned by a Republican Congress. Ever since the release of his statement, Santer took the duty of presenting scientific evidence and debunking the anti-science propaganda surrounding climate change (Vaidyanathan, 2014).

What incentive would Santer have in presenting the scientific evidence regarding climate change? If there are any incentives, do they outweigh the backlash he has received from these statements? Following Santer's 1995 statement, he became the victim out countless attacks from climate change deniers. Undergoing an extreme amount of harassment online, as well as receiving death threats from deniers, Santer does not have much to gain compared to the consequences. Santer has gained virtually nothing but threats from the public as a result to his research.

There have been a multitude of malpractice allegations against the climate science community. "ClimateGate," one of the most notable allegations, was an email controversy involving the Climate Research Unity (Climate Change Denial, 2024). An investigation was launched with eight different committees investigating these allegations and publishing their findings. Each of the eight committees found no evidence of fraud of scientific misconduct in the emails, and the scientific consensus regarding climate change being a result of human activity remained unchanged. However, similar to what conspiracy theorists did with the so-called PizzaGate theory, conspirators dug through the emails and detected patterns and "code words" that they alluded to scientific tampering and corruption (Climate Change Denial, 2024).

Again, what motive would scientists have to put out false claims regarding the global climate? The detrimental effects of climate change would impact everyone, including climate scientists. The rising prices that may result due to some of the climate solutions being proposed would impact the climate scientists as well. As stated in the earlier portion of this essay, anomalies are certain to occur in scientific research. Scientists are human, and humans make mistakes; the difference is that scientists work to fix these mistakes and publish their findings as speedily and accurately as possible. Climate scientists have no intent of behaving nefariously at the fate of the public.

The idea that the climate was changing and that human activity was at the center of it was not immediately accepted by climate scientists either. Many climate experts were initially skeptical of the theory, and it took a lot of evidence before they were gradually convinced that human activity was the cause (Weart, 2011). Presently, the scientific consensus is clear: over 95% of climate scientists agree that human activity is the leading cause to climate change ((Runciman, 2017). The climate is warming up in places where it is typically freezing, and cooling down in areas where it is typically warmer. Icebergs are melting and causing a rise in sea levels, new record high temperatures are being announced virtually every year, and natural disasters are occurring in places they have not typically occurred. There have been reports of tornadoes touching ground in Florida: Texas has seen freezing spells causing state-wide power outages, these events are not normal in these places whatsoever.

As the years go on, climate change is only going to become increasingly problematic. With the lack of trust wide sections of U.S. society have towards scientists, it will be difficult to "wake people up" to the realities of the situation. Climate change, among other scientific theories and consensuses, has two main enemies: the Republican Party, and gas, coal, and oil companies. Despite the overwhelming amount of evidence and scientific research provided, people still look for reasons as to why they believe climate change is a hoax. Whether it be due to religion, political power, or monetary gain, there are people and groups that strive to "disprove" the scientific consensus. There is, however, hope with the younger generations as they are more inclined to listen to the science and take action in helping the Earth and its climate. Scientists must work hard to instill trust within to society, but it is a big task given the denial from both citizens and political leaders. Hopefully, we will able to come together and ultimately solve this issue before it is too late for humanity. ❖

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The citation system used in this essay is APA 7th.

BUSINESS & COMPUTER INFORMATION SCIENCES

Photo by Lucie Liz.

NADIA SIMMONS

THE BUSINESS OF THE WNBA: THE LIVES AND PROFESSIONAL GROWTH OF WOMEN ATHLETES IN AMERICAN BASKETBALL

ABSTRACT

The Women's National Basketball Association (WNBA) is an organization for women pursuing a professional basketball career. Ever since its establishment in 1996, it has taken steps to empower female athletes at the professional level. However, despite those steps taken, the league faces structural inequities that revolve around gender, race, sexual orientation, and other axes of identity. Over the years, these inequities have been compared to those in the National Basketball Association (NBA), the WNBA's brother organization, and the experiences of professional male basketball players. These shared inequities allow for an equivalent comparison based on gender since both leagues are paying athletes to play competitive basketball around the United States. This paper will explore inequities within women's basketball, and the WNBA specifically, from its historical beginnings to the present day. It will also compare current inequitable working conditions to the men's basketball league. Some challenges that will be examined are salary gaps, insufficient media coverage, lack of financial and material support, and prejudicial behaviors specific to women employees. The paper will propose solutions that would eliminate inequities and offer suggestions that will help the league prosper. The overall purpose of this research project is to explore what it means to play in the WNBA, a league lacking resources and other necessities to function at its peak. I hope that by doing so, this information will shed light on the WNBA and help articulate solutions to long-standing issues that affect women's basketball and female athletes in particular. This, in turn, will lead to an inclusive environment for generations to come.

Keywords: *WNBA, Inequities, Gender, Basketball, Race*

Caitlin Clark playing for Iowa on February 28th 2024 at the Williams Arena in Minneapolis, Minnesota.
Photo credit: John McClellan via Wikimedia Commons.

1. INTRODUCTION

The Women's National Basketball Association (WNBA) is a sports organization in the United States that advocates for women's basketball. The league gives women who are age twenty-two and up an opportunity to extend their careers at the professional level. Although female athletes are presented with these opportunities, they face disparities compared to male athletes, including structural inequities that revolve around gender, race, sexual orientation, and other axes of identity. These struggles make it hard for the league's players to compete at their fullest potential.

In this thesis, the WNBA will be compared to the National Basketball Association (NBA), the men's league. The men's organization was established in 1949, many years before the WNBA's founding in 1996 (Martin, 2023). Since its establishment, the NBA has seen nothing but growth. Over recent years, inequities faced by women players in the WNBA have been compared to the conditions of NBA players. These comparisons allow us to identify a range of inequities based on gender, since both leagues are paying athletes to play competitive basketball around the United States.

Although the leagues have their differences, they are not responsible for all of the issues that will be identified in this paper. Some of these inequities have been carried through history and are caused by societal views on gender, race, sexual orientation, and other axes of identity. Throughout time, society has assigned behavioral roles to individuals based on their identity. Because this is the way society determines how certain groups of people act, it can be challenging for people to excel in domains they have previously not engaged in.

Despite all this, the WNBA is continuing to inspire and empower people around the world through the sport of basketball. With its high level of competition and commitment to social justice as well as women in sports, there are high hopes for the league. But there are still inequities that need to be overcome for the league to thrive at its utmost potential.

2. THE BUSINESS OF THE WNBA: THE LIVES AND PROFESSIONAL GROWTH OF WOMEN ATHLETES IN AMERICAN BASKETBALL

2.1 The WNBA

The WNBA, as stated before, is a professional league for women pursuing a career in basketball. The league has been successful in its intent to give women a job like their male counterparts in the NBA. But the league has been characterized by struggle since its beginnings (Mannen, 2021). The league is failing tremendously because of the lack of money and representation which ultimately leads to other failures. Because of these compounding hardships, it makes it nearly impossible for the league to thrive at the NBA's level. But the WNBA is not to fully blame for this. Society plays a major role in these failures because, as Dr. Brittany Jacobs, an Associate Professor of Sports Management at American Public University, states: "Despite many advances over time, gender inequality and sex discrimination are still rampant in sports" (Jacobs, 2024, para. 1). As a result, today we see that the majority of society does not support the league or contribute to its success. Although women have earned more rights over the centuries due to improved laws and regulations, society continues to overlook the greatness of women's athletics. In this paper, I will look to compare these areas of disparities between the NBA and WNBA. I will also validate areas of inequality among society and those directly in the league.

3. LITERATURE REVIEW

While researching, I discovered that there is limited scholarly work around women's basketball and its evolution. Although this is the case, I did find a book written in 1996 by Joan Hult on women's basketball and its struggles. Hult is an alumni at the University of South Carolina, where she received her Ph.D. in sports history. After this accomplishment, she joined the Department of Physical Education for Women at the University of Maryland. As for her professional work, she focuses her writing on sports history and the philosophy of sport. Hult's book, *A Century of Women's Basketball from Frailty to Final Four,* is one of the earliest scholarly books that examines all aspects of women's basketball, including governance, the Olympics, basketball, and Title IX issues. For example, Hult mentions that female athletes were restricted from physical play in the first half of the twentieth century. She writes, "The middle class and college women of the era (1920-1930) still had role restrictions mandating only sporting experiences that had historically been acceptable. Basketball, however, fit into the category of acceptable recreational sport because rule modifications restricted physical contact" (Hult, 1991, p. 30). These restrictions were seen a lot during this time, and many wrote on the matter after the release of Title IX when more articles about women's basketball and women's place in society with sports appeared.

Over the next few years, there was a wave of publications about women's athletics as a whole, especially those related to Title IX. These writings have illustrated the struggles women have faced when wishing to participate in recreational, high school, or collegiate sports. For example, another writer, Heather Ross Miller, a relatively well-known novelist, wrote about the experiences of women basketball in 1992. According to Ross Miller, women have always been restricted in pursuing athletics. This was seen in 1957 with women's basketball, where women were limited to playing with fewer players and were restricted to only one-half of the court. They were desperate for change, and the issues they raised were bigger than basketball (McFall & Perkiss, 2022). Yet, another writer speaks out on the differences within women's sports.

Through the next ten years, specific issues have begun to come to light through various research endeavors. These issues now not only reference women's basketball and Title IX, but the professional Women's Basketball Association, also known as the WNBA, and its struggles. Two university students looked at women's basketball on the global level. They specifically analyzed the impact players had globally because of their time spent overseas. Although that was the objective, the research yielded the insight that over one hundred WNBA players from the U.S. and elsewhere compete abroad during the off-season to supplement their incomes (Berber & Turco). This was one of the few documents that showed basic yet big issues that WNBA players are experiencing. Between this time (2010-2015), more previously unacknowledged disparities were coming to light. Therefore, there was a lot more writing concerning this matter.

It wasn't until very recently that there have been a few selected scholarly sources around women's basketball and the WNBA with regards to ongoing inequities. These sources have highlighted the attention women's sports and basketball receive, the amount of income the league is receiving, along with the lack of representation. It also addresses important issues such as discrimination, gender equity, less pay, sexual harassment, and sexist questions in media coverage, but does so on the surface level.

In addition to research on inequities, you can also see a lot of comparisons between male and female athletes in these sources. There has even been more information on the matters of comparing similar leagues playing the same sport, in this case, the WNBA and the NBA. For example, the two charts below give great insight into the pay inequities between male and female athletic figures. These two charts were developed at Adelphi University by students completing their masters in sports management. In the first chart, they analyzed the pay of top-paid athletes based on gender. The second chart only looks at the WNBA and the NBA and compares the two. The two charts' purpose is to see the inequities in pay to athletes based on their gender. Based on the charts, female athletes are being paid less to do the same job or sport as their male counterparts.

	2012	2022
Male professional athletes in boxing, basketball, golf, soccer, tennis	Floyd Mayweather, $85 million Manny Pacquiao, $62 million Tiger Woods, $59.4 million LeBron James, $53 million Roger Federer, $52.7 million	Lionel Messi, $130 million LeBron James, $121.2 million Cristiano Ronaldo, $115 million Neymar, $95 million Stephen Curry, $92.8 million
Female professional athletes in tennis, race car driving, skiing	Maria Sharapova, $27.1 million Li Na, $18.4 million Serena Williams, $16.3 million Caroline Wozniacki, $13.7 million Danica Patrick, $13 million	Naomi Osaka, $51.1 million Serena Williams, $41.3 million Eileen Gu, $20.1 million Emma Raducanu, $18.7 million Iga Świątek, $14.9 million

Table 1: Income earned with endorsements by top-paid athletes. *Note*: Data from Adelphi University that illustrates a comparison of Male vs. Female Professional Sports Salary. *Source*: Adelphi University (men 2012, 2022; women 2012, 2022).

	2002-2003	2012-2013	2022-2023
NBA	Minimum salary: $349,000 Maximum salary: $25,200,000	Minimum salary: $474,000 Maximum salary: $27,849,149	Minimum salary: $953,000 Maximum salary: $45,780,966
WNBA	Minimum salary: $30,000 Maximum salary: $79,000	Minimum salary: $36,570 Maximum salary: $105,000	Minimum salary: $60,000 Maximum salary: $234,936

Table 2: NBA vs. WNBA Salaries. *Note*. Data from Adelphi University that illustrates a comparison between NBA and WNBA Salary. *Source*: Adelphi University (NBA, WNBA)

In sum, my purpose for writing this research paper is to explore the discriminatory problems within the WNBA. So far, scholarly research has lacked the ability to explore all areas of disparities and has not suggested solutions for these problems. As for my paper and research, I will inspect the inequities faced by members of the WNBA based on gender, race, sexual orientation, and other axes of identity. I will explain why some of these inequities are the way they are, which reflects on societal history and then, finally, I will explore new avenues for the league to create a better and safer environment which can ultimately grow the league and its presence in society,

In this thesis, I will explore avenues of growth for the league. As the league struggles holding on to its presence in society, I will make suggestions that can help broaden the organization. According to previous research, it takes an organization anywhere from seven to ten years to truly be successful (FreshBooks, 2023). Therefore, when you consider the establishment of the league, they should be flourishing, but yet there are still many problems.


University of California-Berkeley women's basketball team, photographed in 1899. "Berkeley's Famous Basket Ball Team," *San Francisco Call*, 9 April 1899, p. 24. Photo

One of the biggest problems that has prevented the league from reaching its potential is the overall lack of awareness of the athletes' struggles. Much of society is unaware of news around and actions taken within the WNBA, and some of this is due to inequity issues and societal beliefs. Through this paper I will explore the causes for and effects of this. An example of this is that society might not be aware of the league because of the sparse media attention it receives. Awareness is one of the bigger issues that need a solution which this paper will discover.

4. HISTORY

4.1 Phase 1: The Beginnings (1892-1972)

Women's basketball officially began in 1893. It was on March 22, 1893, that the first women's basketball game was documented. This game took place at Smith College in Northampton, Massachusetts, a Division-III college program (History, 2021). This prestigious program was geared towards unmarried upper-class white women, and these women made up the team. This game consisted of two halves, each fifteen minutes long. In addition, each basket was worth only one point, which is very different from the rules of present-day women's basketball. The rules of women's and men's basketball were the same from the start, though.

The sport of basketball had been developed just two years prior by a Canadian named James Naismith, a second-year graduate student at Springfield College in Massachusetts. He had recently been appointed to be a physical education instructor and his love for sports sparked his curiosity to construct the game of "basket ball" (Klein, 2004). In 1891, the game was considered a "bloodbath" because of the sport's high degree of contact. Because of its physicality, Naismith wanted to reorganize the game in a more "respectable" and more structured manner; therefore, he established thirteen rules. These rules were developed to create greater order and organization within the sport. One of those rules, for example, said:

> Rule #5: No shouldering, holding, pushing, tripping, or striking in any way the person of an opponent shall be allowed; the first infringement of this rule by any player shall count as a foul, the second shall disqualify him until the next goal is made, or, if there was evident intent to injure the person, for the whole of the game, no substitute allowed. (Klein, 2004)

One thing that is striking is that, according to rule #5, there exist the second and third infringements. According to this rule, on the second infringement a player is disqualified until the next goal. Or if there is evident intent to injure a player, there is no substitution allowed after the fact. This is in contrast to today's game for both men and women. If this were the case, then a player would be called for another foul and if there were intent to injure a player, then that player would be ejected from the game and there would be no effect on substitutions made.

When women began participating in "basket ball" in 1893, they were required to be dressed in


James Naismith, the inventor of basketball. Photo credit: Wikimedia Commons

Smith College's class of 1902 women's basketball team. Note the bloomers. Photo credit: Wikimedia Commons.

blouses and bloomers, loose pants gathered under the knee, for the games (*First women's*, 2021). The idea behind these uniforms was to preserve the players' femininity. This was because middle-class women, in these times, were supposed to be seen as relatively physically powerless, and they had to preserve a certain image of "frail" femininity. It also did not help that in the late 1800s and early 1900s, society frowned upon women who participated in sports, especially those sports as physical as basketball. Therefore, to keep the feminine order, they were mandated to wear the frilly attire of blouses and bloomers. These mandates did cause issues for women athletes, especially during play: "Players would trip and bruise, further fueling the trope that women were too frail or weak to play" (Grundy, 2024, p. 7).

These ideas lasted for many years until the rebellious 1920s when women began to take a stand against the clumsy attire. But, until then, their physical activity was performed in blouses and bloomers, all because they were told to put modesty over performance and practicality by a male-dominated society (Ambush, 2024). To people of that time, women's femininity needed to be preserved, and society listened.

Around the turn of the century, more women started to seek involvement in physical activity, and they began to form informal athletic clubs to feed their competitive nature. This eventually led to the establishment of the National Women's Basketball Committee (NWBC) in 1905 (NCAA). This committee advocated for women's physical exercise through basketball in all aspects. The NWBC even collaborated with the American Physical Education Association to promote athletics and physical activity for women in schools. This integration was not only for the sake of women seeking equal rights and having fun, but for health benefits as well. Physical activities were seen to create a healthier population. Before middle-class and upper-class women won the opportunity to participate in athletics and physical activities, statistically speaking, they were, in fact, weaker and more frail (Riess, 2015). So, sports were offered as a way to increase health and help women live longer and have healthy offspring.

Although the importance of women's basketball slowly grew towards the end of the nineteenth century, particularly among collegiate women, there was not much wider societal attention paid to it. Because of this, women supported themselves throughout their athletic careers. For example, women players would be told they had to wear the same game uniform every year, no matter how worn the uniform was. On the other hand, men's teams were told they had to look fresh and clean, and that resulted in them receiving new uniforms every year, no matter the conditions of the previous ones (Grundy, 2024). This was just one incident of obvious under-resourcing of women's basketball before the passing of Title IX made slow progress towards equality a century later. But until then, women players were on their own and had to fend for themselves.

It was in 1920 that some of this progress began. In the '20s, many women questioned society's patriarchal standards and embraced a life viewed by many at the time as outrageous, immoral, or downright dangerous (*Flappers*, 2018). It was a rebellious period for women in the sport of basketball, too. After the rise of so many nagging inequity issues within the sport, women athletes began finding ways to improve the overall experience of being a basketball athlete. For instance, women began sewing their own uniforms once they were worn to pieces. In addition, they sought a new custom in bottoms for games because the puffy bloomers hindered movement. Their innovation consisted of shorts which became a part of the new standard uniform. Shorts offered greater and easier access to mobility which, maybe unsurprisingly, caught lots of audience attention. To give an idea, once women were wearing shorts, men found it visibly pleasing (Grundy, 2024). Most men loved the new look because they saw the attraction of the view it offered. This perspective of thinking by men increased attendance numbers to games, but obviously for the wrong reasons. Men were not there to admire the talent or athleticism of these women, but were there because of the athletes' appearance.

Early women's basketball was a man's sport. But over time, women have turned it into their own, and the sport has developed into something more inclusive. For instance, shortly after the first women's game at Smith College, many other women's college basketball programs developed across the U.S. Schools such as Iowa State College, Carleton College, Mount Holyoke College, and Sophie Newcomb College (Tulane) in New Orleans each adopted basketball into their programs. Additionally, each year more schools added women's basketball to their sports offerings for girls (Lewis, 2008). Although this was tremendous progress for women in athletics between 1920 and 1970, the greatest change to the game came with Congress's passing of Title IX in 1972. Before Title X banned sex-based discrimination in sports, only about 30,000 women played at the collegiate level (Cramer, 2022).

Sheryl Swoopes, one of the first athletes signed by the WNBA in 1996, in 2008. Photo credit: Wikimedia Commons.

4.2 Phase 2: The Evolution (Title IX, 1972)

President Richard Nixon signed and passed Title IX in 1972, making it one of the most unforgettable years for women's athletics. Title IX is a federal civil rights law in the U.S. The law states that "no person in the United States shall, on the basis of sex, be excluded from participation, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance" (Cooky & Lavoi, 2012, p. 42). In summary, this law promotes equality by legally advocating for women and minorities in college environments. It mandates that all schools and sports organizations provide equal opportunities regardless of demographics. Although Title IX has influenced much of the overall sports world, it has specifically had a significant impact on women's basketball and the 1996 founding of the WNBA.

Before Title IX was passed, physical activities for women were limited in collegiate contexts. Women's athletics received less attention, funding, resources, and support compared to men's sports. These inequalities within athletics made high-level competition difficult for women. For example, only 1% of college athletic budgets went to women's sports programs before the passing of Title IX (King, n.d.). This means that the other 99% were given to support male teams. This became an issue because there was no budget left for women to purchase proper equipment they may have needed. Therefore, they were constantly reusing the same equipment, just wearing it out. But somehow, they were expected to make it work. It was also noted that, at the high school level in early 1972, male athletes outnumbered female athletes 12.5 to 1 (King, n.d.). This only proves yet again that women did not have the same opportunities as men. Before the law was passed, women athletes were not acknowledged as men's equals. So, they did not have the opportunity to be recognized because they were not allowed the chance to participate in all activities, hence the skewed male-to-female ratio.

Since the passing of Title IX, more opportunities have emerged for women. There has been an increase in sports participation, education, and employment opportunities for women and girls. Participation numbers increasing is proof that women want to participate in athletics, and that they want to be treated fairly. Because of this, it is only now that we see institutions investing in their women's athletic programs. They want to ensure that women are provided with good facilities, equipment, coaching staff, and scholarships. These attributes, highlighting institutions' commitment to equality, have also increased women's enrollment numbers in schools. As sports are advertised alongside academics, it becomes an appealing recruitment tool for schools. This, once again, helps grow the numbers of women and girl student athletes.

Lastly, Title IX has increased employment opportunities for women. For example, there have been collegiate and professional coaching opportunities opening up upon the release of Title IX. Women are now able to clearly identify what they can bring to the table and are provided the opportunity to do it. Since these times, many women have taken advantage of these opportunities, and not just upper-class white women. Now, members of minoritized communities are looking to pursue a potential career in athletics and are putting themselves out there for a chance to be a part of history.

Another advocacy platform for women was the Women's Sports Foundation (WSF), founded in 1974. It was established by Billie Jean King in part to protect the athletic dimension of Title IX's provisions. King, former tennis player and champion in the sports world, champion of equality, and champion of social change, created a goal where she wanted people of all genders, but specifically women, to have full access to the sport experience. This led her to build the WSF, and their official mission is to "enable all girls and women to reach their potential in sports and life" (WSF, n.d., para. 10). This organization has gotten more women involved over the years and still seeks to strengthen female involvement in sports today.

Title IX has done so much, but yet it doesn't stop there. It has also paved a way for women to turn their athletic passions into professional careers. Women can now compete for higher levels of competition analogous to how male athletes are supported by their professional associations. For example, this has been seen in women's basketball and its professional association. There have been many players who have achieved great success in college and have moved on to become better players, women, and role models. Today the WNBA gives women the chance to pursue a sports career professionally, allowing them to receive a regular income for exercising their talent.

Despite some issues that are still around today, such as disparities in salary levels and media coverage, Title IX has been a major stepping stone for women and athletics. Title IX has prohibited discrimination on the basis of sex in educational programs and activities. It has improved the overall status of women's sports and women empowerment. It has drastically increased the number of women competing in athletics today by increasing funding and therefore opportunities for women and girls in educational institutions. For example, today there are approximately 229,060 female athletes registered with the National Collegiate Athletic Association (NCAA), a nonprofit organization that regulates student athletics among about 1,100 schools in the United States, and one in Canada.

In conclusion, Title IX has ensured that female athletes receive the attention, funding, resources, and support that they need to operate. Women and girls can now follow their passion, knowing they are entitled to the same recognition as their male counterparts, even if, in reality, disparities persist. Furthermore, today female athleticism has become normalized and celebrated, and that can be seen through the sport of basketball within the WNBA.

4.3 Phase 3: Present-Day Women's Basketball & The WNBA

Title IX impacted the start-up of many women's athletic associations. But a more recent establishment it influenced is the WNBA, founded in 1996 and home to 144 drafted female athletes. Prior to the formation of this league, there was an alternate league called the Liberty Basketball Association (LIBA), created in 1991. The LIBA was a forerunner of the WNBA because it laid out expectations and guidelines towards greater professionalization within the sport. Today's WNBA is a major driver for women's basketball because it gives players career options for the future, that is, if they are good enough to make it and maintain the job.

The league today is composed of twelve teams, each containing twelve players. Although these numbers can not compare to those within the men's league (NBA), which is composed of thirty teams, each of which holds roughly fifteen players, the WNBA has grown overall awareness of women's basketball while empowering women.

Along with the development of the league, present-day basketball has changed drastically compared to the past. It has changed alongside society's changing mores. For example, in the late 1800s, the uniforms were challenging for women to compete in, but during the time heavy and ornamented gear was the norm. It was simply the appropriate attire for the game. But, because of social reforms, women have gained the ability to take a stand for themselves. Also, as the overall game has become more respected over time, women's uniforms began to mirror men's and, as a result, today's players are given the opportunities to choose how they want their uniform fitted. The league ensures the fit is comfortable and made for the player and her personal request.

To place this into perspective, players pick their jersey fit. The jerseys consist of women-specific scapula cuts on the jersey and vents on the shorts. There are also an extensive variety of uniform lengths and short rises that help maximize range of motion and comfort in relation to the player (WNBA, 2018). This Nike-branded apparel wants to compel an image of elite basketball for women while being comfortable and flexible. The WNBA also focuses on the material of the jerseys and its importance. To do this, they look into temperature regulations, while playing the jersey. On the WNBA jerseys, there is an advanced, closed-hole mesh fabric with quick-dry back venting (the pattern and placement were determined by employing digital body maps that evaluated female athletes' primary sweat and cling zones) that helps regulate body temperature and provides optimal moisture control during play (WNBA, 2018). It was even stated by WNBA players that the jerseys over the years have become more distinctive for each team, making them much more meaningful to individual players and organization as a whole. This is a big stepping stone compared to the past because now women are offered the chance to look stylish with their choice of uniform, while also being protected in terms of body temperature regulation.

Since the early beginnings of basketball, many of the rules were differentiated by gender. For example, the women use a ball the size of 28.5'', while the men use a ball the size of 29.5''. The women play two twenty-minute halves, while the men in the NBA play four twelve-minute quarters. The shot clock in the WNBA is set at 30 seconds per possession, while the NBA shot clock starts at 24 seconds. The specific changes within the game have made it more detailed and more specialized for each gender. It's important to recognize the significance of these differences. As suggested by viewership numbers, the NBA has been more appealing because of these factors. In today's society, most audiences enjoy men's faster games, the time pressure, the bigger balls, and the excitement created by acrobatic moves like dunking. This is all seen in NBA, and therefore these features make the NBA more appealing. Even throughout history, it has been proven that America enjoys the rapidity of sports and the emotional appeal it has for the audience. There is a huge adrenaline rush generated throughout the body by the game (Riess, 2015).

On the flip side of this rush are the women's rule. The women's game is much slower and far less appealing, some would argue. But, although this "may" be the case, the game can be appealing due to other factors. For example, women's basketball really breaks down the simplicity of basketball with the shot, the passes, and the dribble. Alongside this, women's basketball does not only represent basketball, but it represents a movement and a celebration of women in sports. Even though either are differences, those differences can be treated as equals.

Although these differences in rules and regulations seem small, they have had major impacts on the game and the league, causing plenty of inequality issues compared to the men's league. Some of these issues pertain to salary, media coverage, sponsorship opportunities, and more. Salary issues have become a trending issue throughout the WNBA in the late 2010s and early 2020s. WNBA players and staff are receiving considerably lower incomes compared to those in the NBA. As for the media, the WNBA lacks widespread recognition of players, teams, and games. Therefore, no opportunities for growth, especially for increasing audience exposure, exist. Lack of sponsorship has also hindered the league and players. Because there are smaller salaries for women in the league, athletes are looking for ways to make a living elsewhere. Sponsorships could be the answer so that players can devote themselves to the game full-time. But there is a limited number of deals, especially compared to those the men receive. These are just a few areas where we can see major inequalities, but there are many more beneath the surface level.

In conclusion, the WNBA has become the prominent professional league for women's basketball. Since its establishment in 1996, the league has experienced remarkable achievements. Although this is the case, there is still much more work to be done to improve the league and the awareness of the game for the sake of women equality.

5. INEQUITIES

5.1 Introduction to the Inequities between Female and Male Basketball Players

Inequities are the disparities in treatment, opportunities, and resources that are given to one group or individual over another. These decisions are made in favor of one group based upon characteristic attributes. Some of these characteristics might consist of race, age, sex, as well as many others. With regard to women athletics, female athletes have faced these inequities since the beginning of sports history, and much of it had to do with them just being women. One would think that with creation of Title IX equality would be present, but there are still ongoing issues today. Some of these inequity issues, especially those related to gender, have been seen throughout the WNBA and their establishment.

With gender inequality being a leading issue within the WNBA, the league highlights imbalances that are present

Maya Moore of the Minnesota Lynx, MVP of the 2014 WNBA season. Photo credit: Wikimedia Commons.

between men and women in professional basketball, in this case, the NBA over the WNBA. The NBA has been given better treatment, more opportunities, and more resources because it's a men's league, and the women have received less based on who they are. Not only have there been inequities between men and women outside of the league, but the WNBA itself has had its gender inequality issues.

Concerning women's and men's sports, the two can not be compared equally due to the level of disparities that are present. The men are significantly given better treatment, opportunities, and resources. Their league has been a reflection of that. Although there are many more contributions to the success of the NBA, the league is far surpassing the women's league. Although the NBA is given more, some teams do work to help and partner with WNBA leagues to assist in growing their franchise. But, this doesn't eliminate the inequities that are still there.

Layshia Clarendon, the first non-binary WNBA player, in a game against the Minnesota Lynx in 2019 when they played for the Connecticut Sun. Photo credit: Lorie Shaull via Wikimedia Commons.

5.2 Women in the WNBA

The WNBA is a very diverse community, especially among the players. The league is filled with a tremendous number of stars that come from various backgrounds and who represent themselves completely differently from each other. As stated before, the league consists of 144 players at most, and each individual brings their unique characteristics to the organization. The league underlines these diversities from several key perspectives that are recognized as race, gender identity, and sexual orientation. These are priorities in the face of diversity because they are visible issues in society today and not just within basketball. Therefore, the attention around the them is brought to light.

First, the WNBA is racially diverse and, although there is a leading majority, there is still variety. In 2022, the league was made up of 70.3% African American players (WNBA Players by Ethnicity 2022, 2022). In the game's early history, Black women rarely had the access or luxury to play sports. It was disapproved of and much of society was not a fan of Black athletes. However, Black women still embraced competitive sport and particularly basketball (Munro-Cook, 2021). This could have been influenced by the accessibility of the sport. As we can see today, there is a positive female sporting tradition that emerged among Black athletes in the 1950s, and soon these athletes were less constrained by feminine ideals of weakness (Munro-Cook, 2021). Yet once again, early history did not approve of that.

Alongside the African American women in the league, there are 18.9% white, 5.4% mixed-race (two or more races), 2% Asian, 2% POC, 0.7% Hispanic, and 0.7% unknown-ethnicity players (WNBA Players by Ethnicity 2022, 2022). Although there is a leading majority of Black players, the league is very diverse and it proudly emphasizes this diversity. For example, WNBA team Washington Mystics, established in 1998, makes it their mission to promote diversity, equity, and inclusion, along with other teams. The WNBA does not limit itself to its diversity inside the league, but looks to "connect communities and create a space where remarkable resilience, innovation, creativity, and agility can be exemplified by people at every level" (WNBA, 2024).

Another remarkably diverse status among athletes within the WNBA are players' self-identified genders and sexual orientations. This is important because the league has recently placed much emphasis on this concept as they represent their players' identities. This is because so many players are open about it and because of current societal debates on issues of sexuality and gender. The league consists of a mixture of heterosexuals and homosexuals, and it has recently had its first trans non-binary player come out in 2021. It was just in the 2022 season that the WNBA had reported 28.7% of WNBA players who publicly identify as LGBTQ (Stuart, 2024). There is no other professional sports league in the world that has more publicly "out" LGBTQ athletes, coaches, and executives than the WNBA, making them a real trailblazer (Zeigler, 2024). Just like the Black Lives Matter Movement, the WNBA makes sure they represent these communities of players. They do this by supporting it on warm-up t-shirts, hosting Pride events, parades, and more.

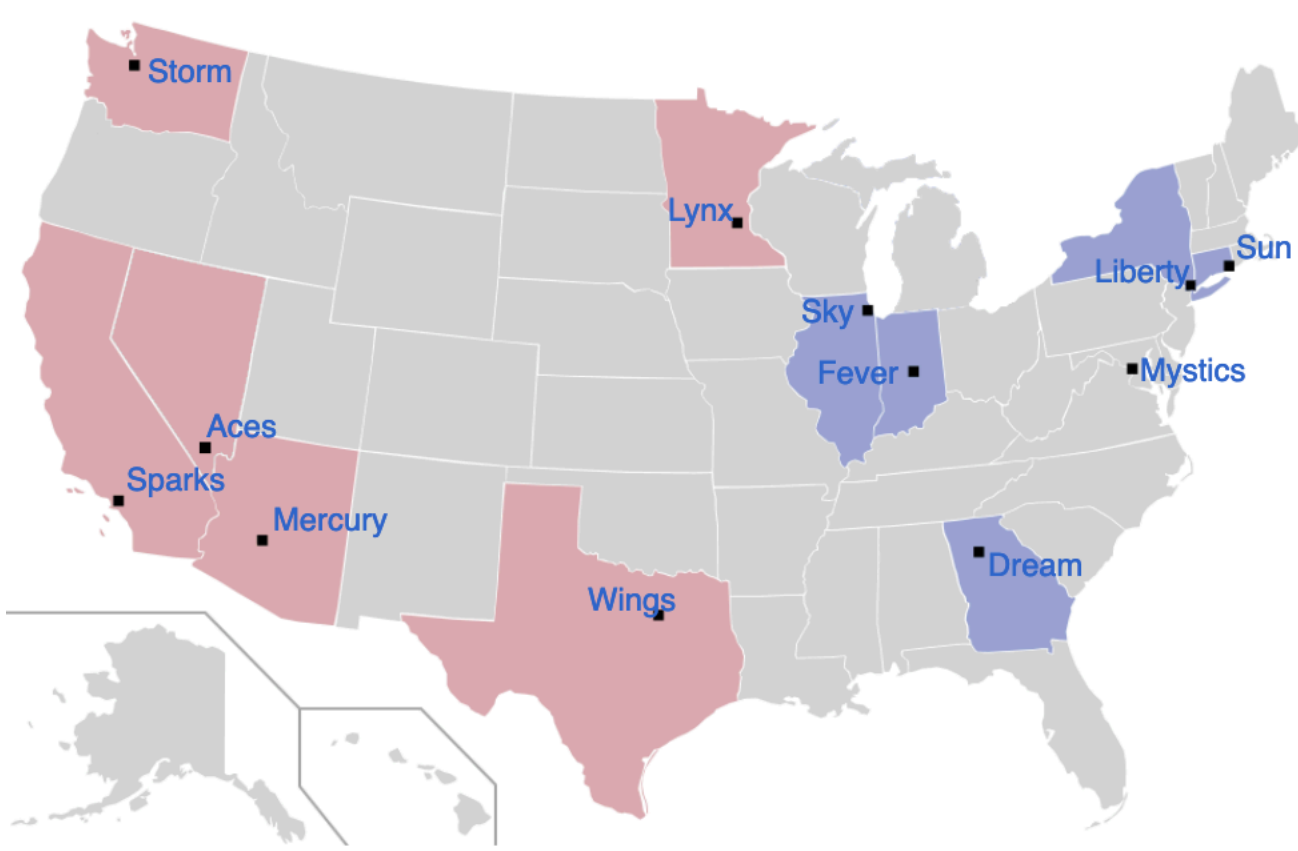
In summary, the WNBA is a diverse league full of players that represent various races, ethnicities, and gender and sexuality backgrounds. Not only does the league work to showcase these differences, but individual teams throughout the league embody these ideas of diversity and inclusivity to empower their players and communities. Studies show that a diverse workplace helps bring benefits to an organization or team. Some of these benefits consist of attracting and retaining talent, boosting a company's reputation, enhancing decision making, and more (Washington State University, 2020). In saying this, diversity impacts the operations of the WNBA and gives them a stepping stones to further success. A diverse organization can boost a company's reputation, and for the WNBA this could mean increasing their audience attraction and bringing more notice to the league.

5.3 Size of the League

The WNBA is one of the smallest leagues at the professional level in the United States. It originally started with a total of eight teams in 1996, but now the league is composed of a solid twelve. These numbers are devastating when you compare them to other professional leagues. As an illustration, the NBA has a total of thirty teams, the National Football League (NFL) has a total of thirty-two teams, and the National Hockey League (NHL) has a total of thirty-two teams as well. The only sister pack with the WNBA is the National Women's Soccer League (NWSL) with twelves teams (NWSL, n.d.). This is yet another women's league which gives an idea of how men are dominating the professional world and leagues.

The WNBA also has a full roster of 144 players. This only allows for each team to have a roster of twelve. This small number of available spots makes the league very competitive and challenging to access, especially for incoming players. For instance, when the draft is held, there are a total of thirty-six players who are drafted over three rounds (WNBA, 2023). This is a huge chunk of players added to the league, which means that some have to go because the capacity number for the league tops out quickly. Therefore, some players, new or old, lose their job and team membership, which can make this career less suitable for women who are competing athletes because they can not plan long-term. But as players get drafted each year, they must compete to be one of the standing 144, and, if not, they must find another alternative, making being a professional player very precarious.

In comparison, the NBA has a capacity of 450 players in the regular season. This allows for each team to have a roster of fifteen per team. This grants incoming and current players a greater opportunity to compete for a roster spot. Due to the fact that the league is so big, this also increases draft numbers. The NBA drafts roughly sixty new players into the league every year (Corr, 2023). Although players are still



fighting to compete for a spot, the chances of entering the league and getting a spot are higher in comparison to the WNBA. This alone is proof that the NBA offers more opportunities for men pursuing a professional career in basketball, competed to women who want the same career. These differences between the leagues help outline some reasons for why the league is producing players at the current, very low, level.

When looking at the size of the league, it has its reasons for being maintained this way. Studies show that the WNBA is not producing enough revenue, which makes it harder to develop teams and pay more players to play. The WNBA brings in a total of $60 million in revenue each season (Janvrin, 2023). Even though this number sits high, it's not enough for the league to fairly remunerate female players for the talent they bring to women's basketball. The challenges with revenue even go further. Some of these factors are low media coverage and the lack of marketing investments. This all makes it harder to get the WNBA brand out there and produce revenue, including through ticket sales and merchandising. This is another evident piece to why the league is as small as it is.

A few years ago, there was NCAA Division-I player of the name Raina Perez, a standout at North Carolina State. She announced that she would attempt to compete in the WNBA league if given the chance after she graduated in 2022. After starring in college and nearly guiding North Carolina State to the year's Final Four, Perez hoped that she would make the league and continue her dream of playing professionally. But with the league being so small, she knew the chances were slim when looking to start a purposeful career in this competitive league. Perez stated, "I've dreamed of playing in the league since I was a young girl." Perez, at the time, was 23 years old: "I found out this year just how hard that is. No matter how good you are, you've got to find a situation that is just right" (Streeter, 2022). Unfortunately, Raina Perez went undrafted and had to look for other options to make a career for herself. She was tossed around through the league as a free agent, that is, a sports player who is not bound by a contract and so is eligible to join any team, but nothing stuck. This eventually led her to pursuing a career overseas in Italy, which is the result for most young talented female athletes wishing to enter the league.

At the end of last year's WNBA season, the league did show signs of expansion for its players and rookies. It was announced in 2023 by WNBA Commissioner Cathy Engelbert that the league would be looking to expand to the Bay Area (NBA, 2023). They are looking to create a new team that will begin playing in the 2025 season, making it the first new franchise to join the league since 2008. This team would be a

Raina Perez starting for NC State in 2021. Photo credit: NC State University sister team to the NBA franchise team, the Golden State Warriors. This means that they would be marketed together and work together as one to grow each other's platforms. This success is one step forward for the WNBA, but there is still a lot of unfinished business to complete to make the league suitable for more women looking to compete at the professional level.

Although the WNBA league size is remarkably small, with twelve teams and a total of 144 players, it has contributed to the empowerment of women in athletes and has served as a platform for them in professional sports. Today, the league is very competitive and the best of the best compete, but there should be room for more. There are a lot of skilled female athletes around, but there is just not enough room for them.

5.4 Volume of Money Available

As shown above, most problems addressed have to do with the limited amount of money available to the WNBA. The fact is that there is too little revenue being produced. The revenue creates the funds for the league to invest, spend, and earn. Without this initial start-up of money available, there can be no effort towards growth. Fortunately, since 1996, the league has grown and expanded. This has been because of revenue increases over the years, but the league is still lacking as it only generates $60 million a year for the season (Janvrin, 2023).

The revenue and the money produced within the WNBA come from different areas, such as ticket sales, media broadcasting, and sponsorships. Although there are more areas that produce money for the league, these are key pieces that contribute to the overall volume of funds. Although these areas are great sources of income, there are still shortcomings, especially when compared to the NBA. These shortcomings make the league more difficult to operate and invest into, and, ultimately, constrict it to its current small size.

In 2021, it was recorded that the average attendance for a WNBA game was 6,535 audience members. During the finals and tournament time, the attendance average rose to about 400,000 viewers per game, including viewers joining broadcast feeds (Robinson, 2021). These numbers are important to the revenue being produced because they correlate to the money earned from attendance. For example, when a fan plans to attend a game, they buy a ticket, roughly $47, go to the concession stands, and purchase merchandise (Janvrin, 2023). All of these factors add to the revenue.

It's when you compare the attendance and sales to the NBA that you realize just how completely distant from one another they are. The NBA averages a game attendance of 17,760 each game. During the finals, the number increases tremendously to an average of a little more than 20 million viewers per game, including broadcast viewership (Robinson, 2021). The average ticket price for an NBA game is $94 (Janvrin, 2023). The differences in numbers should make it clear that the NBA has the upper hand, all because of their high game attendance. Higher attendance increases revenue; it's as simple as that. As a result, the NBA generates $10 billion in revenue yearly, and we see that represented throughout its massive league.

The next main source of revenue comes from media broadcasting rights which does not appear to produce much publicity for the league, but contributes an essential piece to the league's finances. The WNBA earns revenue from media broadcasting rights by selling these rights to TV networks and streaming platforms. These deals help expose the league and players to wider audiences, while bringing in a constant cash flow. This is a major win-win for the league because sponsor deals increase viewership, and viewership increases sales, bringing in more revenue. The broadcasting revenue then allows the league to invest back into the players, facilities, marketing, and other areas that help expand it (Janvrin, 2023). Overall, if the league can work to maintain and increase the value of their media broadcasting rights, it can help improve the financial health of the league and make it grow.

One of the last major sources of revenue are sponsorships. Sponsors are supporters who invest in the league and its growth. These sponsorship partners can be varied, as long as they represent an image or message that the league wants them to represent. For example, Nike is a sponsor of the WNBA and a great example. As a sponsor, Nike provides funding and gear to the league, while the league showcases Nike. It is a logical sponsor, given that its mission is "to bring inspiration and innovation to every athlete in the world" (Nike, 2023). So, therefore, Nike is reaching its female audiences by showcasing its sporting brand within the WNBA, and the WNBA gains the accessories and attention from it.

Today, sponsorships are still a vital aspect of revenue for the league. It relies on them heavily. Even individual players find themselves pursuing deals to increase their opportunities and income outside of those within the league. For example, just in 2021 highlight player Candance Parker collaborated with major brands like Adidas, CarMax, Gatorade, 2K, and other brands. Because of these deals, "her annual off-the-court pay is more than double her total playing salary across her 15 years in the WNBA" ("Candace Parker," 2023, para 2). Parker became the highest-paid league athlete during this season and made eight million dollars in endorsements alone, a much better living compared to the base salary pay.

Ticket sales, media broadcasting, and sponsorships are important for the WNBA. They are a crucial piece for the funding and money available within the league. It is critical that these sources of revenue grow over time because they contribute to the growth and success of the league. They also play a pivotal role in the driving success of women in sports.

5.5 Salary

As a member of the WNBA, you get paid a salary. With this salary, players are paid in semi-monthly installments by the team, meaning they receive a paycheck twice a month (Mox, 2020). This salary is built upon the funds produced as revenue. These amounts are then distributed to all 144 players, members of the coaching staff, and other employees of the league. League salary for players is based upon years of experience. In saying this, players with zero to two years of experience earn a minimum salary of $57,000. Three-to-five-year players earn a minimum salary of $71,000. Six to ten years earn a minimum of $85,000. Then lastly, players exceeding eleven years of experience are guaranteed a minimum salary of $119,000 ("WNBA Salary," 2023). These are just the minimum earnings a player can receive. For example, a player can look to negotiate higher salaries based on their performance, marketability, endorsements and other factors ("WNBA Salary," 2023). And often, many players do, so they have other sources of income outside the base salary from the league.

For instance, a big incentive for players are endorsements, as noted above. Many players receive endorsements, that is, sponsorship deals, from big brands like Nike, Adidas, Puma, Google, YouTube, and more. These brands pay players an additional income to wear their brand logo and promote it. You could say, players who have access to these deals have an advantage economically, because they are using their image to increase their worth. Not only do these endorsements help the individual athlete, but they also specifically contribute to the player's personal profile and reflect back positively on the WNBA itself. That then attracts more attention to the league which, hopefully, allows it to gain more support and increase overall revenue.

As mentioned, for a rookie entering the WNBA, the lowest salary starts at about $57,000 per year ("WNBA Salary," 2023). The overall average salary of a WNBA player is roughly $102,751 per year (Janvrin, 2023). In contrast, NBA rookies are making roughly $953,000 per year, which exceeds the WNBA rookies and average players by a factor of seventeen (Adelphi University, 2021). This major income gap between the two leagues is where gender pay inequity issues become apparent. It's not so much that the men are making more than the women, but the difference is simply outrageous, which makes it an equity concern. Additionally, when you look at the average NBA player and their salary, they are making roughly $9.6 million (Janvrin, 2023). These numbers make evident the disparities between women's and men's basketball at the professional level.

Just recently, in 2023, there arose a salary inequity issue that raised many questions within the WNBA. Although this did not involve the players, it involved head coaches and very much impacted the players and their point of view. The Phoenix Mercury, a WNBA team, had just recently hired head coach Nate Tibbetts. This was very exciting news for Tibbets, and he was honored to be in the position to coach great talent. But shortly after this news was released, it was announced that Tibbetts would become the highest paid head coach in WNBA history. This news struck the media, and many fans, players, and coaches were in disbelief. Most could not believe that a man who had never coached women's basketball would be the highest paid head coach in the league. His salary surpassed head coach Becky Hammon's, who had recently won an WNBA title for her team and who currently makes one million dollars per season. Prior to accepting his position, Tibbetts was an assistant coach for men's basketball: he had eighteen years of professional coaching experience under his belt for men's basketball. Although the league and Nate Tibbetts were criticized given his lack of experience, the WNBA still pays him an income over one million dollars, making him the highest paid head coach (Greenberg, 2023).

In sum, the WNBA suffers from issues of fair compensation. Players and staff are experiencing these difficulties first-hand. It is especially hard to stomach when one knows that the NBA's male athletes are offered higher salaries for the same job that requires the same skills and qualifications.

5.6 Media

Since the WNBA's establishment in 1996, media has played a major role in making the league what it is today. Media, including broadcasting and the internet, provides entertainment and opportunities to produce revenue, grow audiences, and facilitate fan engagement. To do this, the league uses platforms like television networks, social media, traditional print outlets, and video games. These platforms have not only supported the league but also have been an additional help to players and their growing profiles as they market themselves as individual athletes.

Television coverage of the WNBA has been a great achievement over the years. Broadcast television, one of the earliest forms of media coverage, has allowed fans to access the games and athletic highlights on various levels. It was on June 27, 1996, that NBC Sports announced it would serve as the WNBA's first national broadcaster. At the start of the 1997 season, the WNBA had teamed with NBC and officially started their partnership (WNBA, n.d.). Today, the WNBA has expanded to other big online streamers. Some of them include ESPN, ABC, CBS, CBSSN, and ION (WNBA, 2023). As a result of this expansion, the WNBA has increased its overall viewership and revenue. The league has been able to attract more viewers invested in women's basketball. Also, with the development of streaming, especially within the last five years, it has become easier for fans to watch games on mobile platforms.

Another big media form is social media which has had a tremendous impact on the WNBA on various platforms. The league has claimed presence on popular apps such as Instagram, Facebook, X, and others. This source of media allows the league and players to connect directly with the fans. It even sometimes showcases live-streaming games and highlight tapes. For instance, just recently, the WNBA has entered into a partnership with X. Because of this collaboration, X live-streams free WNBA games for the audience to watch directly through their app. This partnership gives the WNBA streaming rights for 12 regular season games and although there is little disclosure on the 2021 deal, it netted the league $250,000 (Rodrigues, 2022).

Date	Game	Time (ET)
Friday, May 6	Minnesota Lynx at Seattle Storm (CC)	10:00 p.m.
Friday, May 13	Indiana Fever at New York Liberty (CC)	8:00 p.m.
Friday, May 20	Washington Mystics at Atlanta Dream (CC)	7:30 p.m.
Friday, May 27	Los Angeles Sparks at Indiana Fever	7:00 p.m.
Friday, June 3	New York Liberty at Washington Mystics (CC)	7:00 p.m.
Friday, June 10	Chicago Sky at Connecticut Sun (CC)	7:00 p.m.
Friday, June 17	Phoenix Mercury at Dallas Wings (CC)	8:00 p.m.
Thursday, June 30	Atlanta Dream at New York Liberty (CC)	7:00 p.m.
Thursday, July 7	Seattle Storm at Los Angeles Sparks (CC)	10:30 p.m.
Thursday, July 14	Dallas Wings at Minnesota Lynx	8:00 p.m.
Thursday, July 28	Minnesota Lynx at Atlanta Dream	7:00 p.m.
Thursday, Aug. 11	Connecticut Sun at Los Angeles Sparks	10:30 p.m.

Table 3: 12 Regular Season Games Streamed in Season 2022.
Note. Schedule from the WNBA that shows 12 regular season games that were streamed on X in 2022
Source: TheNextHoops (WNBA).

This is yet another convenient source for fans and intrigued viewers. Media has also allowed players to gain a voice through their platform, which reflects back on the league. This especially became the case during 2020, when social justice movements broke into the mainstream. During this time, many players were advocating for equality at all levels. The WNBA even dedicated its first weekend of games in 2020 to raise awareness for criminal justice reform and voting rights. For example

> in July 2020, players from across the league began wearing warm-up shirts in memory of Breonna Taylor, an unarmed Black woman killed by the police that May, with 'Black Lives Matter" on the front and 'Say Her Name' emblazoned on the back (Ibrahim, 2023, para 10).

They used the media to display their fight for justice to the viewers. This is not the only case: "over the years, the women of the WNBA have consistently banded together to lead displays of collective activism addressing racism, policing, gender pay equity, LGBTQ+ issues, voting, and reproductive rights" (Ibrahim, 2023, para 5). In sum, the WNBA uses social media to gain viewers, showcase their talent, and communicate with anyone interested in the women's basketball community.

One of the last big forms of media mentioned are streaming services. Over time, owing to enhancements in technology, especially within the last five years, it has become easier for fans to watch games on mobile platforms. This has allowed viewers to watch from their smartphones, computers, and smart TVs while on the move. For example, Hulu offers live TV options where fans can access games through the Hulu app. All they have to do is download the app and pay the subscription, and then the game is theirs to watch. There are also other streaming networks such as ESPN, Paramount Plus, YouTube TV, and Amazon Prime. These apps are all available in the app store for free (to watch regular games, viewers have to pay a subscription fee) and provide more avenues to stream the league's games.

The WNBA also offers an app for fans to stream games and more. Once you download the app, you have full access to all games, highlights, behind the scenes footage, and more for just twenty-five dollars. This is a yearly payment and lasts you all season. Compared to the NBA's app, which is approximately $22.99 a month, this is very convenient and affordable. The fees for the NBA app add up to over two hundred dollars for the year. This is another add-on to revenue being produced making the leagues what they are.

Overall, the media has so much to offer to the WNBA and vice versa. There are more media platforms not mentioned above that still help to bring awareness to the league. There are, for example podcasts, collaborations with influences, and print media. Although television, social media, and streaming services attract the largest numbers of viewers, they all have worked to increase revenue and viewership, which are two factors that help keep the league running. By leveraging these services, the WNBA is increases awareness, and gains support.

5.7 Viewership

In 2011, a study was done by Suffolk University student, Catherine McCabe, which analyzed whether or not gender plays a role in the viewership of the WNBA. In her findings, McCabe concluded that more women attend WNBA games than men. In addition, she "found that women had more positive feelings toward WNBA basketball than men (McCabe, 2011). She further noted that this could suggest that women are more comfortable supporting women, and the same could be noted for men. This dynamic is still evident today. This lack of societal support has been detrimental to the league and its success. Without a fan base or an audience, the league can not function as a business. Without these aspects, the league can not make money and the league can not grow. This is why viewership is a contribution to the league.

As seen before through research and history, there are still prevailing stereotypes and biases that surround women's sports. As for those related to the WNBA, there are perceptions that women's basketball is less exciting and competitive when compared to the men (Walker et al., 2022): "These preconceived notions devalue female athletes' hard work and skills, leading to lower attendance rates and diminished public interest"(Amersi, 2023, para 5). This can easily be below in **Fig. 1** which highlights WNBA average attendance over the years as well as the lowest attendance for that year.

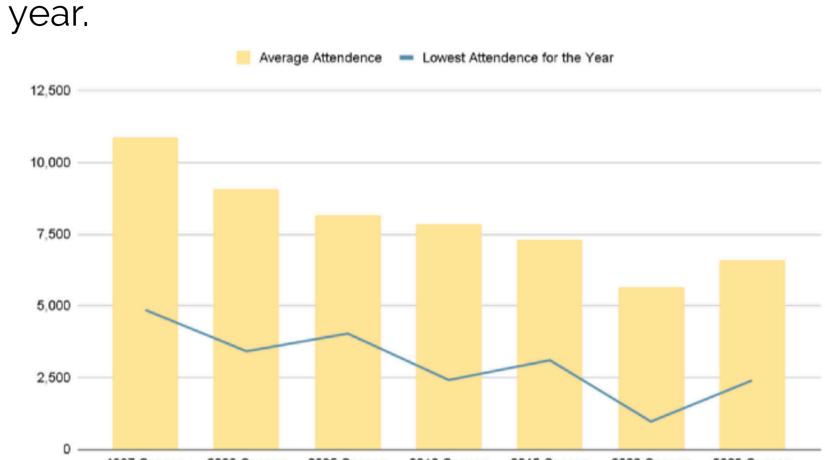


Fig. 1: WNBA Average and Yearly Attendance. *Source*: WNBA Historical Attendance Data. (2023)

An example of this has been explored in the *International Journal of Finance*. Scholars examined demand and revenue in sports and asked whether or not the relationship between demand and revenue was driven by the entertainment spectacle of the contest or the emotional attachment derived from wins and losses. They specifically examined the concept of dunking and analyzed whether dunking could increase viewership for the WNBA. However, according to the researcher, they established that it would do more harm than good:

> Currently, basketball is one of the most popular games in the world for girls' and women's participation. This is partly because basketball is incredibly accessible. To change the goal height

> for women would mean that basketball would be dramatically less accessible for women, which would stunt the growth of the game (Walker et al., 2022).

Therefore, changing the game would limit its growth since needs to be easy to play basketball independently. In addition to that, the way women play professional basketball is the uniqueness of the sport. That is what is entertaining to watch. It is played in its purest form, meaning it is clear and crisp (Willis, 2008).

6. CASE STUDIES

6.1 Obstacles Faced in Motherhood: Skylar Diggins-Smith and Dearica Hamby

Motherhood is an especially unique process for women in the WNBA because players have to work to keep their bodies in top shape if they wish to return to the league to pursue a long-term career. But they also are expected to be a mother to their family and provide care for family members. For most players in the league,

> balancing motherhood with the stresses of an athletic career that can take them from home and meaningful relationships can be demanding. But they push on, determined to set an example for not only their children, but other working mothers who might be in similar situations (Axson, 2022, para 4).

Throughout their journey of motherhood, players have displayed mental toughness and hard work, and many have walked this journey on good and bad notes.

One of the players whose experiences were negative is Skylar Diggins-Smith. Unfortunately, she had a very disappointing journey related to how she was treated. For the sake of this case, it's important to highlight it because it's recent news. It's also vital due to the fact that the case received much publicity, especially within the WNBA community because of what Diggins-Smith put out through social platforms. In 2013, the Tulsa Shock, a WNBA team at the time, drafted Skylar Diggins-Smith. She was a first-round draft pick who was selected third overall. Since the beginning of her career, Diggins-Smith had accumulated an impressive stats resume as a professional player while making a name for herself. Just at the end of her first season, she was awarded to the WNBA all rookie team which consists of top rookies in the league. In 2020, Diggins-Smith was traded to the Phoenix Mercury where she played three seasons. By 2022, Diggins-Smith was setting her career-best numbers. Since then, she has kept adding to her career resume. She has been a six-time all-star and an Olympic gold medalist. But in 2023, the tables turned for Diggins-Smith. In early 2023, she found out that she was pregnant with her second child. Because this pregnancy would take place during the season, Diggins-Smith had to take maternity leave. She wanted to make sure her body was in the best of shape over this time. As she revealed later, the Phoenix Mercury began to distance itself from Diggins-Smith. After she left for maternity leave, the team cut off connections with her, although they still paid her for the duration of the leave.

Skylar Diggins-Smith in 2017. Photo credit: Wikimedia Commons.

Diggins-Smith first realized that something was wrong when she was not being recognized on the team's social media page. On her birthday, the team neglected to post their traditional shoutout which is a casual recognition for the players on the team. Later, she was denied access to the Phoenix Mercury facility. Because of this, Diggins Smith spoke up through her social media platform. She tweeted, "They're not gonna acknowledge me this year and it's OK guys," she said. "We're not affiliated unless it's the checks . . . per management. I can't even use the practice facility or any resources" (Hruby, 2023). This left Skylar Diggins-Smith very displeased with the organization. She felt that if she was not making the league money, then she was not needed around. The WNBA never conducted an investigation, and as a result, Diggins-Smith is to complete her tenth season in 2024 but with the Seattle Storm instead of the Phoenix Mercury after entering the league in 2024 as a free agent (Hruby, 2023). This is fortunate for her.

Britney Griner in 2019. Photo credit: Wikimedia Commons.

Skylar Diggins-Smith has not been the only player who has received this unfair treatment during her career. Another player who faced pregnancy discrimination while in the league was Dearica Hamby, a 2015 first-round draft pick who was selected sixth overall. She has had a nine-year career in the league so far and even won a WNBA championship in 2022 with the Las Vegas Aces. In 2023, just before the start of the season, Hamby ran into an issue with the Aces regarding her pregnancy. She was falsely accused by coach Becky Hammon that she signed her two-year contract extension in the summer of 2022 knowing she was pregnant (Maloney, 2023). Theoretically, this was an issue for Hammon because, with Hamby pregnant, Hamby would not be available to play. Hamby filed a discrimination lawsuit against the Aces and the WNBA with the Equal Employment Opportunity Commission (EEOC). Following this filing, "the league conducted a thorough investigation of the allegations and levied appropriate discipline based on its findings" (Maloney, 2023, para 2). This was done by interviewing thirty-three people and reviewing over emails, texts, and other documents. After the investigation, the case was ruled in Hamby's favor.

After the case was concluded, the league worked to discipline the Aces and coach Hammon for their actions. The league announced Hammon would be suspended for two games for her violations against policies related to respect in the workplace. Additionally, the Aces was stripped of their first-round draft pick in the 2025 draft. Lastly, to make things "right," the league reached out to Dearica Hamby to renegotiate her contract. Hamby was later traded and has signed with the LA Sparks in California on January 21, 2024. Some claim that she was traded on the basis of her pregnancy. But, after the trade was finalized and settled, Hamby made an official statement that the Aces had treated her unethically and she wanted to enter the 2024 season in hopes of better a beginning (Philippou, 2023).

After analyzing these pregnancy discrimination cases, it is saddening to see the way female athletes are treated because they desire to grow their families. It is disappointing that women receive the short end of the stick in this process, seeing that it affects them the most. The NBA does not even have to think about these issues. Male players do not carry children, and there are no potential consequences for them when they decide to have a child while in the league. The inequalities may not be visible to a wide audience but they are there, and fortunately, both Diggins-Smith and Hamby have decided to speak up for themselves.

6.2 Story of the Year: Brittney Griner

Another issue of interest that caught worldwide attention was Brittney Griner's story. Griner, known as BG, was a 2013 number-one pick. She is currently a ten-year veteran athlete, and since then she has received many accolades. For example, BG is a two-time gold medalist for the women's basketball Olympic team and has been a six-time WNBA all-star. She is definitely on the list of top athletics within the league. Her popularity could even be attributed to the audience she attracted with her story.

After the 2021 WNBA season, BG was set to continue her training overseas. WNBA American athletes tend to go overseas and sign with another country's team during that country's women's basketball season. It's an incentive for players to earn extra cash during the off-season period and stay in shape. This is the case for many WNBA athletes because playing within the WNBA is just not enough to make ends meet. As for BG, she was stationed in Russia. This was a familiar spot for her because she had played there in previous years. The Russian team for which she played is UMMC Ekaterinburg, a professional women's basketball team that has accumulated many wins over the years.

When BG arrived in Russia at the airport near Moscow to prepare for the start of the season, the "Russian authorities accused her of carrying hashish oil in her luggage" (Ganguli et al., 2022, para. 4). Hashish oil is a cannabis drug that is consumed by smoking, vaporizing, and eating (Vandergriendt, 2019). According to the Russian authorities, a service dog had sniffed the substance. This type of substance is not permitted on Russian soil whatsoever, and anyone whose luggage contains this substance will face legal consequences. BG was detained for further investigation. During the investigation, Russian authorities found vape cartridges containing hashish oil, and BG was found guilty of possession of an illegal substance (Ganguli et al., 2022). On February 17, 2022, the WNBA star was arrested and detained until further notice. Although she was found guilty, she was not formally charged. It was decided that a hearing would take place on May 19, 2022, and Griner spent those months in a Russian prison.

Once the news of BG's imprisonment hit U.S. news, many fans and people unaffiliated with the sort advocated for her release. There were many letters sent to the President of the United States on behalf of her release: "Dozens of civil and human rights groups wrote a letter to Biden urging him to help secure the release" (Goldman, 2022, para. 1). Some of these groups were the Human Rights Campaign, the National Organization for Women, and National LGBTQ Task Force (Goldman, 2022). This placed a lot of pressure on President Biden since Griner's advocates felt the need to stand up for BG and get her back to America.

After those two long months passed, there was controversy over the situation of BG's release. Half of the world wanted her released, and much of the other half believed she broke the law in Russia and that's why she deserved her imprisonment (Law, 2022). But, the U.S. sought to intervene and investigate themselves. In conclusion, they declared that BG had been wrongfully imprisoned by Russia. Even though the U.S. government now considers her to have been wrongfully detained, that did not mean Russia would change its official stance on her detainment, but it meant that the U.S. considers the legal proceedings to be irrelevant to her case (Quinn, 2022).

Following a hard-fought battle, President Biden and his administration were successful in bringing BG home. Unfortunately, this was after she had spent nearly ten months in Russia's prison. To get her free, a trade deal was made that would swap BG for Viktor Bout, a Russian arms dealer, which outraged the public. It also did not help that Russia was at war with Ukraine and the U.S. was not on their side. Despite all of that, BG still participates in the WNBA, and the league is proud to have her back. For the 2023 season, BG's stats were a bit lower compared to her last competing season in 2021. But she still managed to accumulate big numbers for her team in the 2023 season (WNBA, n.d.).

In saying all of this, this case study highlights the struggles of WNBA players on various levels with BG as an example. The first key piece mentions the struggles of even having to go overseas. WNBA athletes do not get the luxury of a prosperous salary, so, therefore, many go overseas. When the off-season hits, over 100 players from WNBA teams compete professionally abroad to supplement their incomes (Berber & Turco, 2011). When these players decide to go overseas, it gives them the opportunity to not only seek profits, but they also get a chance to keep their bodies in shape, develop their skills, and gain unforgettable experiences. On the flip side, this can be a stressful and demanding period for these athletes because when the season ends in September, they do not get an extensive break before the grind starts again. WNBA players get a four to five month break before their overseas season begins (Voepel, 2022). Also, the WNBA season rolls back around in April and May, where athletes attend training camps, and some of the players are not even back yet from their overseas stay (Driver, 2019). The constant physical activity for this long stretch could cause players to burn out and become mentally drained, especially in the long run.

The second biggest struggle highlighted within the case study recognizes the struggle of a woman, a Black woman to be exact. Although many supported BG and wanted her back, there was still a large portion of Americans who did not. There were even some who did not even recognize her or the situation as a whole. Some even suggested that the fact that BG was Black was the reason for the lack of immediate attention. For example, BG's story relates to the concept of "missing white woman syndrome," where "a white girl or a white woman who is taken captive or arrested or something like that elicits tons of sympathy from the American public in a way that women and girls of color do not" (Lane, 2022, para 18). Although this is a theory, it is obvious that the fact that Griner is Black played "a huge part of the lack of attention to her case" initially (Lane, 2022). Perhaps this could be a result of why the WNBA league gets insufficient attention. As noted, in 2022, Black women made up 70 percent of the league (*WNBA Players by Ethnicity 2022*, 2022).

7. SOLUTIONS

7.1 HR and Policies

Human resource departments are systems that advocate for employees. As for the WNBA, their human resources (HR) advocate for the players, coaches, and staff (Washington Mystics, 2024). They are vital in the recruitment process, employee relations, legal compliance, and in creating a safe positive environment. They work to promote and address inclusion and diversity. To do this, the WNBA has various HR systems for every team's department, which is beneficial to players and other staff members because they have on-site resources available at all times (WNBA, 2024).

Although the WNBA has HR representation, there are still a lot of issues to be solved. To enhance the league and eliminate these issues, especially those around gender inequality, the league should work to enforce existing policies and educate employers as well as employees. HR policies are guidelines that help manage and protect employees. This is essential for the league because it serves minority groups who are longstanding targets of discrimination. But the overall importance of knowing and insisting on enforcement of these policies can help women and other members of the league advocate for themselves. The goal is to stop discriminatory treatment and prevent further occurrence of such treatment by knowing what is illegal discrimination within the workplace. Some policies that could be emphasized are the Civil Rights Act of 1991, the Equal Pay Act of 1963, and the Pregnancy Discrimination Act. All of these Acts are geared towards protecting vulnerable employees:

1. *Civil Rights Act of 1991:* "Amends several sections of Title VII to strengthen and improve Federal civil rights laws and provide for the recovery of compensatory damages in Federal sector cases of intentional employment discrimination" (Federal Trade Commission, 2024). The Act "provides appropriate remedies for intentional discrimination and unlawful harassment in the workplace" (Mondy & Martocchio, 2017). As a result, it makes the workplace safer.
2. *Equal Pay Act of 1963:* Prohibits "discrimination on account of sex in the payment of wages by employers engaged in commerce or in the production of goods for

commerce" (U.S. Equal Employment Opportunity Commission, 1963). Therefore, employers cannot pay women less than men if both employees do work that is substantially the same. There are four exceptions that permit unequal pay for equal work, and they are the seniority system, merit system, systems that measure earnings by quantity or quality, and other factors other than sex (Mondy & Martocchio, 2017).

3. *Pregnancy Discrimination Act:* Works to "amend Title VII of the Civil Rights Act of 1964 to prohibit sex discrimination on the basis of pregnancy" (Federal Trade Commission, 2024). In other words, the PDA "prohibits discrimination in employment based on pregnancy, childbirth, or related medical conditions" (Mondy & Martocchio, 2017). The overall principle is for all working applicants to be treated the same based on their ability or inability to work. Therefore, if a woman is pregnant or has had an abortion, she is protected from being fired, refused a job, or being promoted. She also can not be forced to take a leave of absence (Mondy & Martocchio, 2017).

7.2 Employee-Focused Policies

To add to this, the league should work to center its focus around the people who make it up. This will help bring the results the league wants, which is, ultimately, to grow. In saying this, when you put people first, "they are empowered to show up as their best selves and are supported to maximize their potential and excel in their roles" (Seely, 2020, para. 6). If players feel they are an important part of the WNBA, they bring out their best performance. An enhancement in performance could potentially attract more interested spectators and grow the league.

Not only will focusing on the players and other employees help grow the league, but it will also help the league be more equitable, specifically within itself. If the league is centered around those who make it up, the players will know that the league cares for their well-being and because the league cares, they will support them in any internal challenges they may face in regard to inequity issues. **Fig. 2** below is a model that illustrates how to operate an organization around the people. The model focuses on four areas. They are structure, incentives/controls, culture, and processes.

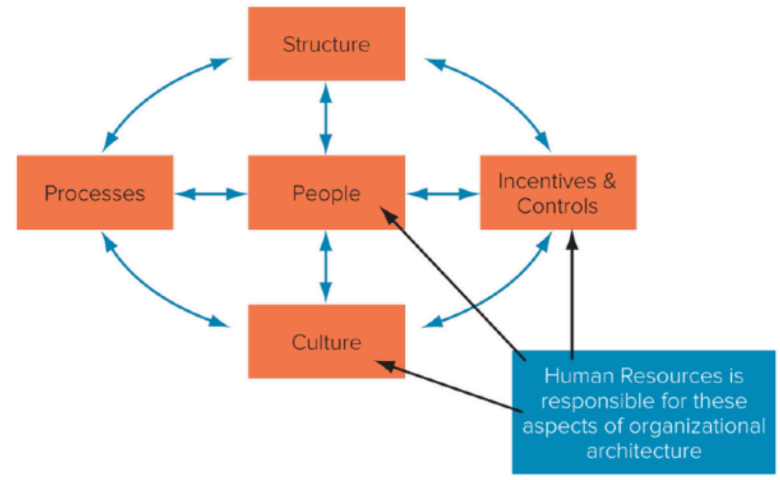


Fig. 2: Strategic Role of Global HRM. *Note.* Employee-Centered Organizational Structure. *Source*: McGraw Hill, 2023, p. 274.

First, the structure is the way in which an organization functions to reach its goal. For the WNBA to do this, they must incorporate a structure that values the athletes within the league first. This would require HR functions, processes and systems to be built around and create value for the participants in the league.

Next, is the incentives/controls. This revolves around the compensation package and awards received within an organization. For the athletes' benefit, maybe the WNBA could find ways to offer more incentives for performance or games played or even allow more for those who are personally selected into the all-star game. This could also be helpful when considering the huge compensation gap that has been an issue.

The third aspect for the people or athletes is culture, the values, beliefs, attitudes, and systems that influence employees in an organization. The WNBA could improve its culture this by supporting athletes so that the league is attractive and safe for women. The league actually has done this with Brittney Griner. They supported her and when she was detained in Russia. During this time, the league had t-shirts made in honor of Griner and even placed her initials on the court. With that said, this can be a key factor for the WNBA and players that go overseas because with so many players earning more money across the world, it would be assuring to know that the league has laws to protect their female athletes no matter where they play because of their culture.

Then, the final aspect are processes, what is being put in as well as what is being put out. This includes customer services, HR functions, and systems they use to recruit and train employees. Considering their processes can be helpful for the league because if they can ensure that training is done across the board, and people are held accountable when laws and culture are violated, ultimately, the people will be more invested in the organization.

If an organization such as the WNBA can work to connect these areas back to the people, the organization will prosper. It's the relationships and investment between the people and organization that will help a company thrive (Yale University, 2023).

In summary, it is crucial that WNBA HR professionals incorporate these techniques into their systems. With so many responsibilities, it will help ensure the league is fair. In the end, the people are the ones who run the organization. This is exactly what the league needs in order to take steps in a fair direction. But there is hope. In 2024, the league's players association published its mission statement:

> The WNBPA leverages the collective wisdom and vision of WNBA players and fully commits to affirming, defending, and advancing player interests on and off the court. Through collective bargaining, protest, public service, community engagement, and educational programming, we tirelessly challenge the workplace and societal conditions that stand in the way of our vision of what is possible for our lives and the future of basketball. Moving as one, we prevail. (WNBPA, 2024)

Although there are new missions in place, what's most important is enforcing and carrying out what is being stated.

7.3 Social Awareness

As for solutions outside of laws and regulations, the WNBA should work on social expansion and awareness. In order to gain an audience and more fans, the league needs to find ways to interact and grab the public's attention. This could be challenging for the WNBA when you consider that the league is limited in teams. Therefore, accessing a nearby arena to hold games can be difficult. But the league needs to do this. They still need to find ways to promote themselves from afar if they want to catch people's attention and increase overall earnings. The first proposed solution is that the WNBA enhance their social media platform. For example, the Instagram media page has about two million followers (Instagram, 2024). But this number compares badly to the NBA page which has 87.4 million followers (Instagram, 2024). So, the league needs to focus on increasing those numbers, not just the ones presented through Instagram, but by boosting numbers across the social media landscape. The league could conduct a study to find out what the most attractive social media platform is and then use that information to market to their target audience.

Speaking of marketing, a suggestion that could help enhance the WNBA's image is the collaboration with the NBA, of which there is only a little bit today. Both leagues could work to market one another through collaboration. For example, the NBA hosts an all-star event that takes place every year. This event highlights top athletes and allows them to showcase their talent. For this year's event, the all-stars took a new direction. Instead of just having a three-point contest where shooters compete, the league sought to bring in a match-up between NBA's best Stephen Curry and WNBA's best Sabrina Ionescu. The idea for this competition was sparked through social media when the WNBA star challenged Curry to a match up. Overall, the contest did get approved and the audience loved it: "The audience peaked with 5.4 million viewers from 10-10:15 p.m. ET during the Stephen vs. Sabrina 3-Point Challenge" (NBA, 2024). This was the biggest audience the night had attracted since 2020.

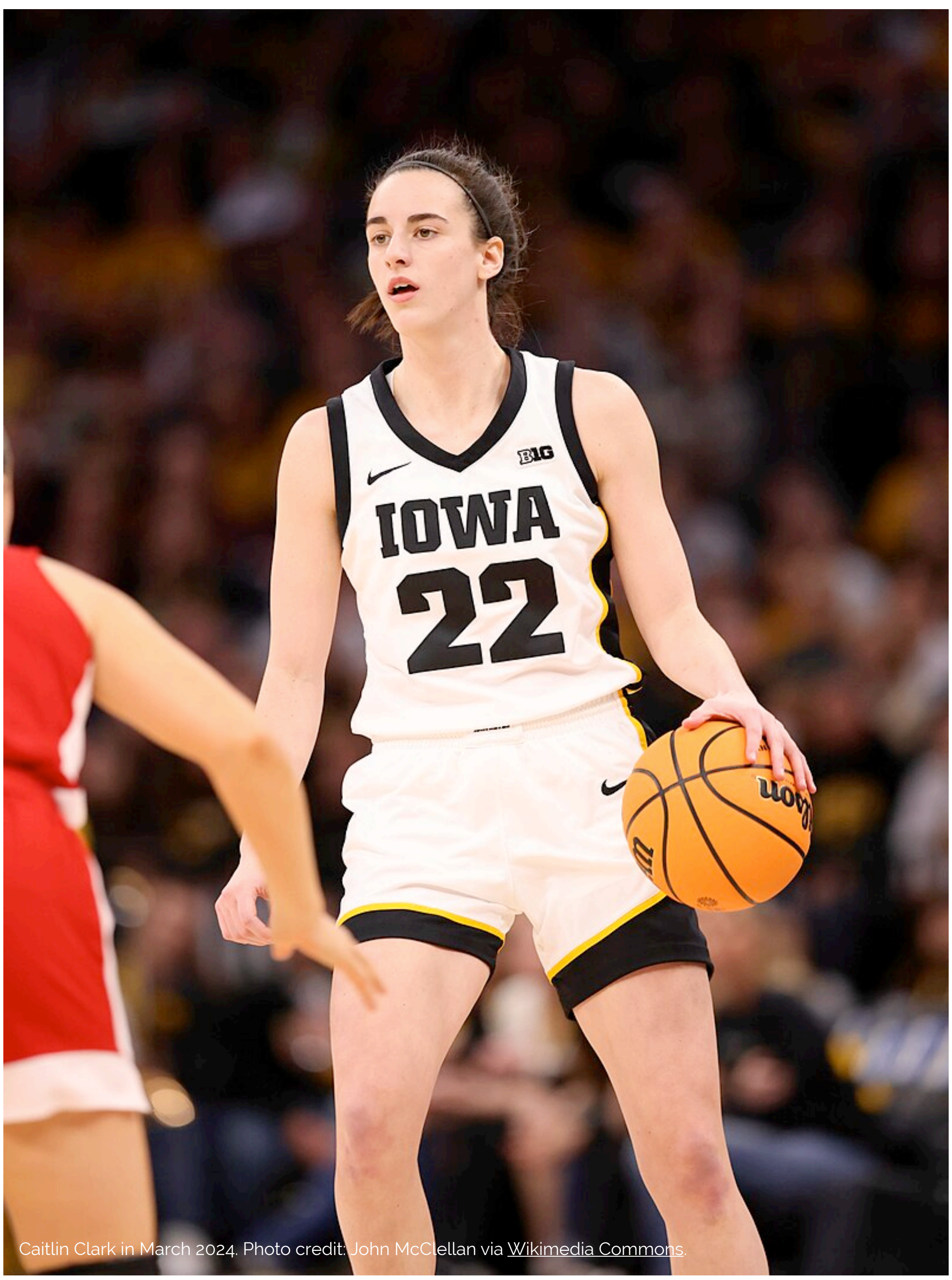
This was a big win for the WNBA and their brand. Being able to compete in this competition allowed the WNBA and Ionescu to reach an unusually large audience. It opened an opportunity for them to promote the league and bring awareness to women's basketball. Although Ionescu did not win the competition, she scored incredibly high with a total of 26 points, which matched the high of any NBA player in the men's competition that night (NBA, 2024). This competition showed that the women in professional basketball are just as skilled as the men. Once again, this was a big moment, and one that both players will continue to have for the better of benefit of both leagues.

In saying this, the WNBA has an upcoming draft with some potential top draft picks from the NCAA Division I level. One is Iowa superstar Cailtin Clark, who has made a mark for herself and changed women's basketball. If the league can find ways to promote and showcase the next steps of these stars' careers, they can attract a lot of attention. There has already been talk about bringing Clark and her three-point skills out to the NBA contest next year.

7.4 The Next Generation: Caitlin Clark

Iowa University guard Caitlin Clark is the face of women's basketball today, and her name is soon to be announced at the WNBA draft of this year as potential number-one pick. When referring to Clark, many know her for her impressive range from the three-point-shot. But she could also be easily recognized as the best player in Division-I Women's Basketball. This is because of the records she has set and the awards she has accumulated over time. For example, just recently, the star competed in an incredible performance of the year when she became the Division-I women's basketball's all-time leading scorer. It was on February 15, 2024, that she broke the record that was previously held by Washington's Kelsey Plum (a present-day WNBA athlete guard) seven years ago (ekaPle, 2024). Her remarkable performance has grabbed much attention and has grown the awareness of women's collegiate basketball and the importance of women's sports.

Clark's success and achievements are very beneficial to the WNBA and its organization because of the attention Clark carries with her platform. Just a few months ago, Clark announced that she would be declaring for the WNBA for the 2024 season. As expected, Clark's decision caught the media fast and placed a lot of focus on the WNBA draft on April 15, 2024. Looking forward, it can be predicted that viewership for the draft will increase compared to previous years, especially considering Clark's record of increasing attention. She even did this at Iowa, where she increased sales and produced sell-out crowds. Just as the season began, the Iowa women's basketball team hosted a home opener in an exhibition match over DePaul on a Sunday afternoon at Kinnick Stadium in front of 55,646 fans: "The Crossover at Kinnick was the first ever women's basketball game to be played outdoors in a football stadium and set a NCAA single game record for most attended in women's basketball history" (NCAA Media Center, 2023, para. 1).



Caitlin Clark in March 2024. Photo credit: John McClellan via Wikimedia Commons.

Caitlin Clark is the perfect athlete to increase awareness of the league and grow it, though it must be noted she is a white woman. But with the fan base she carries, many will be interested to see how her career plays out in the professional league. This is already being seen through WNBA Indiana Fever ticket sales because that team gets the number draft pick and can easily get Clark as their first pick, which she is expected to be. The Indiana organization knows that Clark can increase sales and grow their organization directly. Because of this, Indiana ticket prices have increased, and tickets are selling fast (Feinberg, 2024). Overall this is great news for the league. Awareness and revenue are increased just because of one individual player.

Although a long shot, another proposal that could help the league is to create another WNBA team in Iowa. Clark has created a big platform for women's basketball in Iowa at the collegiate level through sell-out crowds and more. Potentially, with the new establishment in this area of growing support towards women's basketball could be an offering towards greater success for the league.

8. CONCLUSION

The WNBA has undergone an astonishing evolution over time. Despite historical disparities, there has been major growth since 1996. For instance, it was just in 2023 that the league announced that it would expand to the Bay area and have a team collaborate with the Golden State Warriors, an NBA team (Maloney, 2023). In other words, the teams would partner to help promote and receive benefits from each other. As for the announcement, this was a huge step for the WNBA, which initially began with just eight teams (WNBA, 2012). Because of this new development, there ultimately should be growth for the league with the new team investment. This news of a new team was also a step closer to equality for the WNBA league. Now instead of twelve teams competing, there are thirteen. Which is one closer to the men's thirty in the NBA.

Although growth and change are slowly occurring, the league has hopes for a bright future. It is a monumental establishment for female athletes seeking the sport of basketball, and there are no other offerings at the professional level like it. Therefore, this organization must continue to thrive because of the opportunities it gives to female players. The WNBA should not be taken for granted, Because, just over a century ago, these opportunities did not exist. Overall, as the world changes and new generations enter the league, the WNBA will emphasize the growth of women in athletics. The league should also continue to impact its audience and society by standing up to social issues around the world such as discrimination based on race, sex, sexual orientation, and more. ❖

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The citation system used in this essay is APA 7th.

JONATHAN SKINNER

CONSOLE GAME SALES TRENDS AND POPULARITY: UNDERSTANDING WHAT MAKES A VIDEO GAME SUCCEED

ABSTRACT

The console video game market is ever changing, and as such, developers need all the information they can get to be successful. This paper analyzes sales data of console video games sold across a forty-year period to understand the trends of the industry as well as what the consumer is most interested in. Firstly, the data was used to determine what year console gaming was the most popular, and, once this was accomplished, the sales data from that year (2008) was investigated, particularly by genre. It was found that two of the best-selling games from 2008, *Grand Theft Auto* and *Mario Kart Wii*, both emphasized immersion and accessibility, respectively. Because of the differing amounts of resources available to developers, depending on their status (whether they are independent or working for a corporation such as Nintendo), it was concluded that independent developers should focus on the latter as it requires fewer resources, while those working for corporations should use the greater number of resources at their disposal to accomplish the former.

INTRODUCTION

Since the original *Super Mario Bros.* was released on the Nintendo Entertainment System in 1985, console video games have become increasingly popular among the public, with many titles released on a wide variety of platforms and selling millions of copies. Being such a lucrative business, it is no surprise that many aspiring game developers would want to break into the console market. This, however, has quickly created an oversaturated market, with every platform hosting hundreds, if not thousands, of different video games for the consumer to choose from, making it significantly more difficult for any one game developer to find success. The impacts of these difficulties can be seen after the seventh console generation; almost all platforms, aside from the Nintendo Switch, failed to match previous sales numbers, and games developed for those platforms struggled to make significant profits. Given the many risks now involved with the console video game market, it is imperative that developers understand the trends which propelled the industry towards becoming the juggernaut it is today. With this understanding, developers can use their abilities to create video games which avoid falling into obscurity. This paper will focus on answering two important research questions:

1. How did the sales of console video games change over time?
2. What games were the most popular during the apex of the console gaming industry and why?

Answering the first question presents an opportunity to dig deeper into the circumstances surrounding the industry's popularity, such as the capabilities of the technology at that time. The second question enables a closer look at the characteristics of the games themselves—whether a game is considered accessible, for example. Also, each game with the largest impact on the industry, as determined by sales numbers, can be investigated to determine what characteristics are likely to make a console video game successful. While this paper will avoid delving into concrete predictions for the future, the answers to these two questions will allow us to speculate on potential paths forward for console video game developers.

METHODS

The data used in this report was found online using Kaggle.com and is titled "Discovering Hidden Trends in Video Games" (Bramwell, n.d.). This data set houses hundreds of console games released from 1983 to 2012; releases span a variety of platforms, from the 8-bit systems through the seventh generation. Outside of the Wii-U, no future platforms or their respective games have been included in this data set. Each game's title, platform, publisher, year of publication, and genre are listed. Additionally, the games are accompanied by their respective sales figures. While global sales are calculated for each game, the data set also includes the sales numbers for North America, Europe, and Japan (independent of one another), as well as having a fourth unique category for sales in the rest of the world. The global sales data is used to assign a numeric rank to each game; for example, Wii Sports, the best-selling single-platform video game of all time, has sold over eighty-one million units worldwide and is thus ranked number one in the dataset. Finally, each game is accompanied by a review score which scales from one to one hundred. However, due to the review scores being difficult to use without the comments of the reviewers to support them, coupled with the fact that the source of the review scores is not given, these scores were not taken into consideration when performing this analysis.

Although a significant portion of the data set was numerical, no calculations were required. This was because the only two numerical columns of the data, the release date and the sales numbers, were set values and pre-calculated values respectively. A game's sales numbers were used as the primary method of determining the popularity and success of a game. A third column of the data set, labeled "index," held data identical to the "rank" column except for the starting number being zero rather than one. Because of this, the column was cut and not considered for this paper. In terms of quantitative data, genre was used as the basis for further analysis. Each visualization, aside from the first one, which centers solely on all console video game sales throughout the years, focuses on the genre of each game in some way. The game title and platform were also used as important points of reference. While a game's publisher was taken into consideration, it was given lower priority.

RESULTS

Determining the year in which console video games were at their most popular was the first goal of this research. To do this, a bar chart was created showing global sales of the video games listed in the data set each year, starting in 1983 and ending in 2012. The totals are displayed in millions of units. For example, a bar that reaches the "50" line designates year that sales numbers reached at least fifty million units. Reference lines were added to mark the average and maximum yearly sales for the time frame. The chart is displayed below as **Fig. 1**. This chart allows us to explore some of the trends of the console video game industry. To start, its popularity was incredibly low early in its life. This was almost certainly due to the 1983 Video Game Crash, as it "left the market for video games with no clear path to recovery" (Josephson, 2023). Companies would mass-produce low-quality games to fool consumers into buying many of them, but when the public caught on to the ruse, the market's massive oversaturation would cause its downfall (Josephson, 2023). The first year to see any kind of significant sales was 1985 with the release of the Nintendo Entertainment System, but the industry was still on shaky ground, with global profits barely reaching a quarter of the average yearly sales of all the years in the data set. It wouldn't be until 1996 when sales would sharply rise, presumably due to the release of the Nintendo 64 and the invention of the 3D video game. After this year, global sales would continue to rise with only short-lived drops in 2000 and 2003. Finally, the popularity of console gaming would reach its apex in 2008, with global sales totaling roughly 385.9 million units. The sharp decline after 2008, however, is notable, with sales plummeting below the average by 2012.

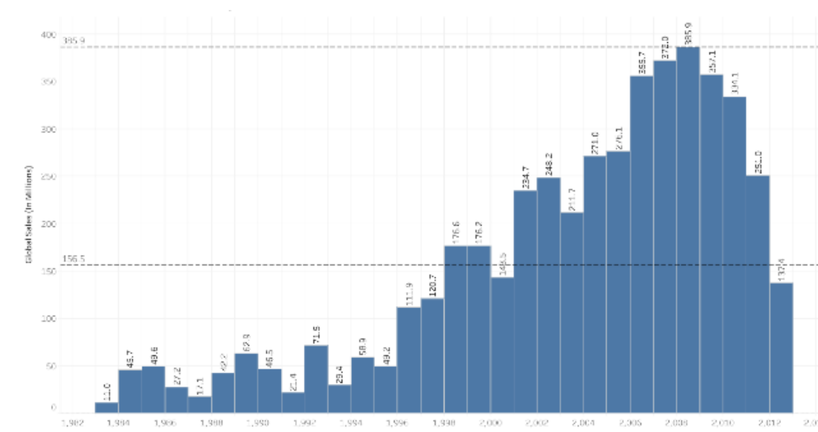

Fig. 1: Global Sales (in millions) of Console Games per Year. *Note*: The average yearly sales in millions of units are shown by the lower dotted line, while the income of the industry's most successful year is shown by the upper dotted line.

Since global sales for the industry peaked in 2008, it is logical to investigate further into that year's trends. Firstly, sales for each genre can be investigated to determine what the interests of the consumer were during this time. To do this, a lollipop chart was created showing the global sales of each genre in 2008. Additionally, pie charts were created showing each individual game and how many units each of them sold. Only the charts for the two most popular genres from 2008, Action and Racing, have been included in this report. The charts are displayed below as **Fig. 2**, **Fig. 3**, and **Fig. 4**. These three charts together show not only the most popular console gaming genres from 2008, but also present information of what games made them so popular. 2008 was the third year of the seventh console generation, which consisted of Microsoft's Xbox 360, Sony's PlayStation 3, and Nintendo's Wii. With these new systems came arguably the greatest leap in technological power the industry had ever seen.

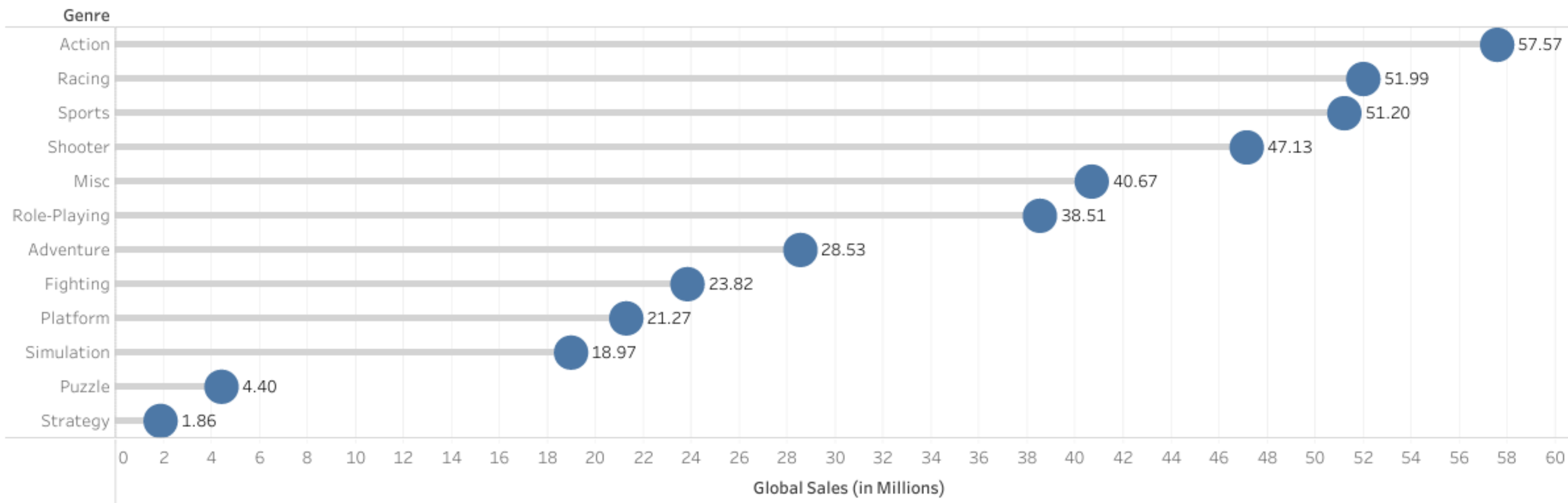

Fig. 2: Global sales of console games (in millions) in 2008 by genre. *Note*: There are more genres and sub-genres of video games not represented in this data set.

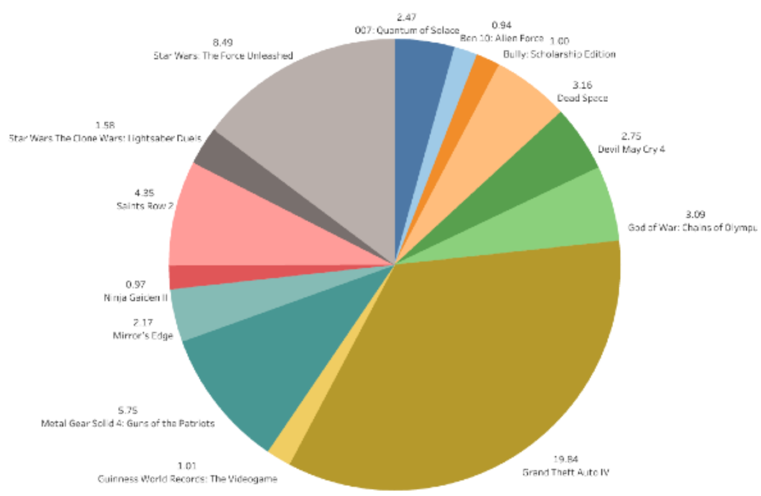

Fig. 3: Action Video Games Sold in 2008. *Note*: The values displayed are unit sales for each game in millions.

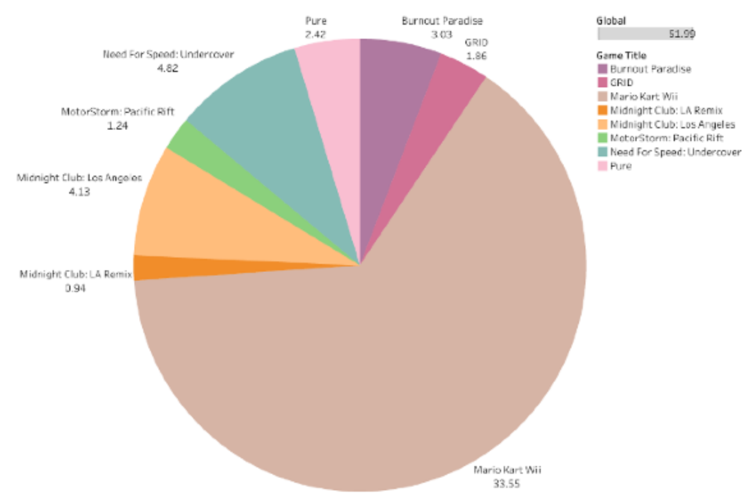

Fig. 4: Racing Video Games Sold in 2008. *Note*: The values displayed are unit sales for each game in millions.

In his journal entry, David B. Nieborg determined such a leap in power to be a result of the "networked nature of the hardware, combined with a leap in storage and computational capabilities, allowing for higher resolution images and thus more (photo)realistic video" (2014). Such groundbreaking advancements allowed for what became the most popular games of the seventh generation.

In the action genre, *Grand Theft Auto IV* (GTA4) sold nearly 20 million units globally. Although the action genre could produce adventure-style environments to house their gameplay in previous generations, a larger supply in processing power allowed these environments to be enhanced. This would create a larger sense of immersion than what was possible beforehand, particularly due to the consoles' increased ability to deliver on the concept of realism. Additionally, the seventh generation was the first to standardize online multiplayer mode, and, although GTA4 did not pioneer online gaming for the industry or even for the series, it pushed forward with the volume of actions players could perform online (Yaden, 2023).

Almost all of these concepts, however, are absent in the racing genre's bestselling 2008 release: *Mario Kart Wii*. Unlike the *Grand Theft Auto* series which often released on a variety of platforms, *Mario Kart Wii* was exclusively released on the Wii, and despite this, the game sold 33.5 million units globally and made up nearly two-thirds of sales for its genre in 2008. This was most likely due to two factors: 1) general success of the console the game was on and 2) accessibility, both of which tied into each other. While the Wii was the only console of the seventh generation to forgo upgraded visual output, it innovated by focusing on accessibility. *Mario Kart Wii* is easy for anyone to instantly understand how to play. This is because the game's mechanics are simple and because of the many different control options offered, one of which is a motion controller that allows the player to mimic the feeling of being in the driver's seat. The game lacks the immersive value of the *Grand Theft Auto* series but makes up for it by being accessible while allowing for players who understand the game to express their skill.

DISCUSSION

With these insights, it is possible to recommend future actions for both independent console game developers and those working for a corporation. The successes of GTA4 are far more applicable to the latter, as they have the resources necessary to deliver large, sprawling experiences. For game developers working for a corporation, these kinds of experiences are advisable. A modern example of this being done successfully is *The Legend of Zelda: Breath of the Wild* from 2017. The game did not pioneer the open-world genre, but it did give players a vast world to experience with many things to do in them. It allows for the player to have complete freedom, which immerses the player in the role of the player character. While online play is not specific to either type of developer, it is certainly easier for corporations to implement, as they often have server backbones, and would thus also be advantageous, although it is nearly impossible to advise how online play would be implemented due to it varying wildly across games.

For the independent developer, *Mario Kart Wii* is a more applicable example. Because independent developers are often severely lacking in resources when compared to developers who work for corporations, ensuring a game's accessibility is advisable. Short, re-playable experiences can deliver on this concept well, and a primary example of this would be *Super Metroid*. While not an "indie game," *Super Metroid* is an exploration-based game on a relatively small world map when compared to the video games of today. Even many first playthroughs can complete the game in around four hours (which is, in part, due to the ease of which the player can understand the game), but experienced players who have practiced and sharpened their skill can beat the game in under one hour. This allows a developer to pack meaningful content into a relatively small package and ensure it still appeals to consumers.

The video game industry, and technology as a whole, are constantly changing. As such, the data analyzed in this report was not comprehensive. Additionally, the suggested practices for console video game developers were not the only methods with which they can advance their work in the industry. However, with the insights provided by this paper, it is hoped that developers will be helped in creating games which find them success and appeal to as many consumers as possible. ❖

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The citation system used in this essay is APA 7th.

MARY BENTLEY

TUBERCULOSIS IN CALIFORNIA: A DATA-BASED ANALYSIS

ABSTRACT

Bacteria, typically harmless microorganisms, are found in countless varieties throughout our ecosystem. Specifically, upwards of a thousand species of bacteria make up a human being's individual microbiome (Wang et al. 2017). Although most bacterial organisms are relatively benign or even beneficial to human health, certain bacteria are known to cause disease. Bacterial illness can be directly linked to upwards of six million deaths from 2019 alone, which means epidemiology and contact-tracing are critical professions within the realm of healthcare (Ikuta et al. 2022).

One such pathogenic bacterium, *Mycobacterium tuberculosis*, is known to be very contagious and even life-threatening in certain instances. A long-term fascination among epidemiologists across the globe, *M. tuberculosis* is known to cause the respiratory illness tuberculosis. If left untreated, tuberculosis is both highly infectious and potentially deadly. The magnitude of tuberculosis's impact is mirrored in CDC guidelines which dictate mandatory reporting of cases of the disease and quarantine for all affected persons.

With tuberculosis making a resurgence in recent years, it's important to observe how various populations, regions, age groups, and other qualitative subgroups are affected by the disease (Gandy and Zumla 2002). This analysis describes information collected between 2005 and 2021 in California, demonstrating the instances of tuberculosis cases among diverse populations. This analysis considers a few key components of the data in order to best prevent disease in the future. Such concepts include, yet are not limited to, the groups primarily affected by tuberculosis, the tuberculosis rate trend since 2005, and the rate of tuberculosis cases among those typically exhibiting weakened immune systems, such as the elderly and young children.

INTRODUCTION

The analysis of this data aims to articulate reasonable responses in order to determine who is at the greatest risk for tuberculosis, to chart the true magnitude of the recent resurgence, and to understand the effect of age regarding the number of cases. Upon reaching a reasonable conclusion, it is worth considering the promotion of anti-tuberculosis initiatives specifically among the most at-risk groups, as well as the provision of encouragement to maintain healthy practices to the general public. In addition, limited funding for public health services is necessary to consider when highlighting those statistically most at risk for tuberculosis, as these services are tasked to mitigate the risk of further infectious disease cases.

METHODS

Research Questions

This research aims to inquire into who is most at risk for contracting tuberculosis in the state of California. This data would best allow for proper allocation of health education resources and information. Similarly, this analysis aims to provide concise insight regarding the trend of tuberculosis from 2005 to 2021 throughout California.

Problems Addressed

This analysis, designed to study the statistics recorded regarding cases of tuberculosis throughout California in the years 2005-2021, serves as a visual representation of the impact of the disease on varying populations throughout the state. Such information provides both public health officials and citizens with data essential to monitoring the likelihood of future epidemiological crises, and allows at-risk individuals to take a proper course of action based on recent trends. Research regarding California tuberculosis rates should be considered by state residents in order to further prevent the spread of infectious disease.

Dataset Utilized

The data included in this report was provided by data.gov, an official United States government website aiming to provide users with datasets for personal research, analysis, and individual enrichment. The specific dataset used was collected in California between the years 2005 and 2021. It specifically details the prevalence of tuberculosis cases among residents through the systematic sorting of aggregate cases. In addition to total numbers of cases, the rate of cases per 100,000 is provided, as California is both densely and sparsely populated across its various regions.

Complementary to the sums provided, the data is further divided into categories including the total numbers of cases by gender, age group, race/ethnicity, and national origin. This allows for users to visualize the correlation, if any, between a given group's qualities and rates of disease. This method of data slicing is especially critical in epidemiology as it allows for the allocation of resources to the most at-risk individuals. The number of cases is separated by year in order to best illustrate a trend regarding tuberculosis' rises and falls throughout the state, with the rates per 100,000 following a similar pattern.

Methodology and Analysis Process

The data was first collected from the publicly available website, data.gov. Then, the freely provided data sheet was uploaded to Microsoft's PowerBI, where the bulk of my analysis and visualization took place. A few items within the data were reformatted, including modifying the number of cases and rate per 100,000 columns to numbers rather than text. Additionally, the capitalization and punctuation of several definitive articles (such as the race names) were edited in order to present a clear, concise visualization best suited to academic writing conventions. Finally, visualizations were created and formatted using skills discussed in ZyBooks, and the present report was compiled on the basis of such findings.

FINDINGS

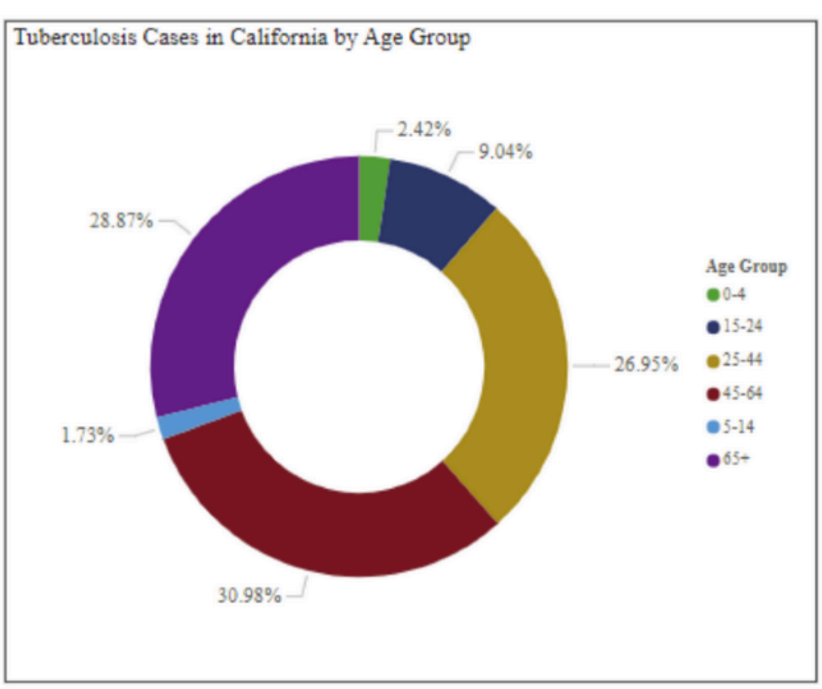

Fig. 1: Tuberculosis cases in California, distribution by age group. *Note:* Tuberculosis cases have varying distributions throughout different age groups from all national origins and racial backgrounds. Ages 45-64 and 25-44 are most affected, with ages 0-4 and 5-14 least affected. It appears somewhat evenly distributed among adults, with pediatric cases remaining more unusual.

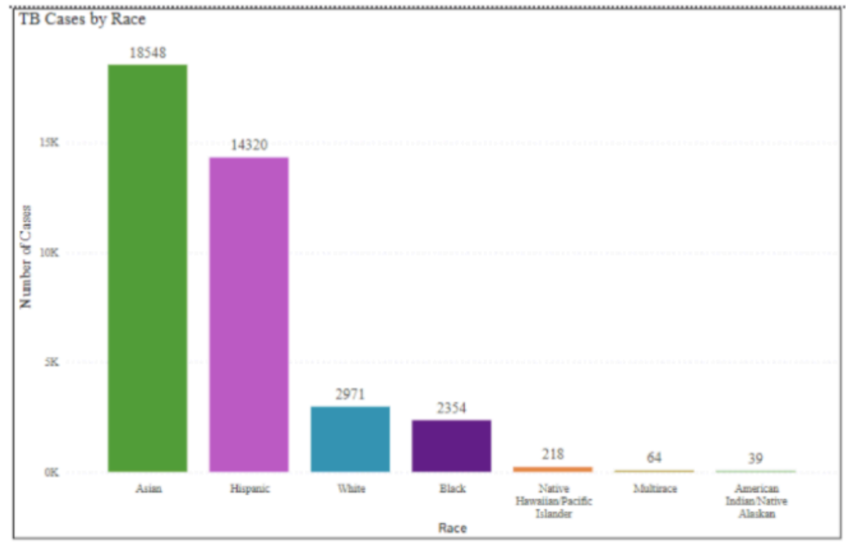

Fig. 2: Tuberculosis cases, distributed by race. *Note:* Tuberculosis has wildly different distributions regarding various racial backgrounds, with the majority of cases being in patients of either Asian or Hispanic backgrounds. White and Black patients were similar in case volume, with the number of cases displayed by Native Hawaiian/Pacific Islander, multiracial, and American Indian/Native Alaskan demonstrating minuscule numbers. It is worthwhile to consider the care with which these numbers should be viewed, though, as American Indian/Native Alaskan and Native Hawaiian/Pacific Islander individuals make up a small percentage of the United States population.

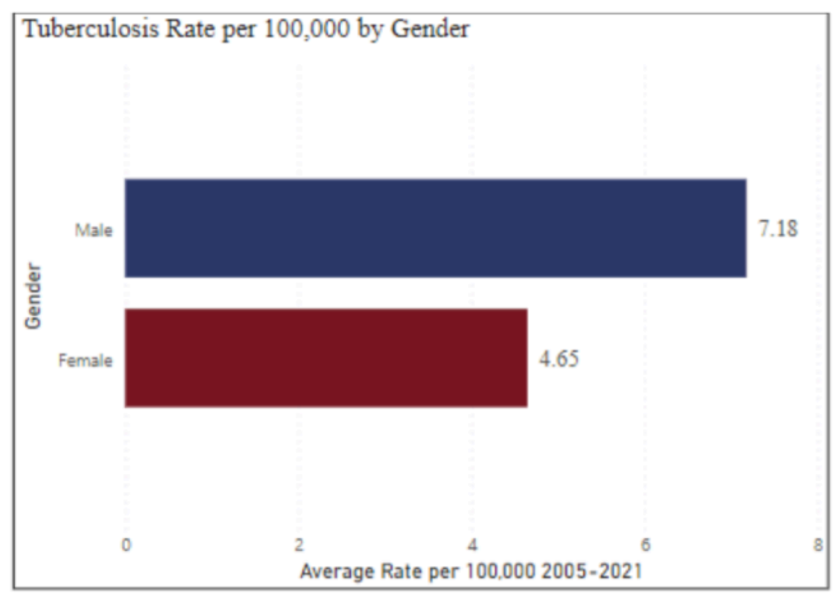

Fig. 3: Tuberculosis cases by national origin. *Note:* Tuberculosis cases in United States born individuals when compared to non-United States born individuals shows a clear trend. The majority of cases were in individuals not originating within the United States, with less than a quarter being in those initially from the States.

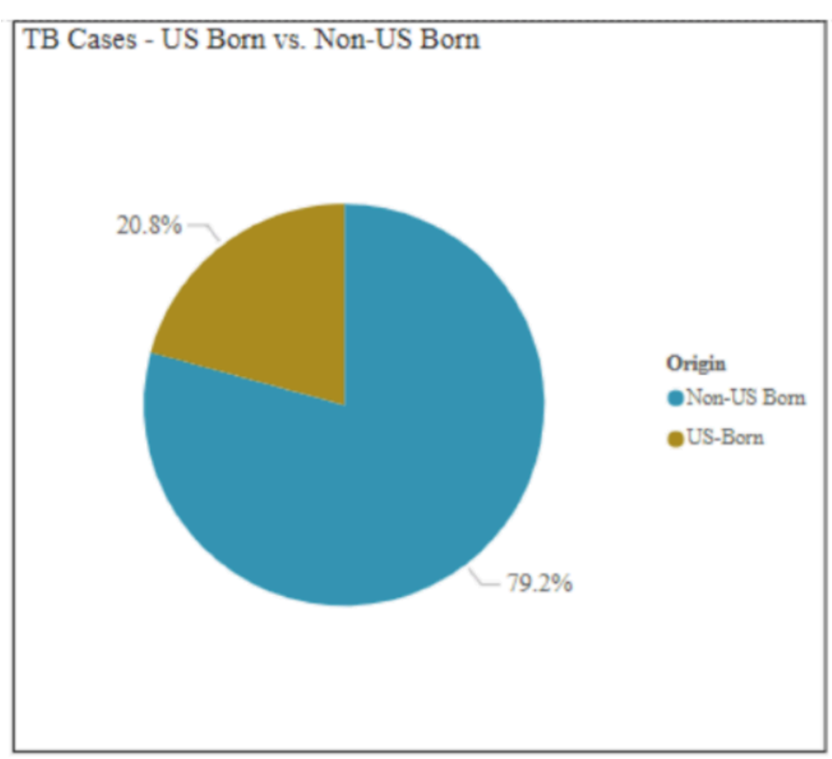

Fig. 4: Tuberculosis cases per 100,000 by gender. *Note:* Tuberculosis rates per 100,000 tend to be higher in male patients than female patients, with males exhibiting 1.54x the amount of cases per 100,000 when compared to their female counterparts.

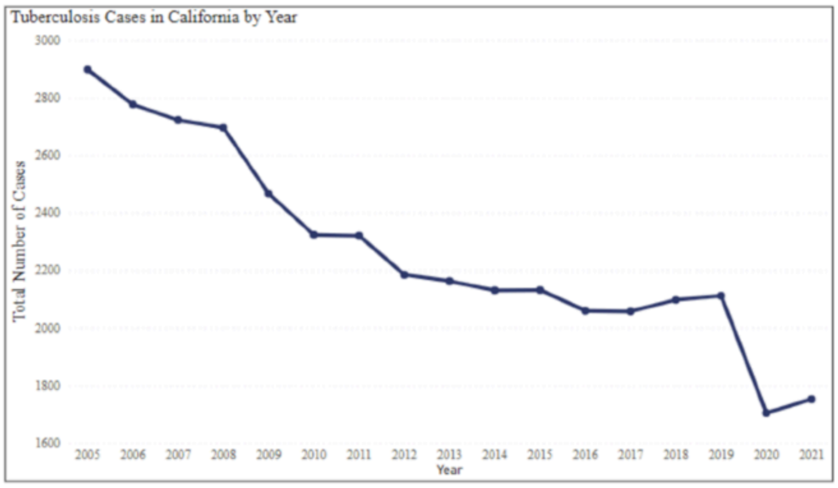

Fig. 5: Tuberculosis cases, total from 2005-2021. *Note:* Cases appeared at their all-time high in 2005, with a somewhat steady decline until an all-time low in 2020. The all-time low in 2020 may be thanks in part to the quarantine mandate, which took place for an entirely different pandemic (COVID-19). However, a rise began again in 2021, which coincidentally is when quarantine policies became less prevalent.

Race	Average Rate Per 100,000, 2005-2021
Asian	22.53
Native Hawaiian/Pacific Islander	9.53
Black	6.18
Hispanic	6.00
American Indian/Native Alaskan	4.00
White	1.24
Multirace	1.00

Fig. 6: Tuberculosis rate per 100,000 by race 2005-2021 *Note:* Despite lower total counts than exhibited in white populations, both Native Hawaiian/Pacific Islander and American Indian/Native Alaskan individuals experienced a higher average rate of cases per 100,000 individuals; this is a clear demonstration of population alone being a poor indicator regarding some epidemiological trends.

DISCUSSION

The above epidemiological statistics indicate that certain populations are at increased risk for tuberculosis compared to the general public. People of Asian origin experience the greatest instances of tuberculosis in California, with an average rate of cases per 100,000 individuals around 22-54. In addition, men suffer from slightly more tuberculosis cases than women in California, with a 1.54:1 ratio. Individuals not born within the United States are significantly more likely to have contracted tuberculosis, with nearly three quarters of cases being from populations not originating within the United States. Working-aged individuals (22-44 and 45-65 age groups) are most likely to contract tuberculosis; thankfully, pediatric cases are very rare with 0-4 and 5-14 year olds showing the lowest number of cases between 2005 and 2021. Finally, tuberculosis cases have experienced a decline in the total number per 100,000 individuals from 2005, with occasional slight resurgences. It's worthwhile to monitor the data from 2022 onward, though, as more people than ever are traveling after the COVID-19 lockdown, leading to an increased likelihood of the disease's spread.

CONCLUSION

It can be concluded that additional resources regarding tuberculosis and prevention of the disease should be provided to certain populations considered to be at the greatest risk for contraction. Special initiatives should be considered for populations with higher percentages of tuberculosis cases rather than for cases accounting for the national total, as the disease disproportionately affects certain minority groups. Thankfully, as of 2021, the rise of tuberculosis cases doesn't appear so concerning as to necessitate treating it as a national crisis. However, due to its contagious nature, present cases of tuberculosis should be monitored in order to aid in the prevention of significant disease spread. ❖

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NATURAL SCIENCES & MATHEMATICS

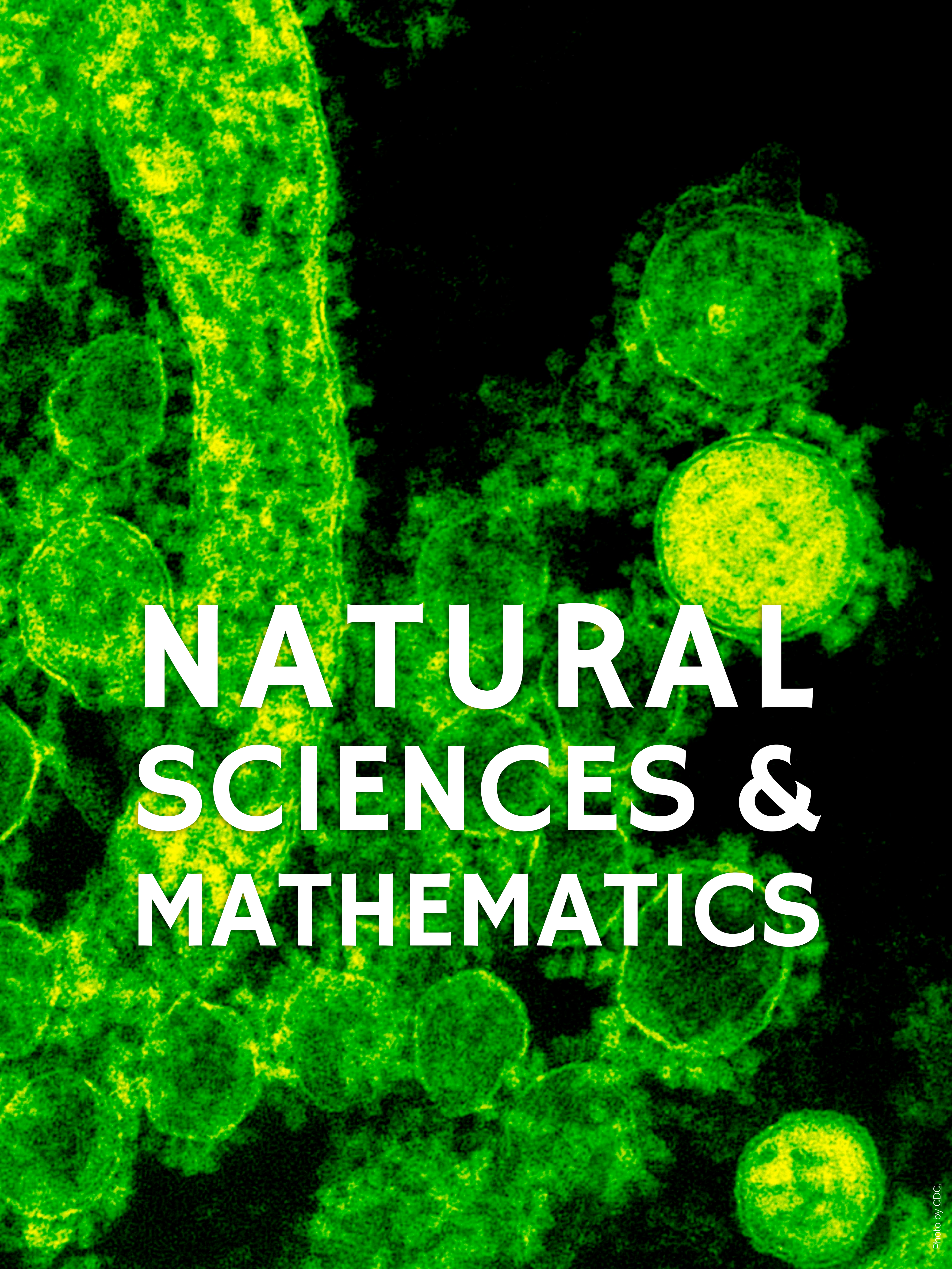

Photo by CDC.

QUINCEY PACKER

THE EFFICACY OF FACE MASKS AGAINST RESPIRATORY AIRBORNE PATHOGENS

ABSTRACT

The COVID-19 pandemic brought face masks back into the public eye to curtail the spread of the SARS-COV-2 virus. There were a multitude of opinions on whether face masks were the correct way to manage the pandemic. Historically, masks have been used to prevent illness from a multitude of airborne pathogens. This literature review compiles and scrutinizes peer-reviewed studies that were conducted to measure face masks' efficacy against respiratory pathogens to answer whether face masks could protect against that pathogen. In summary, this review found that face masks such as N95 and surgical/disposable masks had a high efficacy rating (>90%) against SARS-COV-2 (COVID-19), influenza (the flu), and streptococcus/staphylococcus bacteria. Cloth masks generally performed poorly (<75%) except for bacterial studies. The lowest efficacy ratings were seen in measures of rhinovirus transmission (responsible for the common cold). Given the body of evidence presented in this literature review, the idea is strongly supported that the use of face masks to prevent the spread of COVID-19 during the pandemic protected individuals from this respiratory virus. Additional research is also needed for cloth masks and rhinovirus in general, as little peer-reviewed literature has been published for these two areas. Further studies are required to further increase knowledge and awareness of all types of face masks.

INTRODUCTION

"If everybody does that, we're protecting each other," said Anthony Fauci, M.D., Director of the National Institute of Allergy and Infectious Diseases, in an interview with PBS regarding the spread of the COVID-19 in the United States of America (PBS News Hour, 2020). In this quotation, Dr. Fauci was referring to the idea of wearing face masks preemptively to protect everyone rather than situational scenarios, such as an individual being sick or entering a medical setting. The interview took place on April 3rd, 2020, and marked the shift from considering wearing a mask if an individual was sick to everyone wearing a mask, regardless of health status. This review aims to investigate whether Dr. Fauci was correct in saying face masks should be used to control and prevent the spread of COVID-19. This review also further investigates if wearing face masks could also control and prevent the spread of other common respiratory pathogens like influenza, rhinovirus, streptococcus, and staphylococcus bacteria. Results from this thesis could help the public understand the importance of face masks for not only prevention of COVID-19 but for preventing other respiratory illnesses as well.

Facial Coverings

The Merriam-Webster dictionary defines a face mask as a covering that covers the face and nose to reduce the spread of pathogens (Face mask, n.d.). By this logic, it was concluded that the first recorded mask might be the beak-like

Fig. 1: Colored-in edition of a copper engraving of Doctor Schnabel (a.k.a., Dr. Beak), a seventeenth-century plague doctor in Rome. Circa 1656 by Paul Fürst (1608-1666) (Photo source: (Matuschek et al, 2020).

masks utilized during the bubonic plague found in the Middle Ages (**Fig. 1**). Some historians have thought that plague doctors wore these masks when interacting with patients; however, there is no direct link that they were used as face masks to prevent disease, giving way to the theory that these masks were given function in retrospect.

The first official use of face masks to stop pathogens was recorded by Johannes von Mikulicz in 1897 who sterilized gauze and wore it over his mouth the way that is used in modern times in the form of a cloth mask. This mask (or "mouth bandage" as Mikulicz referred to it), was described as easily breathable (**Fig. 2**; Matuschek et al., 2020). The face mask would gain popularity within the medical community and would officially be used as a method of protection against the 1918 influenza pandemic after noticing that influenza-related deaths were decreasing when the mask was worn. Part of this reduction was attributed to the mask mandates at that time (Strasser and Schlich, 2020). However, with popularity came rejection.

Fig. 2: Hübener's mask. Photo source: Strasser and Schlich, 2020.

One of the main opponents of the use of face masks during the 1918 pandemic was the Anti-Mask League, which argued that a mask mandate violated their civil liberties. These types of groups would reappear during the COVID-19 pandemic, again echoing the notion that mandatory face mask policies inhibited one's freedom (Taylor and Asmundson, 2021). However, contrary to the most recent pandemic, masks were still a relatively new idea in the 1920s, and many leading physicians rejected them, with some acceptance by interns and nurses (Matuschek et al., 2020).

With the 1930s came more research on face masks, progressing to the 1960s with synthetic single-use surgical masks that are very similar to ones commonly used today. The main feature of these masks, when compared to other masks, was that these newer masks fit snugly on the user's face to prevent the spreading of droplets versus the loosely fitting masks that often had gaps and had to be sterilized before each use. By 1980, cloth masks were deemed inferior to synthetic face masks (Strasser and Schlich, 2020).

Mask research continued, but like in the 1918 influenza pandemic, the wearing of face masks would once again be popularized with the public with the 2020 COVID-19 pandemic. Also, as before, popularity was met with rejection, accompanied by misconceptions. Sanjay Gupta, M.D., chief medical correspondent for CNN, expressed that one of the top five misconceptions about SARS-COV-2 and COVID-19 is that masks do not protect the user from contracting the disease (CNN, 2020). During the time between July and August 2020, about 16% of American adults surveyed reported that they never or seldomly wore masks in a public setting. Akin to the 1918 influenza pandemic, anti-mask rallies popped up, but this time were widespread across America rather than limited to a few cities as was the case in 1918 (Taylor and Asmundson, 2021). The lack of trust and support in masks can be linked to social media and Republican Party political viewpoints, with mask rejecters reasoning that masks were not effective or comfortable enough to wear against a disease that they believe would not affect them (Gupta, 2020; Taylor and Asmundson, 2021).

Face Mask Types and Efficacy

The National Center for Immunization and Respiratory Diseases, part of the Center for Disease Control and Prevention (CDC) categorizes face masks into three groups: cloth, surgical/disposable, and N95 respirators (National Center for Immunization and Respiratory Diseases (U.S.), 2022). Cloth masks are made from cloth fabric and can be stacked or combined with surgical/disposable masks to increase their efficacy. These masks can be made at home, making them more accessible to the public. These masks are also reusable upon cleaning, giving them an advantage in terms of cost and reusability when compared to other mask types (**Table 1**). A major disadvantage of cloth masks, however, is that these masks have the highest potential for user error due to their ability to be produced at home and being unfitted. Many health officials have deemed cloth masks a last resort option when no other mask type is available (Das et al., 2021).

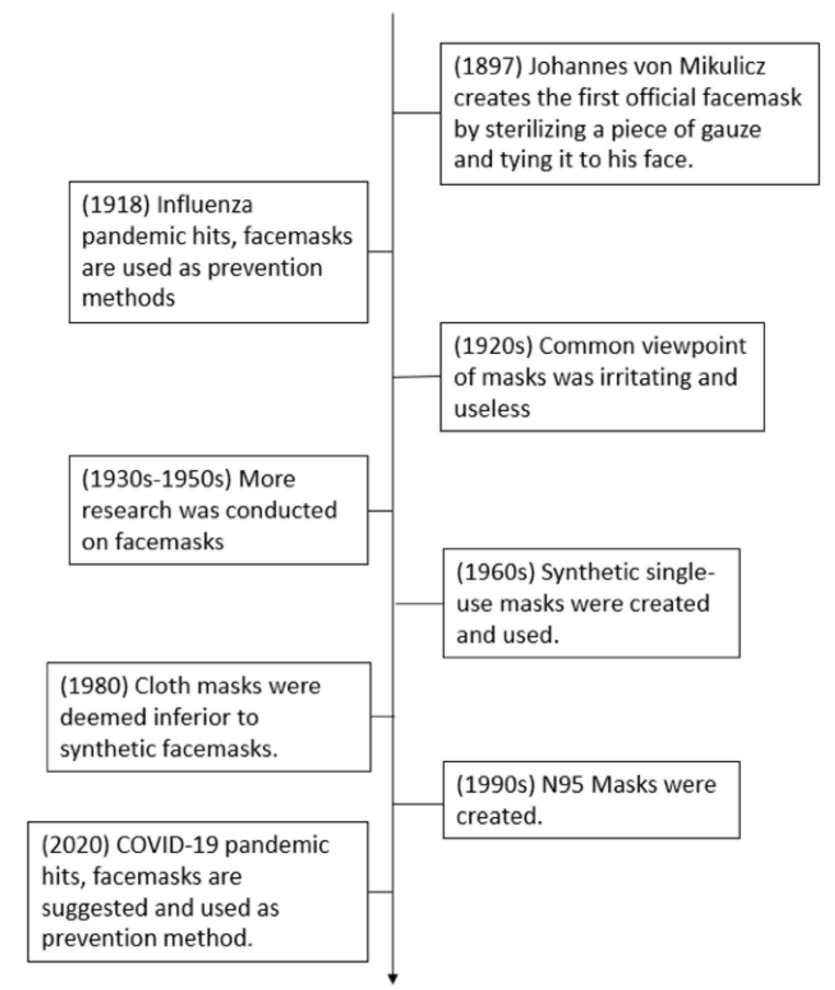

Fig. 3: A timeline containing important events pertaining to face masks such as the first official mask to the most current pandemic where masks were used as a major prevention method (Cucinotta & Vanelli, 2020; Matuschek et al., 2020; Strasser & Schlich, 2020; Tbilisi, 2022).

Surgical/disposable masks are the masks commonly used in medical settings and can be commonly found in stores in bulk, which gives this mask type an advantage over the other mask types (**Table 1**) (National Center for Immunization and Respiratory Diseases (U.S.), 2022). These masks are also fluid- and flame-resistant and regulated by the FDA (Food and Drug Administration) (Fischer et al., 2020). Arguably, their biggest advantage is that multiple studies have supported the claim that surgical/disposable masks' efficacy has little to no statistical difference to N95 masks (Randonovich, Jr. et al., 2019 and Wang et al., 2020). However, like cloth masks, surgical/disposable masks are unfitted and may not be able to create a complete seal, leaving room for pathogens to slip through gaps in between the face and the nasal and oral cavities (Ju et al., 2021). While N95 masks can protect the user from infectious aerosolized particles and droplets, surgical/disposable masks specialize mainly in only preventing aerosol/droplet spreading from the user (Fischer et al., 2020).

N95 respirators have more tightly-woven filters than the average mask and are also used in healthcare settings. N95 respirators are designed to create a seal between the nasal and oral cavities and the environment. If this is not created, then the N95 mask can malfunction and leak air from the sides (National Center of Immunization and Respiratory Diseases, 2022). N95 masks specialize in protecting the user from the environment which is the opposite specialty of surgical/disposable masks. Another advantage is that N95 respirators have four layers, as opposed to the three layers typically seen in surgical masks (**Table 1**). N95 masks also have the highest average efficacy out of the selected mask categories (Fischer et al., 2020). A major disadvantage of N95 masks is their cost, as N95 are more expensive than surgical/disposable masks while being less accessible and created to be single use (Ju et al., 2021).

	Characteristics	Advantages	Disadvantages
N95	Protects user from environment. Thickest mask type with 4 layers.	Creates total seal between nasal and oral cavity and the environment. Highest efficacy rates against all selected pathogens of the three mask types.	Most expensive of the mask types. Least accessible mask type.
Surgical/ Disposable	Protects environment from user. Has 3 layers. FDA regulated.	Cheap and flame resistant. No statistical difference when compared to N95.	Single Use Greater chance of gaps in mask due to the mask not being fitted.
Cloth	Comprised of various fabrics and cloth. Can be stacked.	Cheap and can be created at home. Most reusable of the three mask types.	Lowest efficacy rates against the selected pathogens of the three mask types. Only recommended as a last resort.

Table 1: Comparison of the three mask categories. Comparison of selected mask categories using characteristics, pros, and cons of each mask type. (Fischer et al., 2020; Ju et al., 2021; MacIntyre et al., 2011; National Center for Immunization and Respiratory Diseases (U.S.), 2022; Radonovich et al., 2019; Wang et al., 2020.)

A mask functions by blocking particles such as aerosols and droplets from getting through the mask. This is referred to as mask efficacy. If a mask has a 75% mask efficacy, then 75% of particles will be blocked by the mask. Multiple factors can contribute to a mask's efficacy rating, such as fit on the user generally, conditions the mask is worn in, and type of material that is used to construct the oral/nasal covering.

Another important aspect of face masks' ability to protect is the compliance factor, or how willingly an individual wears a mask. Face masks were already widely accepted and utilized in medical settings due to their requirement as personal protective equipment (PPE) as masks can help control the spread of various pathogens (Humphreys, 2020). However, face mask use in the public has oscillated depending on timing and location. Following Dr. Fauci's message on masks on April 3rd, 2020, the usage of masks increased nearly twelvefold in April compared to March (Richter, 2021). While there were anti-mask groups around America (Taylor and Asmundson, 2021), they were outnumbered by regular mask users, according to multiple studies. In June 2020, one survey reported that 65% of American adults wore a mask most of the time in public places, and 15% wore masks some of the time, with 16% being categorized as very rarely wearing a mask or wearing no mask (Igielnik, 2020). Another survey was concluded after this survey, taking into account the mask mandates that were put in place in late July and August to see whether the mandates increased the percentage of Americans in Wisconsin who wore a mask. In Wisconsin, 41% reported that they wore masks in early June, before any mandates. By August 1st, when the state mandate was placed, 96% reported to have worn a mask in public, more than double the number from June (Haischer et al., 2020).

The sudden increase in mask wearing during the COVID-19 pandemic is also attributed to the lower number of flu cases being reported between late 2019 and early 2021 (Gertz et al., 2023). This literature review meta-analysis aims to further elaborate on this concept, investigating how masks fare against various pathogens similar to SARS-COV-2. This paper will address whether face masks are a viable protection mechanism against not only SARS-COV-2, but other respiratory pathogens like influenza A, rhinovirus, and Streptococcus and Staphylococcus bacteria by researching the efficacy of various mask types against these respiratory pathogens.

RESPIRATORY PATHOGENS

Coronavirus

Severe Acute Respiratory Syndrome-coronavirus-2 (SARS-COV-2) is the virus responsible for the coronavirus infection, commonly known as COVID-19, and the COVID-19 pandemic. The airborne virus was first reported and isolated in December 2019 in Wuhan, China (Wang, 2020) and has an average diameter of 100 nm (Bar-On et al., 2020). The main symptoms of SARS-COV-2 infection include fever, fatigue, chills, dry cough, nausea, body aches, headache, and loss of smell or taste (Center of Disease Prevention and Control, 2022). The virus mainly travels via aerosols and/or droplets (Tang, 2020). SARS-COV-2 has an estimated basic reproductive rate (R0) of 2.5, giving it a high transmission rate between humans (Petersen et al., 2020).

Influenza

Influenza A is the virus responsible for the common flu. The airborne virus has no true origin point, though the earliest possible origin is believed to be ancient Greece (Lina, 2008). Influenza was first isolated between 1922 and 1923 (Barberis et al., 2016). The main symptoms of influenza include sudden cough, sneeze, aches, chills, fever, runny nose, and fatigue (Center of Disease Prevention and Control, 2022). The virus mainly travels via droplets and aerosols (Leung et al., 2020) and has an average diameter of 100 nm, similar to SARS-COV-2 (Louten, 2016). Influenza has a range of R0 factors from 1-5-3.0, giving it a moderate to high transmission rate from human to human (Petersen et al., 2020).

Rhinovirus

Rhinoviruses are the main virus type that causes the common cold. Rhinovirus was first isolated by Dr. Winston Price in 1956 (Kennedy et al., 2012). The common cold is not thought of to be typically lethal, instead causing mainly mild infections (Center of Disease Prevention and Control, 2023). The main symptoms of rhinovirus include cough, sneezing, runny nose, congestion, sore throat, headache, body ache, and fever (Center of Disease Prevention and Control, 2023). The virus travels via aerosols and droplets (Leung et al., 2020) and has a range of R0 factors that are >1, but ≤5, the highest of any pathogen discussed (Leung, 2021). Rhinoviruses are also the smallest pathogen of the study, having an estimated average diameter of 30 nm (Palmenberg and Gern, 2016).

Streptococcus and Staphylococcus

Streptococcus and Staphylococcus are bacteria that can cause a multitude of infections. Both bacteria can travel through the air, although they can use multiple modes of infection and cause infections like strep throat (Streptococcus) and staph infections (Staphylococcus) (Kalaiselvan et al. 2022). Streptococcus and Staphylococcus bacteria have diameters ranges of 0.5µm to 1µm and 0.5µm to 1.5µm, respectively (Patterson, 1996). Streptococcus infections can have symptoms such as fever, difficulty swallowing, swollen tonsils and lymph nodes, and sore throat (Center of Disease Prevention and

Control, 2023). Staphylococcus infections vary in severity often depending on the location. One of the main concerns is staphylococcus pneumonia as it has the potential to progress into necrotizing pneumonia or sepsis (Clark and Hicks, 2023). The bacteria can travel through the air but can also spread from direct contact from an infected surface (Park et al, 2022).

	Diameter (nm)	R_0 Factor	Isolation Year	Type of Pathogen	References Cited (Towards Mask Efficacy)
Coronavirus	100	≈2.5	2019	Virus	(5) Wang et al., 2020; Leung et al., 2020; Ju et al., 2021; Wei et al., 2021; Marti et al., 2021.
Influenza	100	1.5-3.0	1922-1933	Virus	(6) Leung et al., 2020; Brienen et al., 2010; Bischoff et al., 2011; Ma et al., 2020; Randonovich Jr. et al., 2019; Zhou et al., 2018.
Rhinovirus	30	≤5	1956	Virus	(2) Leung et al., 2020; Zhou et al., 2018.
Streptococcus/ Staphylococcus	500-1500	N/A	1879	Bacteria	(4) Zhou et al., 2018; Kalaiselvan et al., 2022; Park et al., 2022; MacIntyre et al., 2014.

Table 2: Basic information of selected pathogens. Comparison of basic information about each pathogen and how many references per pathogen were able to be found that related to mask efficacy. Ro factors give an estimate on how many individuals will be infected by an infectious individual. Diameters were commonly reported as averages, meaning pathogens can be greater or less than the diameter listed. Some pathogens share references and were counted accordingly. Nanometer (nm). (Bar-On et al., 2020; Barberis et al., 2016; Kalaiselvan et al., 2021; Kennedy et al., 2012; Leung, 2021; Leung et al., 2020; Lina, 2008; Louten, 2016; Palmenberg & Gern, 2014; Patterson, 1996; Petersen et al., 2020; Tang et al., 2020; Wang et al., 2020.)

METHODS

This study investigates the mask efficacy against various respiratory pathogens as reported in peer-reviewed published literature. Peer-reviewed published literature was selected from three search engines: PubMed, ProQuest, and Google Scholar. The first 150 listings for each search within each search engine were scanned for relevance to the topic of this paper. The literature was not selected if the literature was published prior to 2003. Keywords used to find literature were "SARS-COV-2", "influenza", "rhinoviruses", "Staphylococcus aureus", "Streptococcus bacteria" in combination with either "mask efficacy" or "N95". 13 papers were selected for this review using the methods listed above. Some studies counted for multiple pathogens and were only counted once for the final tally. Studies were included if they verified the existence of the pathogen or designed particles to match the pathogen being studied after the use of a face mask. After studies were selected, averages and standard deviations were calculated using Microsoft Excel (version 2041).

RESULTS

Coronavirus

The World Health Organization (WHO) declared the COVID-19 outbreak a global pandemic on March 11th, 2020 (Cucinotta and Vanelli, 2020). The COVID-19 pandemic led to a substantial increase in mask wearing in the United States despite there being a lack of peer-reviewed literature on mask efficacy against the spread of SARS-COV-2 at the time (Ju et al., 2021). For this paper, not all the chosen studies that focused on SARS-COV-2 also considered the N95 mask, with the majority basing their inquiry on ordinary surgical masks. It is also worth mentioning the details of two studies. Two studies were conducted and published prior to the COVID-19 pandemic's declaration date, with one study using SARS-COV instead of SARS-COV-2. Both viruses come from the same family and are found to be nearly identical in structure, the only changes being mutations that made SARS-COV-2 more infectious than SARS-COV (Xie et al, 2020).

Wang et al.,'s study was published in China in March 3rd, 2020, before the World Health Organization's (WHO) pandemic declaration (Cucinotta and Vanelli, 2020), but after China's issuing a mask-wearing recommendation for face masks to handle the outbreak in China (Tan et al., 2020). The importance of noting this timeline is to give an example on how different countries viewed the idea of using face masks to combat the transmission of SARS-COV-2 before it was declared a pandemic (Ju et al., 2021). The focus of the study was to identify whether face masks would protect medical staff from COVID-19. The study concluded with 0/278 of selected medical staff who wore the N95 mask being diagnosed with COVID-19 as compared to 10/213 of selected medical staff being diagnosed with COVID-19 who wore no mask. It was also noted that there was no significant difference between the two mask types (Wang et al., 2020).

Another study selected for this review focused on one mask type as well, choosing to test surgical masks instead of N95. This study uses SARS-COV instead of SARS-COV-2. The study was conducted by Leung et al. (2020) and split its interest between SARS-COV-2, influenza A, and rhinovirus. The study concluded with the finding that surgical masks had an 100% efficacy against both SARS-COV-2 droplets (>5µm) and aerosols (<5µm). These numbers were found by detecting viral loads within the droplets or aerosols located in the exhaled breath of an individual displaying symptoms caused by either coronavirus, influenza virus, or rhinovirus (Leung et al., 2020).

The study performed by Ju et al. looked at the three mask types and found that N95 masks had the highest efficacy, blocking 95% of particles larger than 0.3 µm. This is the general claim made by N95 mask manufacturers and it was supported by He et al.'s study. Surgical masks were found to have similar results to N95 (Ju et al., 2021). Cloth masks were identified as the worst mask type, being labeled with "poor filtration efficacy" (Ju et al., 2021). Poor filtration efficacy is generally <50% for cloth masks and suggests that the mask either does not properly fit or allows too many particles to flow through the mask (Sharma et al., 2020).

The next SARS-COV-2 study was Wei et al.'s study, which followed similar trends as Ju et al.'s study, determining that the N95 and surgical masks have similar efficiencies ("99.4% and 98.5% respectively" (Wei et al., 2021)). This was calculated by measuring the viral loads in the exhaled droplets from infectious individuals. The study also deemed cloth masks to have the worst efficacy at approximately 80%. Wei et al. also acknowledged that the masks become more efficient with growing particle sizes, with almost all masks reaching 100% efficacy at 3µm (Wei et al., 2021).

Finally, there was a unique study conducted by Martí et al. which looked at a face mask filter rather than the entire mask. It was concluded that this specific filter not only prevented SARS-COV-2 particles from passing through the mask, but also inactivated the virus, rendering it unable to replicate. The study used mask filters that were lined with benzalkonium chloride and measured the effects on SARS-COV-2. The mask filter could disable 99% of viral loads and was even capable of doing it against aerosols. It was also listed that this could also be used as a future method of prevention as it was 100% effective against methicillin-resistant forms of Staphylococcus aureus and Streptococcus aureus (Martí et al., 2021).

Influenza

Influenza A was the most common pathogen to attract peer-reviewed studies based on mask efficacy. Some of the selected studies would also have multiple pathogens within the same study, as is the case with Leung et al.'s study, previously noted for its SARS-COV-2 segment. Leung et al.'s study looked at how effective surgical masks were against SARS-COV-2, influenza A, and rhinovirus. Leung et al. found that surgical masks were less effective against influenza A droplets (96% efficacy) and aerosols (78% efficacy) than SARS-COV-2 droplets and aerosols (100% for both categories) (Leung et al., 2020).

Brienen et al.'s study simulated an influenza A pandemic by assuming influenza-related attributes such as transmissibility, infectivity, and how aerosols. By focusing on surgical and cloth masks, the creators of the study were able to predict the spread of an influenza pandemic, along with assessing how effective masks would be in this simulation. Following a similar trend from Leung et al.'s study, surgical and cloth masks were given a mask efficacy range of 58%-85% (Brienen et al., 2010).

Bischoff et al.'s study looked at how efficient surgical and N95 masks, paired with eye protection, would be against influenza A aerosols. This study was made possible by exposing consenting individuals with a live, asymptomatic influenza virus and set into groups based on mask type or the presence of a mask. The results were gained by measuring whether the virus was able to reach the nasopharynx of the individual. Results from the study concluded that without eye protection, surgical masks shielded 0 of 5 (0%) individuals from the virus and that N95 masks protected 3 of 5 individuals (60%) from the virus. It was noticed that the virus could have reached the nasopharynx through the nasolacrimal duct, presenting another mode of transmission (Bischoff et al., 2011) The idea of another method of transmission was also shared by a study carried out by Davies et al., which reinforces the idea that face masks can protect the individual without fully eliminating the risk of infection (Davies et al., 2013).

The next study used influenza to predict how face masks would protect against SARS-COV-2. Ma et al. used an influenza strain that was lowly pathogenic and sprayed its aerosols 100 times into a cloth mask, a surgical mask, and a N95 mask. The results showed that cloth masks blocked 95.15% of influenza particles, surgical masks prevented 97.14% of particles from passing through the mask, and the N95 mask obtained a near perfect 99.98% mask efficacy against the virus. As seen in **Table 2**, SARS-COV-2 and influenza have identical diameters, so by using influenza, the makers of the study were able to propose mask wearing as a viable method for protecting against SARS-COV-2 (Ma et al., 2020).

Radonovich Jr. et al.'s study was not a study that directly measured mask efficacy, but questioned whether the N95 or surgical masks are better at blocking influenza A. This was achieved by randomly assigning 189 groups to wear N95 masks around patients with respiratory sickness, and 191 groups to do the same, but with surgical masks instead. This process would continue for four years during the timeframe of which influenza cases would normally reach their peak. By the end of the study, 2369 individuals completed the study. Their results showed that 8.2% of the N95 group were confirmed to have been infected with influenza compared to 7.2% of the surgical mask group. The authors thought it worth mentioning that there was no significant difference between the two mask types (Radonovich Jr. et al., 2019), supporting the claims from similar studies that N95 and surgical masks produced efficacies that weren't significantly different (MacIntyre et al., 2011; Wang et al., 2020).

The final study selected for influenza focused on the N95 mask and multiple pathogens as it measured mask efficacy against influenza A, rhinovirus, and Staphylococcus aureus. Zhou et al. discovered that the N95 mask was >99% efficient against influenza A by aerosolizing influenza into the N95 mask. The same process would be used for measuring the mask efficacy of rhinovirus (Zhou et al., 2018).

Rhinovirus

Rhinovirus yielded the least number of studies, with both studies being shared with other pathogens. Leung et al.'s study makes another appearance and displays even lower efficiencies than influenza A. Rhinovirus droplets and aerosols had surgical mask efficiencies of 78% and 62%, respectively, compared to 96% and 78% for influenza droplets and aerosols, respectively (Leung et al., 2020). Zhou et al.'s study focuses on the N95 mask and its efficiency against rhinovirus, influenza, and Staphylococcus aureus. As previously stated, the process to measure the mask efficacy of N95 masks against rhinovirus was identical to the process used for influenza. Zhou et al. concluded that >99% of rhinovirus particles were contained by the N95, sharing its efficacy rating with influenza (Zhou et al., 2018).

Staphylococcus and Streptococcus

When combined, both coccus bacteria occasioned a similar number of studies to SARS-COV-2, even sharing a study with each other. As previously stated, Martí et al proposed a mask filter that could disable 100% methicillin-resistant forms of Staphylococcus aureus and Streptococcus aureus (Martí et al., 2021). As noted above, Zhou et al.'s study focused on the N95's efficacy against Staphylococcus aureus, rhinovirus, and influenza A. Like influenza A and rhinovirus, Staphylococcus aureus was aerosolized and propelled into the N95. The N95 mask's efficacy against the bacteria was >99% (Zhou et al., 2018).

Kalaiselvan et al.'s study looked at how efficient surgical masks, three-layered cloth masks, and seven-layered cloth masks were against Staphylococcus aureus. This study would be the only study to measure cloth masks with varying amounts of layers. The Staphylococcus aureus bacteria was aerosolized via speech and captured in either masks or agar plates. The results suggested that three-layered cloth masks are 98% efficient against the bacteria, and seven-layered and surgical masks are 100% effective at containing the bacteria. It was noted that masks should be replaced or thoroughly washed to prevent recontamination from bacterial colonization on the mask (Kalaiselvan et al. 2022).

Park et al.'s study followed the same trends as Kalaiselvan et al.'s study. Park et al.'s study found that surgical and cloth masks blocked 100% of the Staphylococcus aureus bacteria. This was determined by measuring the number of bacteria on either side of the face mask worn by an individual. Interestingly, it was also found that the bacteria would stick to the mask and begin to repopulate. The risk of reinfection was also present in this study, as Staphylococcus aureus colonies had an 80% chance to colonize on the mask and grow (Park et al., 2022)

MacIntyre et al.'s study in 2014 combines aspects from bacterial and viral studies. The study focused on Streptococcus pneumoniae bacteria alongside other bacteria and sought to discover the mask's ability to not only prevent the bacteria from spreading, but also the ability to prevent colonization. The mask efficacy for N95 and surgical masks were assumed to be >99%, respectively, for Streptococcus pneumoniae. The results concluded with the N95 and surgical mask filters being capable of deactivating 97.2% and 94.7% of Streptococcus pneumoniae on the mask. This study also focused on co-infection and found that mask efficacy drops by approximately 40% if there is also a viral infection occuring (MacIntyre et al., 2014).

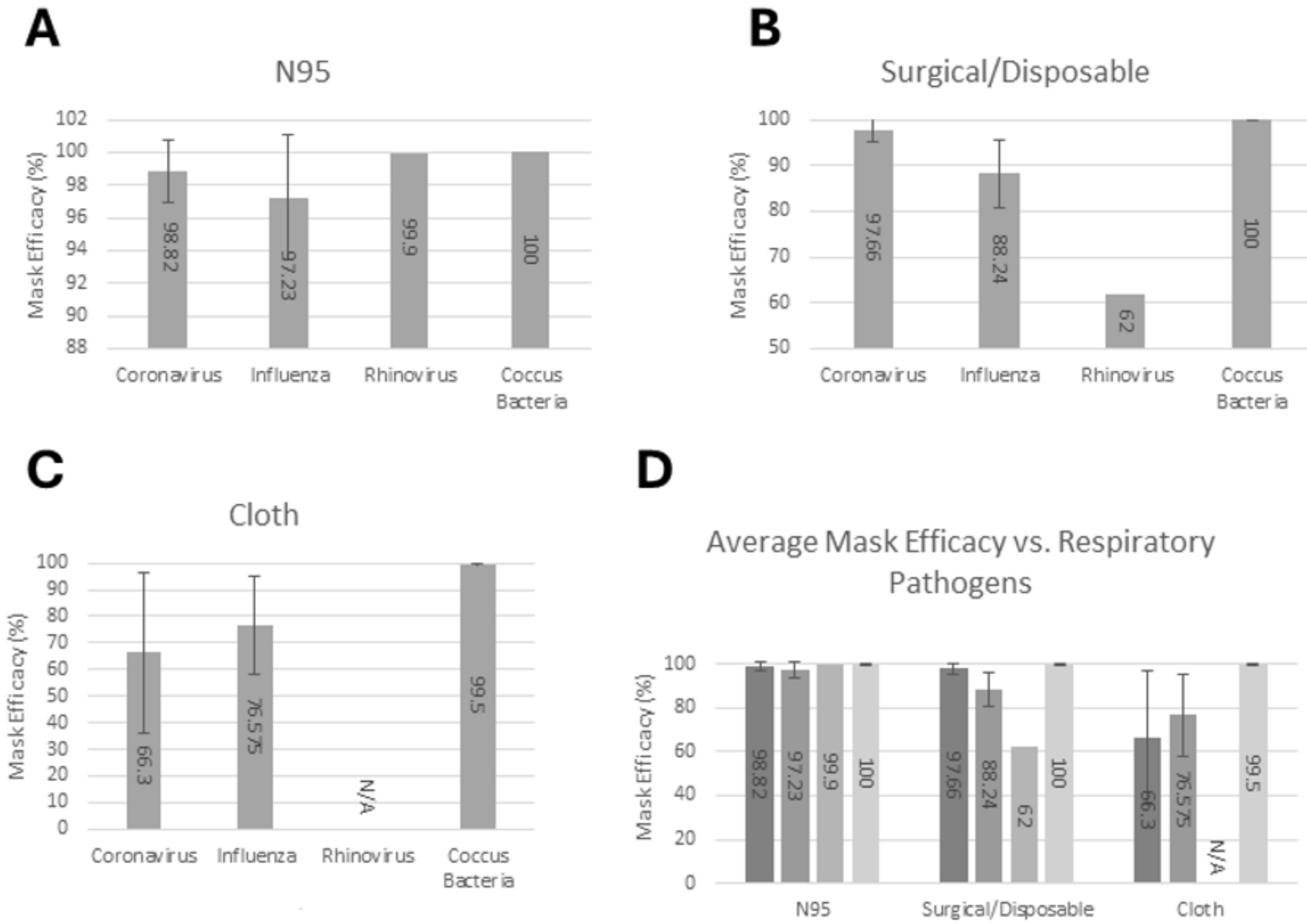

Fig. 4. Comparison of average mask efficacy for each pathogen and mask type, N95 (A), Surgical/Disposable (B), Cloth (C), and all together (D) with standard deviation bars. Averages were calculated by adding up the recorded efficacies from selected studies and divided by the number of selected studies. Rhinovirus studies did not include cloth masks in the selected studies. A N/A rating was given to show no average efficacy rating. Rhinovirus studies also provided one efficacy for N95 and surgical/disposable masks each, resulting in zero error on the average.

CONCLUSIONS

This review aims to raise interest in the efficacy of face masks against respiratory pathogens and to give a clearer viewpoint on face-mask wearing. This review compiled studies that focused on mask efficacy against a specific respiratory pathogen to determine whether face masks were efficient in preventing pathogen spread. All selected studies took appropriate measures in assuring that the tested pathogen was the chosen pathogen or that the particles used were identical to the preferred pathogen. Studies that verified the presence or characteristics of the pathogen were preferred because there is no concern that pathogens were confused for another, ruining the validity of the findings. Overall, the results of the review show that face masks provide highest efficacy rates for protection against SARS-COV-2, influenza, and bacteria and protection against these pathogens (**Fig. 4D**).

The rhinovirus had the least number of studies and did not yield a published study that solely focused on the mask efficacy against rhinovirus (**Table 2**). Both studies that included rhinovirus also focused on influenza A and Staphylococcus aureus, respectively. This could be due to fact that rhinovirus mostly causes minor respiratory infections and is thus not as serious a viral threat to human health as SARS-COV-2 or influenza (Ljubin-Sternak and Meštrović, 2023). Interestingly, the lowest efficacy rate was recorded with surgical/disposable masks against rhinovirus at 62% (**Fig. 4B**) (Leung et al., 2020). This could be attributed to the size of rhinovirus, as it is the smallest pathogen evaluated, at an average diameter of 30 nm (Mandal, 2023). For comparison, SARS-COV-2, and influenza A both have 100 nm diameter averages. N95 masks were designed to block approximately 99.8% of particles that have a diameter of 100 nm (Bar-on et al., 2020), which match the average diameters of influenza A and SARS-COV-2, but that design size would not protect against a smaller virus like rhinovirus. In contrast, bacteria like Streptococcus and

Staphylococcus have a much larger diameter of 500-1500 nm, which could be responsible in part for the near 100% ratings for all mask types (Public Health Agency of Canada, 2012). Their diameter is approximately 17 times larger than that of a rhinovirus virion's diameter. Rhinovirus was the least researched pathogen, often sharing studies with other pathogens, making the search for mask efficacy against rhinovirus difficult. This is possibly also due to the proposed lack of concern about rhinoviruses among the scientific community (Ljubin-Sternak and Meštrović, 2023).

Aside from testing for pathogenic spread, masks can also be tested against general-sized aerosols to document their efficacy. These masks have penetrating particle size ranges, giving a size range through which a pathogen could potentially flow through. The range was reported to be 30 to 100 nm for N95 masks and 200-500 nm for cloth and surgical masks (Ju et al., 2021). This would be backed by He et al.'s study, which tightened the range for N95 masks to 30-40 nm and the range for surgical masks was altered to 100-400 nm, possibly providing an alternative to look to the idea that N95 masks and surgical masks are so similar (He et al., 2019). This also supports the claim that rhinovirus has the lowest mask efficacy, as both studies found that a particle of about 30 nm could pass through the mask with relative ease compared to other viruses (He et al., 2019 and Ju et al., 2021).

The mask efficacy conclusions made by numerous studies in this review are also supported when the measured mask efficacies are averaged and compared as seen in **Fig. 2**. N95 masks generally reported the highest averages in the pathogen categories between the 97th and 100th percent efficacy range with low standard deviations for coronavirus and influenza (1.92-3.83). Surgical masks and cloth masks offered more variation than the N95 masks, but surgical masks still outperformed cloth masks in their respective pathogen categories. All mask groups had their lowest efficacy against different pathogens: influenza produced the lowest average for N95 (97.23%), rhinovirus had the smallest average of the graph in surgical masks (62%), and cloth masks are the most susceptible to coronavirus (66.3%). These are only averages comprised of calculated mask efficacies from other studies, and some of which relied on results from a single study (N95 and surgical mask efficacy against rhinovirus) or did not have a documented a mask efficacy at all (such as cloth mask efficacy against rhinovirus). This variation in mask efficacies could also be attributed to the number of studies that were found for each pathogen, as shown in **Table 2**. The more studies were conducted for a pathogen, the higher the average and the lower the standard deviation.

Influenza A search resulted in six studies that fit the selection criteria for mask efficacy, the most out of any pathogen for this review (**Table 2**). Multiple reasons could contribute to the high number of studies on influenza A. Compared to rhinovirus, influenza A is bigger and has an earlier discovery than rhinovirus. As seen in **Table 2**, influenza was isolated between 1922 and 1923 (Barberis et al., 2016), whereas rhinovirus was isolated in 1956 (Kennedy et al., 2012). Influenza A also had more studies compared to SARS-COV-2 which could be attributed to the isolation year in 2019 (Wang, 2020). Although it is an identical virus in size compared to SARS-COV-2, it has been studied for a much longer timeframe (Barberis et al., 2016 & Wang, 2020). The COVID-19 pandemic is recent at the time of writing when compared to the multiple influenza pandemics, with the most recently declared influenza pandemic recorded in 2009 (Tsoucalas & Sgantzos, 2016). With influenza capable of producing multiple pandemic declarations since its isolation year, this could have resulted in a much greater interest in how masks protect individuals from influenza in anticipation for another influenza pandemic (Kilbourne, 2006).

A common message to appear with bacterial studies is the risk for reinfection. Bacteria generally had approximately 100% mask efficacy across the mask types, with cloth masks having the lowest average efficacy rating at 99.5%. This high mask efficacy rate was recorded in studies such as Kalaiselvan et al. and Park et al. studies that also warn against prolonged use of the same mask or reuse without cleaning the mask. Prolonged exposure can lead to colonization due to bacteria thriving on damp surfaces. A face mask is likely dampened by exhaled breath. Due to viruses requiring a living host to replicate themselves, a virus is far less likely to colonize and survive on a mask than bacteria. This brings another layer of concern for respiratory bacterial infections, as masks have a near 100% chance to contain the bacteria and can increase the chance of colonization, leading to possible reinfection (Kalaiselvan et al., 2022; Park et al., 2022).

Concerning Staphylococcus and Streptococcus, studies record efficacies near 100% across all masks. This connects the efficacy of the N95 mask to that against influenza A and SARS-COV-2 (**Table 2**). As stated before, the N95 mask was designed to block these smaller viruses, and as a side result, block bacteria as well. This would explain why the N95 mask's efficacy generally was high 90th percentile. The cloth mask also needs to be tested against rhinovirus, as that was the only pathogen to not have a study that involved the N95 mask. Considering that PPEs can be properly worn with both N95 masks and surgical masks, the idea that surgical masks are on similar levels in terms of mask efficacy is not far-fetched. Surgical masks were used in place of N95 masks if that type of mask was absent from the study. These masks generally stayed in the high 90th percentile, with an outlier of 62% efficacy against rhinovirus (Leung et al., 2020). Studies concluded with the idea that there is no statistically significant difference between the surgical and N95 mask, so there is more need to answer the question whether the N95 is worth the increase in price and effort, as the N95 requires precise fitting to function properly (Radonovich, Jr. et al., 2019, MacIntyre et al., 2011 & Wang et al., 2020).

A major caveat to these studies is that it assumes wearers will wear their face mask perfectly; however, N95 masks have to be fitted accordingly to the user's face (**Table 1**). As such, this opens the door for human error due to the fitted nature of N95 masks and the fact that they were not designed to be paired with other mask types. In contrast, both cloth and surgical/disposable are unfitted and can be adjusted or stacked to better suit the user (National Center for Immunization and Respiratory Diseases (U.S.), 2022.). Perhaps future studies could incorporate the potential that the individual could be wearing the mask incorrectly or proceed in a similar route as Kalaiselvan et al.'s study and perform experiments with various mask layers.

The results of this review show that wearing masks provides at least a basic level of protection against respiratory pathogens with surgical masks and that N95 masks provide a greater level of protection than cloth masks. The results also showed that wearing face masks during the COVID-19 pandemic was a beneficial way to prevent the spread of SARS-COV-2. A benefit of this review is that this knowledge can be used in the event of a future pandemic involving a respiratory pathogen. In the event of a future pandemic, global and national officials should be able to safely recommend masks quickly and efficiently in an effort to prevent the disease from progressing much further than it already has. More detailed studies can be conducted using this format to further research and our understanding of face masks and their efficacy against respiratory pathogens. ❖

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The citation system used in this essay is CSE 8th Name-Date.

SHANICE TILLERY
THE EFFECT OF COCAINE USE ON THE HUMAN IMMUNE SYSTEM AND ITS ABILITY TO DEFEND AGAINST PATHOGENS

INTRODUCTION

The concept of substance use has always been interesting to me. More specifically, I'm interested in the effect of substance use on the immune system since that system is technically our body's main line of defense against pathogens. This interest also includes the question of how using certain substances can affect an individual's susceptibility to contracting pathogens. After a strenuous search for peer-reviewed research articles on the concept of substance use and its effect on the immune system, I discovered that the substance cocaine had the most research available regarding this topic.

This topic is important since cocaine use has increased significantly since the COVID-19 pandemic (Turak, 2023; United Nations Office on Drugs And Crime, 2023). It is believed that about 2,000 tons of cocaine were produced in 2020. This finding is supposed to be a continuation of the boom in cocaine manufacturing that began in 2014 when the total was less than half of today's levels (Turak, 2023; United Nations Office on Drugs And Crime, 2023). However, as per the United Nations Global Report on Cocaine (2023), the year 2023 saw the highest level ever recorded regarding cocaine production, with the demand for the drug rebounding significantly post-pandemic, accompanied by the emergence of new trafficking hubs (Turak, 2023; United Nations Office on Drugs And Crime, 2023).

Photo by MART PRODUCTION

With cocaine having this much of an impact on a global scale it is important to fully understand its effects on the human body. Cocaine is an illegal drug that can cause feelings of euphoria, increased heart rate, increased body temperature, and loss of appetite after use (National Institute on Drug Abuse, 2016). These effects contribute to cocaine's highly addictive properties since it has been well-established in academic research that cocaine is a central nervous stimulant (Ersche and Doffinger, 2017; Marasco et al., 2014; Moreira et al., 2016). The specific effect that cocaine use has on the central nervous system is an increase in the release of dopamine in the brain (Ersche and Doffinger, 2017; Marasco et al., 2014; Moreira et al., 2016). Most immune cells express multiple dopamine receptors and other dopamine-related proteins. This allows immune cells to actively respond to the increase in dopamine, which suggests that dopamine-caused immunoregulation is an important part of proper immune function (Matt and Gaskill, 2020) which is disturbed by the presence of cocaine.

EFFECT ON THE NERVOUS SYSTEM AND IMMUNE SYSTEM

Before getting to the immune system, it must be noted that cocaine use directly stimulates the central nervous system (Ersche and Doffinger, 2017; Marasco et al., 2014; Moreira et al., 2016). The reason for this is that inflammation and infection are thought to occur in conjunction with cocaine-related changes in brain function (Ersche and Doffinger, 2017; Marasco et al., 2014; Moreira et al., 2016). Because it stimulates the central nervous system, cocaine is known as a sigma receptor ligand (Gardner et al., 2004). Sigma receptors are intracellular receptors that interact with psychotropic ligands, including cocaine. In this case, cocaine is a sigma receptor that causes the release of dopamine. Dopamine alters mood regulators and can exacerbate stress responses in the human body. The dopamine increase from cocaine use is one of the most well-researched side effects of cocaine addiction. This is understandable since the released dopamine is essential for cocaine's highly addictive effects since it causes positive feelings after use (Ersche and Doffinger, 2017; Marasco et al., 2014; Moreira et al., 2016). Dopamine release causes euphoric feelings, increased heart rate, and increased body temperature.

Effect on the Immune Cells

Regarding the immune system, cocaine use is known to alter the function of natural killer (NK) cells, T cells, B cells, neutrophils, macrophages, and the ability of these cells to secrete cytokines (Baldwin et al., 1998; Ersche and Doffinger, 2017; Fox et al., 2012; Marasco et al., 2014; Moreira et al., 2016; Pellegrino and Bayer, 1998; Pellegrino et al., 2001; Zaparte et al., 2019). In humans, cocaine use increases NK cell count activity; however, NK cell activity decreases in mice (Baldwin et al., 1998; Pellegrino and Bayer, 1998). It is also important to note that NK cells also regulate B cells in an inhibitory manner, suppressing their activation and antibody production. This means that if NK cell count and activity increase as a result of cocaine use, then B cell activation will be suppressed more often than necessary (Baldwin et al., 1998). T cells are believed to have their functions suppressed as a result of chronic cocaine use (Baldwin et al., 1998). Cocaine is believed to activate neutrophils prematurely and suppress the effectiveness of macrophages' ability to kill antigens (Baldwin et al., 1998). Acute cocaine use results in a decrease in mitogen-induced T-lymphocyte proliferation in rats (Pellegrino and Bayer, 1998).

Effect on Cytokines Specifically

Cytokines are an interesting case since many varieties are available in the human body. It has been found that in-vitro cocaine administration results in a dose-dependent decrease in the secretion of all cytokines measured by Wang et al., in 1994 in mice (Pellegrino and Bayer, 1998). However, In-vivo cocaine administration showed both increases and decreases in different types of cytokines tested in mice by Wang (et al., 1994). In humans, the situation regarding the cytokine effect from cocaine use in humans is a bit more complicated.

Cocaine dependence is seen as a state of stress, and both stress and substance use have also been proven to have effects on immune system cytokines, which are known to be modulators of mood (Fox et al., 2012). A study was conducted that examined factor-alpha (TNFa), basal IL-10 (interleukin-10), and basal IL-1ra (interleukin-1 receptor antagonist), mainly expressed by lymphocytes, macrophages, and dendritic cells at a basal level, and forced changes in peripheral cytokines in cocaine-dependent individuals (Fox et al., 2012). The experiment in this study took twenty-eight (16 F, 12 M) cocaine-dependent individuals and 27 (14 F, 13 M) social drinkers (Fox et al., 2012). It exposed them to guided imagery that signified stress, a drug cue, or relaxation for five minutes. This guided imagery was shown to them randomly across multiple days (Fox et al., 2012). They measured salivary cortisol, tumor necrosis factor-alpha (TNFa), IL-10, and IL-1ra at baseline after the imagery time points (Fox et al., 2012). This study is important since it provides insight into how cytokines affect the human immune system.

Next, it was shown that cocaine abusers had decreased basal IL-10 compared to social drinkers (Fox et al., 2012). Cocaine users also showed significant elevations in their pro-inflammatory TNFa when exposed to stress compared to when they were exposed to relaxing imagery (Fox et al., 2012). This was not seen in the social drinkers. However, social drinkers showed increases in the anti-inflammatory markers, IL-10 and IL-1ra, following exposure to the drug cue, which was not seen in cocaine-dependent individuals (Fox et al., 2012). This research indicates that cocaine-dependent individuals demonstrate a higher inflammatory state at baseline and following exposure to the stress imagery conditions than social drinkers do.

Another study focused on abstinence-related symptoms during cocaine detoxification treatment (Zaparte et al., 2019). The goal of this was to investigate immune profiles in women with cocaine use disorder according to the severity of their withdrawal symptoms (Zaparte et al., 2019). Blood samples and clinical data were collected at the start of detoxification treatment for fifty women with cocaine use disorder. The patients were classified according to Cocaine Selective Severity Assessment (CSSA) scores in either low withdrawal (L-W) or high withdrawal (H-W) categories (Zaparte et al., 2019). 19 healthy women also had their blood tested to act as a control group (Zaparte et al., 2019).

The lymphocytes from women with cocaine use disorder produced increased levels of Th1, Th2, and Th17 cytokines (Zaparte et al., 2019). Higher levels of IL-2 and IL-17 were observed only in the L-W group, while higher levels of IL-6 were detected in the H-W group compared to controls (Zaparte et al., 2019). The H-W group showed a lower percentage of early differentiated Th cells (in $CD4^+CD27^+CD28^+$), an elevated percentage of Th cells (in $CD3^+CD4^+$), intermediate-differentiated Th cells (in $CD4^+CD27^-CD28^+$), and B-cells (in $CD3^-CD19^+$) (Zaparte et al., 2019). Both cocaine use disorder groups showed decreased percentages of naïve T cells (in $CD3^+CD4^+CD45RA^+$ and $CD3^+CD8^+CD45RA^+$) (Zaparte et al., 2019). Both of these studies indicate that cytokines can either increase or decrease in quantity or activity as a result of cocaine use. This means the severity of the gain or loss of cytokines is mostly dependent on the severity of the cocaine use and other external stresses that the individual may face in their day-to-day life. Cytokine over-activation is also known to be one of the main causes of cancer, so the development of cancer should also be considered a consequence of cocaine use (Morris et al., 2022).

EFFECT ON SUSCEPTIBILITY TO PATHOGENS AND TUMORS

The effect cocaine use has on the immune system and its cells is also known to directly influence the development of certain pathogens and tumors. The immune system is the body's main line of defense, so if its functions and cells are altered, it can be assumed that susceptibility to pathogens would be higher. This is explored in this section.

Human Immunodeficiency Virus (HIV)

It has been well established that a common health consequence in cocaine-addicted individuals is the increased transmission and progression of infectious diseases, such as HIV (Baldwin et al., 1998; Ersche and Doffinger et al., 2017; Pellegrino and Bayer, 1998). This is not a surprise since it was previously established that cocaine does affect the body's immune cells. In one study, researchers cultivated the immune cells of cocaine users using an in-vitro method (Baldwin et al., 1998). More specifically, after alveolar macrophages were recovered from the lungs of crack users, extracted alveolar macrophages were then infected with a macrophage-tropic strain of HIV in vitro (Baldwin et al., 1998). As a result of this study, it was discovered that the release of the p24 antigen, the most abundant HIV protein, from alveolar macrophages in cocaine users was increased by a factor of 2-3 compared to infected alveolar macrophages from non-cocaine smoking subjects (Baldwin et al., 1998).

Vascular Disease

Vascular disease and myocardial abnormalities are also points of concern for those who use cocaine (Bachi et al., 2017; Basso et al., 2011). This is interesting since the heart and vascular system pump blood, oxygen, and immune cells throughout the body. So, if the vascular system is known to be affected by cocaine use, then it is not surprising that the immune cells are also affected as well.

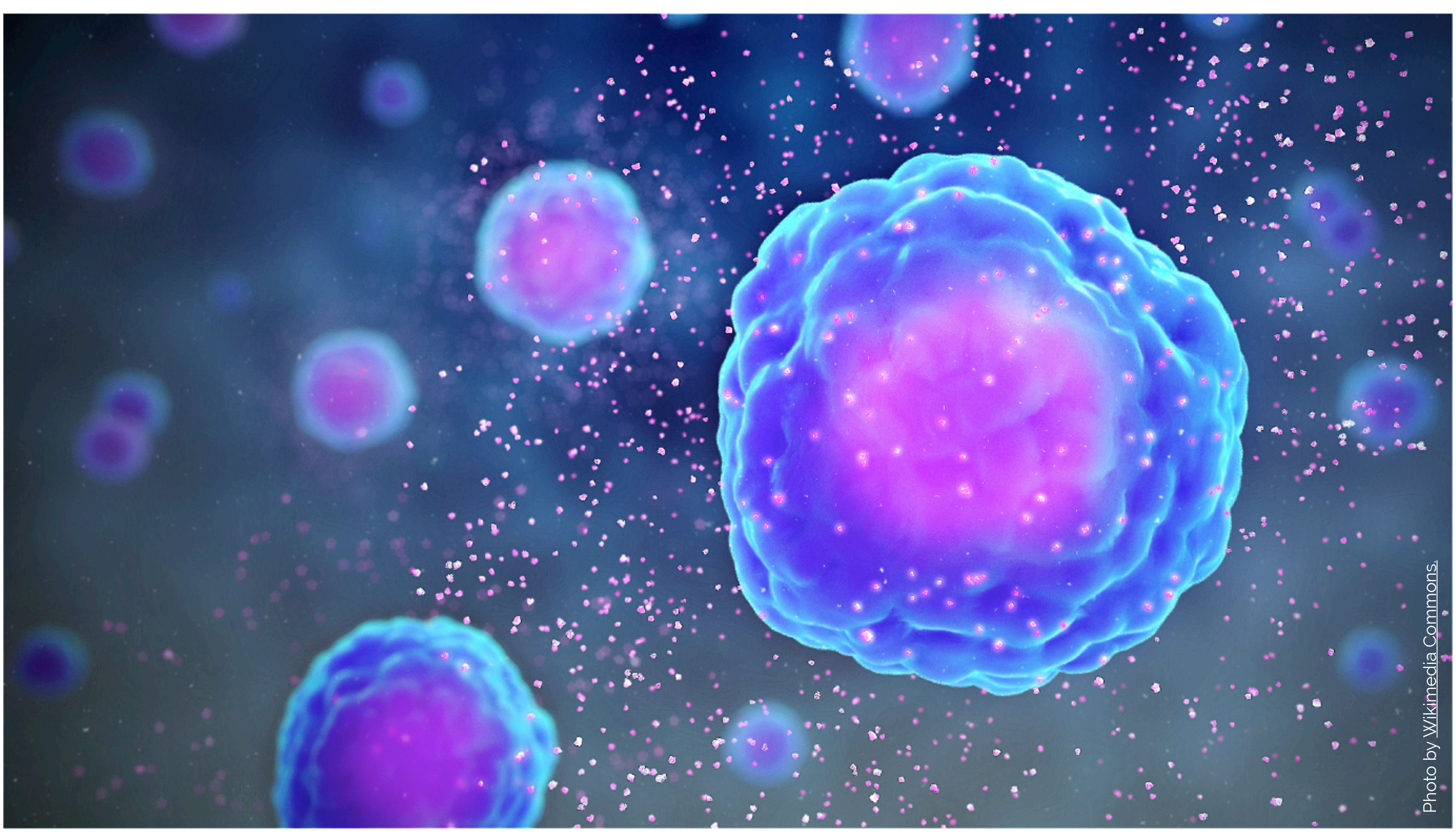
In a study conducted by Bachi, Mani, Jeyachandran, Fayad, Goldstein, and Alia-Klein (2017), authors found that cocaine is a powerful vasoconstrictor. Cocaine further induces immune responses including cytokine elevations, and chronic cocaine use is also associated with functional brain impairments potentially mediated by vascular pathology (Bachi et al., 2017). They reviewed both major postmortem and in-vitro studies documenting "cocaine-induced vascular toxicity" (Bachi et al., 2017). Findings consist of the major mechanisms of cocaine-induced vasoconstriction, endothelial dysfunction, and accelerated atherosclerosis, emphasizing acute, chronic, and secondary effects of cocaine. The authors claim that the causes of cocaine's acute and chronic vascular effects are multifactorial, including hypertension, impaired homeostasis, impaired platelet function, thrombosis (blood clot within blood vessels), thromboembolism (blockage of a blood vessel by a blood clot has become dislodged from another site in the circulation), and alterations in blood flow (Bachi et al., 2017).

Research into vascular disease and myocardial damage caused by cocaine use is explored further in a review paper written by Basso, Marra, and Thiene (2011). Basso Marra and Thiene summarized the effects cocaine seems to have on the development of certain heart conditions (Basso et al., 2011). They found that myocardial damage in cocaine users includes cardiac hypertrophy, acute myocardial infarction, dilated cardiomyopathy, and myocarditis (Basso et al., 2011). More specifically, the studies they referenced concluded that myocardial damage was found in 83% of cocaine users, 73% of which includes delayed enhancement (DE) and 47% edema (Basso et al., 2011). This is concerning since myocardial DE detected by CMR imaging is viewed as a surrogate for fibrosis, an irreversible myocardial injury (Basso et al., 2011). Cocaine use affecting the vascular and myocardial system in this way can also cause immune cells in the body to be preoccupied with repairing the damage caused to focus on other things, such as cells that have become cancerous.

Development of Cancer

Cocaine has also been theorized to increase the likelihood of developing cancerous tumors, but not much research regarding this theory has been conducted on humans. In a study conducted to test cocaine use's effect on the development of cancerous tumors, cocaine was given to mice to promote the in-vivo growth of a syngeneic lung cancer cell line (Gardner et al., 2004). Researchers observed that increased tumor growth was accompanied by an increase in IL-10 cytokines and a decrease in IFN-gamma cytokine production in splenocytes (a variety of cell populations such as T and B lymphocytes, dendritic cells, and macrophages) and at the location of the tumor (Gardner et al, 2004). The researchers concluded that the sigma receptor ligand in cocaine increased tumor growth when using a cytokine-dependent, receptor-mediated mechanism that involves the regulation of T helper 1 and T helper 2 cytokine balance. Even though this study was conducted on mice, this information is still valuable to this review paper, since it adds further evidence to the hypothesis that cytokine overproduction or overactivity can cause the growth of cancerous tumors.

As stated previously, overactivation of cytokines is one of the leading causes of developing cancerous tumors (Morris et al., 2022). In 1999, research was conducted to test whether humans who chronically inhaled cocaine may predisposed for the development of pancreatic adenocarcinoma (Duarte et al., 1999). The researchers' methods included a chart review to search for pancreatic adenocarcinoma patients younger than 40 who had a history of using or inhaling cocaine (Duarte et al., 1999). They chose this age range because members of this group have the highest probability of using or abusing cocaine (Duarte et al., 1999). Of the 198 patients with pancreatic adenocarcinoma that they could find, 13 individuals were younger than 40 years, and 5 of these 13 individuals had used inhaled cocaine for about a decade (Duarte et al., 1999). One of



the 13 individuals had used marijuana, and there was no information on drug usage in the other 7 patient charts (Duarte et al., 1999). Although this study's scale was extremely small, the researchers concluded that there might be a possibility that chronic cocaine exposure predisposes people to the development of pancreatic adenocarcinoma. Further studies are necessary to confirm this as fact (Duarte et al., 1999).

Another study conducted in 2024 tested whether or not humans could develop head and neck cancer as a result of repeated cocaine use (Zhang et al., 2024). However, as a result of the limited sample sizes they had for each of their treatment groups, including the limited number of cocaine users, future investigations into the topic will require larger studies with more detailed information on participants' cocaine use history (Zhang et al., 2024). This issue with human research lacking willing participants or having other limitations is a trend in human research regarding cancer development and its link to cocaine use. This is disappointing since overactivation of cytokines has been observed as a result of cocaine use, and this overactivation is known to be the main cause of cancerous tumor development (Morris et al., 2022).

CONCLUSION

Cocaine use does affect the human immune system and central nervous system negatively, including the human body's ability to become more susceptible to certain diseases or pathogens, such as HIV or vascular disease (Bachi et al., 2017; Baldwin et al., 1998; Basso et al., 2011). As previously stated, the results of the two human studies listed as examples of how human susceptibility to cancer is affected by cocaine use were fairly lackluster in comparison to the mice-oriented study covered. This is a fairly surprising situation since cocaine has been shown to cause an increase in the activity of certain types of cytokines in the human body (Fox et al., 2012; Zaparte et al., 2019). The reason I say this is because the over-activation of cytokines is the main cause of the development of cancer-causing tumors (Morris et al., 2022). This means that if cytokines are confirmed to be overactive in the human body as a result of cocaine use, then there is a high possibility that a cancer-causing tumor development could develop as a direct response to that cocaine-caused overactivity.

The main way to avoid the potential health issues associated with cocaine use would be to find ways to avoid use in the first place or find ways to encourage people to quit through educational and supportive outlets. Engaging the community about cocaine use and creating pathways to recovery requires an approach that addresses both awareness and accessibility to resources. Firstly, educational campaigns through workshops, seminars, and social media can provide crucial information about the risks associated with cocaine use and bring awareness to places to go for help. Community events, such as health fairs and awareness walks, offer ways for people to communicate their support for one another, which creates a sense of solidarity among addicted individuals and their loved ones.

Collaborations with healthcare providers, addiction specialists, therapists, psychologists, and public health agencies are crucial for the development of strategies for educating the community about cocaine's effect on the human immune system. Cocaine use not only wreaks havoc on the nervous system and mind but also severely impacts the immune system, leaving individuals vulnerable to many health complications. Educating the community about cocaine's detrimental effects on immunity is crucial in raising awareness and promoting healthier lifestyles for those who are affected by it.

Given the nature of cocaine's effects on the human immune system and the human susceptibility to pathogens, more research efforts are needed to address these complex issues comprehensively. Integrating approaches from immunology, pharmacology, and oncology will be essential for gaining a more comprehensive understanding of the relationship between cocaine use and its connection to the development of certain diseases. There is also a need for more studies that follow individuals over extended periods to assess the long-term impact of cocaine use on immune function, infectious disease risk, and cancer incidence. This will help to avoid the issue that Duarte, (et al., 1999) and Zhang (et al., 2024) faced, which was a lack of participants for their study or too small of a sample size to yield significant results. ❖

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NIANA GUNTER

THE IMPACT OF EUGENICS ON HEALTHCARE FOR AFRICAN AMERICAN WOMEN

INTRODUCTION

As a minority woman with reproductive health concerns, I speak from my own experience when I say that the way America treats minority women in healthcare is problematic. We, as minority women, need to be our solution.

My family has a history of reproductive disorders: namely polycystic ovarian syndrome (PCOS) and endometriosis. My great-grandmother has these reproductive disorders. My grandmother has these reproductive disorders. My aunts, my mother, and I all have these reproductive disorders. For my grandmother, her doctor recommended a total hysterectomy far before she'd reached menopause.

Curiously, these treatments—sterilizing treatments, ultimately—were all recommended *before* a diagnosis, or even testing, was ever made. I found this odd and intriguing for multiple reasons. Why is a genetically inherited disorder being treated in such a way? Does this medical practice arise from a place of unconscious bias or spillover from unsavory medical practices towards African Americans in America? In fields like gynecology, are women treated and diagnosed differently based on their apparent race? Did America's eugenics movement worsen the biases, stereotypes, and long-reaching effects of how African Americans as a whole are treated in healthcare?

In short: yes.

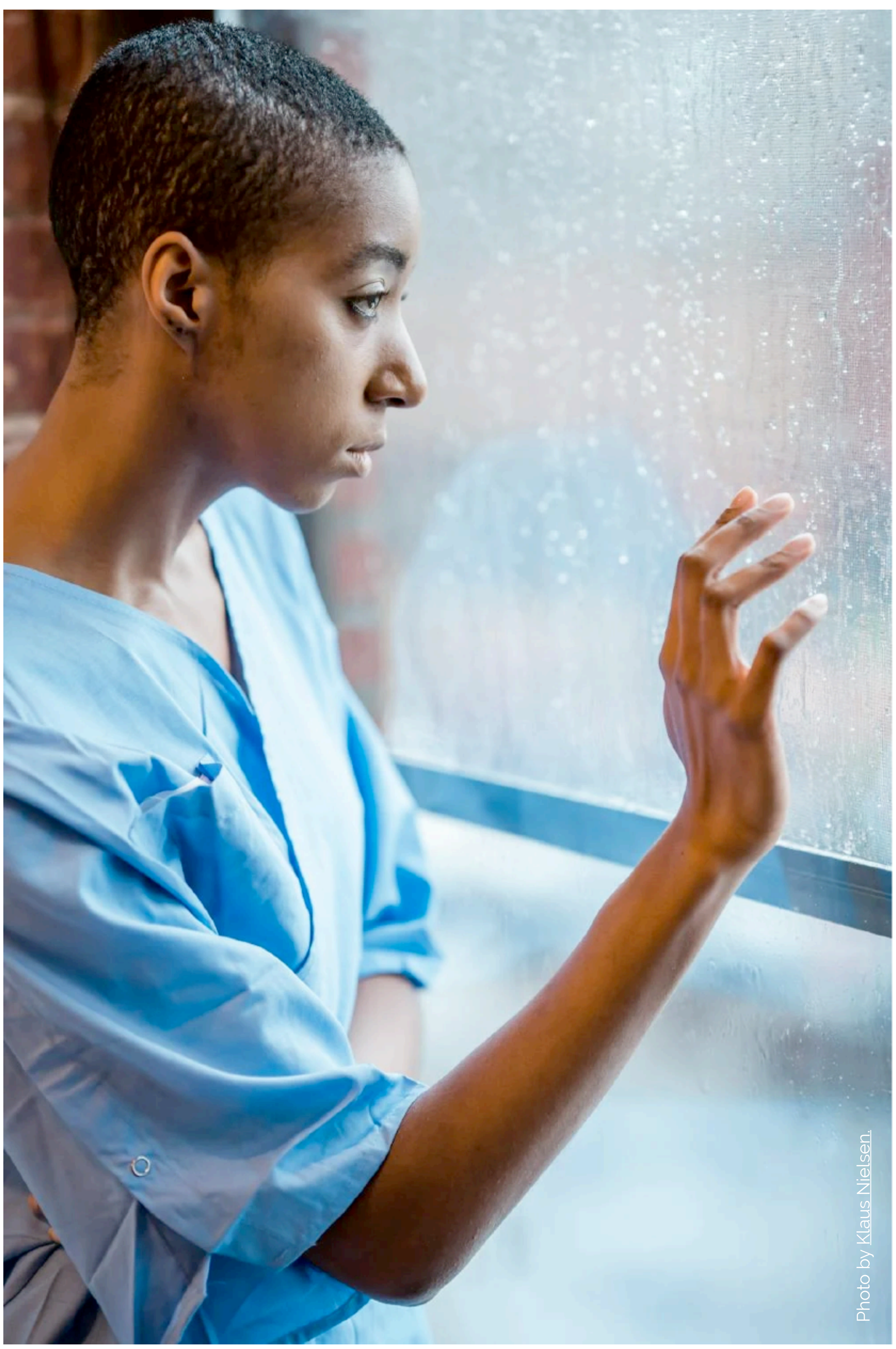
Photo by Klaus Nielsen

PURPOSE

Research has shown that African American women are more likely to be told to undergo hysterectomies in comparison to non-white women (Nnoli 2023). African American women are also more likely to die from cervical cancers and more likely to *have* various reproductive problems (Nnoli 2023). It is not a far-fetched inference to make based on America's history of medical negligence and racial bias towards African Americans in various health fields like gynecology that decisions made strictly based on race could contribute to the inclination of doctors to prescribe or recommend sterilization treatments for problems such as the reproductive disorders I've named. This is especially true in the case of genetic reproductive disorders since our current methods of "treating" these disorders aren't a true cure, and reproductive disorders like the ones I mentioned, as well as other genetically based reproductive disorders, can be passed down to offspring. Recent studies have even shown that 5-10% of female reproductive disorders are genetically inherited disorders. (Mordovina 2021). Thus, these reproductive problems are not being "solved" from the root of the problem—usually a problem with the genes involved in the production of germ cells and instead the given solutions are sterilizing remedies (Mordovina 2021). One potential way for targeting a disorder caused by genetic anomalies is by directly pinpointing the genes causing the anomalies and potentially finding ways to inhibit or alter the genes' expression pointedly, rather than "shutting down," relatively speaking, a woman's normal reproductive system altogether.

Perhaps the true culprit for why we seem to be gravitating towards sterilizing treatments for genetically inherited reproductive disorders is the eugenics movement, a movement in the early 1900s that sought to create a "genetically perfect" human race by breeding out the "unsavory" and encouraging the passing on of "good" genes (Garver 1991). To understand why or where these medical behaviors and treatments have originated, it's important to understand the extent of America's treatment and attitudes towards African American women throughout history, including where African American women and *their* genetics stood in the eyes of Americans in the 1900s and how it compared to their idea of "perfect" or "unsavory" genetics. We can make parallels between the attitudes and behaviors that resulted from the eugenics movement in America towards African American women and the way modern African American women experience healthcare quality, based on effectiveness statistics. From there, we can determine what you, as a minority woman, can do to counteract the unconscious biases that may be present in your healthcare.

HISTORICAL BACKGROUND

To get to the root of attitudes toward African Americans in medicine and why diagnostic and treatment decisions may differ depending on whether we look at white and non-white Americans, we need to understand the basis on which these biases originated. Is there an argument for racial determinism, that is, diagnosing or treating someone based on what disorders and ailments someone with their genetic background may or may not be genetically inclined to contract? If so, is it wrong for doctors to differentiate how they treat non-white Americans from how they treat white Americans?

Race, as we know the term today, was coined in the late 17th century to distinguish members of a racial hierarchy. Within this hierarchy, "whiteness" was made synchronous with superiority—physically and mentally—to justify colonization and enslavement (Bryant et al. 2022). From this, attitudes and stereotypes were shaped that influence the way we view "races" today. The eugenics movement only managed to make this worse, as *American* whiteness was determined outright to be the basis of the "superior human race" that its proponents wished to genetically foster via policies, attitudes, and stereotype perpetuation to discourage or outright prevent all minority groups, including immigrants and the disabled, from reproducing (Garver 1991).

From a purely humanistic point of view, it is wrong to assume that one group of people is incapable of having or *not* having a specific ailment strictly based on their race. As previously explained, "race" is a social term construed entirely for *social* reasons. It is not a biological term so we cannot apply it to biological disciplines. *Homo sapiens* as a whole are statistically 99.6%-99.8% similar to each other (Owen et al. 2013). When studies undertaken attempt to categorize various ailments by race, researchers have a tough time differentiating and sorting results from mixed-race people (Owen et al. 2013). Any race *can* be diagnosed with any ailment and, unsurprisingly, viewing medicinal practices through the lens of race has historically shaped how African Americans have been treated in often horrific ways. Gynecology itself, for example, has a bloody history concerning African American women. The "Father of Gynecology," James Marion Sims, practiced his craft on enslaved African women *without* the use of anesthetics (Nnoli 2023). This was in part due to the idea that African Americans did not feel pain in the same way as European Americans, an attitude that still is built into our health system in America today. An African American woman is more likely to have their pain or discomfort overlooked or minimized compared to white women (Khemani 2020). African American women are also more likely to be recommended cesarean births. This stems from an old, unfactual bias that African American fetuses aren't as capable to withstand labor (Nnoli 2023).

This is not where America's history of medical bias towards minority groups ends, however. During the eugenics movement, the narrative pushed about African American women was that they were "sexually indiscriminate" and that they were "bad mothers who'd birth defective offspring" (Nnoli 2023). This led to a push of birth control towards the African American population to limit the amount of "defective" minority offspring born (Nnoli 2023). The California Asexualization Act of 1909 led to the sterilization of a disproportionate amount of the African American and Latinx population (Nnoli 2023).

Time and time again throughout America's short history, minority groups have been stereotyped, misjudged, minimized, left vulnerable, untreated, and misdiagnosed. Still, the rates of African American fatalities in healthcare are far higher than white Americans. It is not an uneducated inference to make that modern-day gynecology, which boasts far higher maternal death rates for non-white Americans, also still holds these systemic biases and they could be affecting *your* treatment (Khemani 2020).

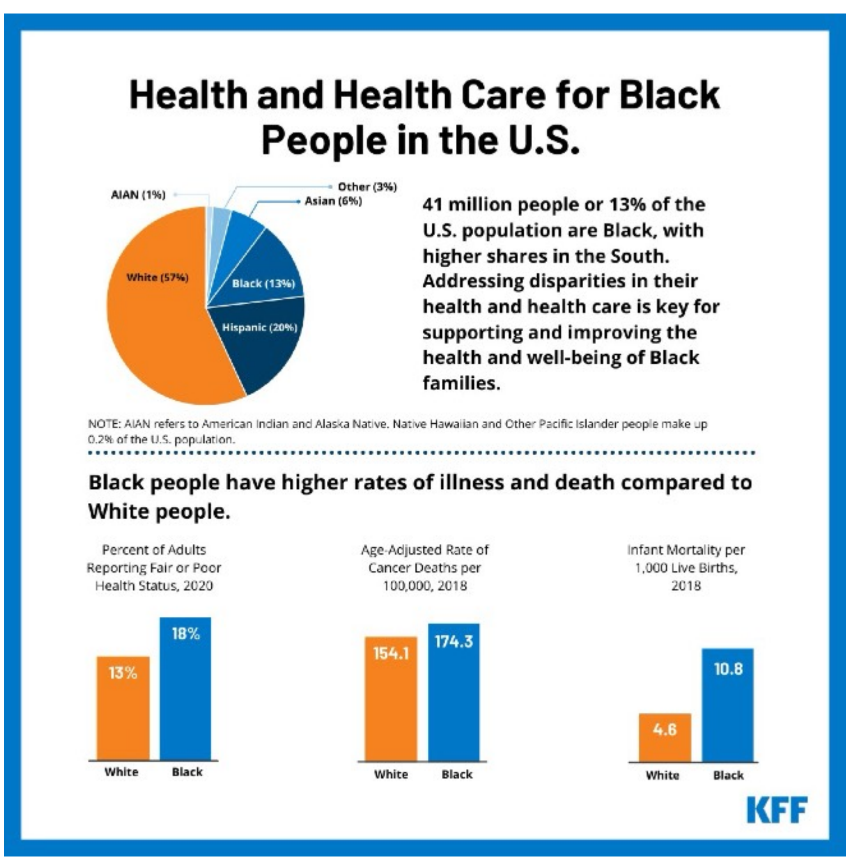

Fig. 1: Underlying health and healthcare disparities for Black people. 2022. KFF.

WHY YOU SHOULD CARE

Knowing what you now know about America's history of attitudes towards and treatment of minority groups, the question is raised about what exactly you can do about it. Whether you are a part of a minority group or not, you must be proactive about your healthcare. Even if you are a white American, you still may not be screened for things that have been "racially determined" to be unlikely in your demographic.

If you are pregnant or planning to be pregnant, you need to be aware of what sort of screenings are available for you and your baby, what will likely be offered to you in your demographic, and what screenings are likely not to be offered to you because of your demographic. If you have reason to believe yourself or your baby may be at a higher risk for a certain ailment or disease, you are well within your rights to consult with your doctor about these screenings despite your apparent genetic background. However, if you are a minority woman, African American especially, you must go above and beyond to be an informed participant in your healthcare. In every aspect of your healthcare. Whether you're primarily going to general practice, have specialized doctor's appointments, or go to yearly gender-related screenings.

For gynecology, you must advocate for a diagnosis and talk through whatever treatments your doctor prescribes. Minority women have less access to quality healthcare and typically have lower-quality insurance policies (Khemani 2020). Find out what the best option is for you. If you are feeling discomfort, speak up. You know your own body better than anyone else and if something seems "off," don't hesitate to inform your doctor. Don't hesitate to get a second or third opinion, and don't hesitate to ask about alternative treatments. If you want to make sure that you are receiving the healthcare you deserve regardless of your skin color or racial orientation, stay informed and take charge of your healthcare.

COMMON REPRODUCTIVE PROBLEMS AND SYMPTOMS TO LOOK OUT FOR

I know how difficult it can be to stay on top of your healthcare, especially as a woman. Gynecological warning signs can easily be dismissed as typical hormonal changes and symptoms. Suppose I hadn't had so many members of my family that I knew had various symptoms and various disorders that go along with the symptoms I have experienced. In that case, I may not have known that the feelings I was experiencing weren't just typical aspects of womanhood. To help with this, familiarize yourself with common gynecologic health disorders. It is important to note, however, that this is not a definite list of all gynecologic health disorders, nor does matching up your symptoms to one of these disorders mean that you have that particular disorder. Do your research and reach out to a doctor if you have any concerns about your healthcare.

Polycystic Ovarian Syndrome (PCOS)

A condition caused by the surplus of the androgen hormone produced.

- Common symptoms include:
- Irregular menstrual cycles
- Excess body hair
- Acne and oily skin
- Hair thinning
- Infertility
- Weight gain
- Mood swings

Note: You may be at higher risk of diabetes, high blood pressure, and endometrial cancers.

Endometriosis

A condition caused by the growth of endometrial tissue outside of the uterus.

Common symptoms include:

- Painful menstrual cramping
- Abdominal Pain
- Irregularly heavy menstrual cycles
- Discomfort or pain during intercourse
- Infertility
- Weight gain
- Mood swings

Bacterial Vaginosis (Commonly Undiagnosed STD)

A condition caused by vaginal inflammation, typically due to bacteria. Common symptoms include:

- Vaginal itching
- Painful urination
- Irregular discharge
- Abnormal odor

Cervical Cancer

A condition caused by cancerous growth in cervical cells. Common symptoms include:

- Bleeding after intercourse
- Discomfort or pain during intercourse
- Irregularly heavy and long menstrual cycles
- Irregular discharge

Interstitial Cystitis

A condition caused by inflammation of the bladder walls. Common symptoms include:

- Pelvic pain
- Pain between the vagina and anus
- Constant urination and painful bladder
- Discomfort or pain during intercourse ❖

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The citation system used in this essay is AMA 11th.