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In honour of the enduring legacy of bell hooks
a transformative thinker, a beacon of wisdom, and an advocate for change.

With deep admiration, we dedicate the first volume of the Canadian Journal for the Academic Mind to the memory and lasting influence of bell hooks. May her teachings continue to inspire scholars and students alike, empowering them to challenge assumptions, provoke critical thought, and strive for a more equitable and inclusive world.

“true resistance begins with people confronting pain… and wanting to do something to change it.”

- bell hooks (2014). *“Yearning: Race, Gender, and Cultural Politics”*.

Contents

Honouring Indigenous Knowledge and Fostering Decolonization

The Canadian Journal for the Academic Mind recognizes that it is headquartered on the traditional, unceded land of the Omàmìwininìwag, Anishinabewaki, Kanien'kehá꞉ka, and Haudenosaunee nations.

We honour the rich knowledge systems and cultural contributions of Indigenous peoples and aim to create a space that values Indigenous ways of knowing and being. We acknowledge the detrimental impact of colonization on individuals, communities, and knowledge systems. By seeking to decenter dominant Western paradigms, we aim to embrace diverse epistemologies, methodologies, and research approaches. Our goal is to challenge traditional boundaries, promote cross-cultural dialogue, and dismantle systems of oppression embedded in academic structures.

Together, we can forge a scholarly community that reflects our shared commitment to equity, inclusivity, and positive change. Join us in our collective endeavor to reshape the academic landscape, advance knowledge rooted in justice, and create a more equitable future.

Letter from the Editorial Board

It is with immense honour, pleasure, and excitement that we introduce to you the inaugural issue of the *Canadian Journal for the Academic Mind* (CJAM). This remarkable milestone marks the culmination of months of dedication, collaboration, and support. In a rapidly evolving world, the pursuit of knowledge and the exploration of ideas is vital. CJAM aims to foster a vibrant community of students, both undergraduate and post-graduate, who are committed to pushing the boundaries of knowledge across academia. The journal will encompass a wide range of disciplines, reflecting the diversity and multidimensionality of academic pursuits in Canada. We believe that the multidisciplinary approach that we have taken will foster cross-pollination of ideas and encourage readers to explore the connections and intersections between various fields.

We extend our sincere gratitude to all the authors who have contributed to this inaugural volume. Your scholarly contributions have paved the way for meaningful discussions and have set the stage for the high standards we aspire to maintain in this journal. We would also like to express our deep appreciation to the diligent expert peer reviewers who have dedicated their time and expertise to ensure the quality and rigor of the published articles. Your commitment to upholding academic scholarship is commendable, and we are grateful for your valuable contributions.

We thank all of the organizations and institutions that share our commitment to promoting open-access academic research and advancing scholarly communication. We especially thank the Arthur Kroeger College of Public Affairs and the Barrie Crossing Dental Centre for their generous donations to CJAM. These contributions have greatly assisted with the success of the journal and our mission to foster a vibrant academic community that pushes the boundaries of knowledge and enriches the academic landscape of our world.

Lastly, we owe our heartfelt indebtedness to our incredible faculty advisors, Dr. Katherine Bausch, Dr. Mary Francoli, and Dr. Michelle MacDonald, for their unwavering commitment, invaluable guidance, and devoted mentorship. Their expertise, wisdom, and dedication to

academic excellence have been essential in shaping the direction of this journal.

As we embark on this journey together, we invite you, our readers, to engage with the rich tapestry of ideas presented in the following pages. It is our hope that this journal will serve as a catalyst for innovative thinking, inspiring new avenues of research, and fostering collaborations that transcend disciplinary boundaries. We look forward to the continued growth of this journal and the opportunity to showcase the brilliance of academia. We invite you to join us on this transformative academic voyage, as together we embark on the journey of *expanding knowledge, shaping perspectives, and connecting minds*, fostering a global community of intellectual growth.

Yours sincerely,

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Odeon of Herodes Atticus, Athens, Greece
Photo by João Marcelo Martins

Section I
Public Affairs

Public Sector Contribution to Vaccine Research and Development

Ella Brown [a*]
[a] Faculty of Arts and Science, McMaster University, Hamilton
0009-0009-7999-7547

ABSTRACT: This paper explores the public sector's often undersold role in vaccine research and development (R&D). Further, it examines the recent shift in vaccine innovation policy caused by the urgency of the COVID-19 pandemic. Due to factors such as lack of repetitive dosage, high levels of at-risk investment, and long, large clinical trials, it is difficult to incentivize the private sector to invest in vaccine R&D. To counter these difficulties, vaccine innovation policy focuses on both push and pull incentives to ensure vaccine R&D is proceeding. Government institutions make large at-risk investments to offset the risk for private sector investment into vaccine R&D. Additionally, the government creates innovation policies that make intellectual property rights (IPR) more favourable for those who invest in vaccine R&D. With the removal of IPR for COVID-19 vaccines, the public sector became more instrumental in incentivizing private sector investment, using techniques such as mass ex-ante government vaccine procurement agreements, public-private partnerships, and increased government investments. With more significant government investments in downstream development and manufacturing activities, there is concern that the basic scientific research required for advances in vaccine technology will diminish. With the COVID-19 pandemic still unfolding, it is difficult to determine whether vaccine innovation policy will remain as it is now. However, even if vaccine innovation policy shifts post-pandemic, the public sector must continue to play an important role in vaccine R&D.

KEYWORDS: innovation policy, COVID-19 vaccines, public sector involvement, vaccine R&D, push incentives

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* Corresponding Author - Email Address: browne27@mcmaster.ca
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Introduction

The pharmaceutical industry often touts the idea that COVID-19 vaccines and the unprecedented speed at which they were produced is thanks to capitalism and the private sector.[1] However, though the private sector has played a vital role in COVID-19 vaccine research and development (R&D), research has shown that less than two percent of funding for the COVID-19 vaccine came from the private sector.[2] This paper will argue that the public sector has played an active and integral role in vaccine R&D. Furthermore, in the face of the COVID-19 pandemic, the public sector's involvement has become even more crucial, not only for basic vaccine R&D but also for late-stage research and manufacturing. The essay will examine the notion that patent law, while essential in this context, is insufficient to incentivize the private sector to invest in vaccines. It is instead up to the public sector to incur costs for the public good by providing funding to effectively incentivize the private sector to participate in vaccine R&D. Furthermore, this paper will look at the public sector's role in the creation of COVID-19 vaccines and examine how the public sector has adopted an even more active role in vaccine R&D and downstream vaccine production activities since the onset of the pandemic.

Challenges in Encouraging Vaccine Production

Compared to therapeutics, vaccines are not as profitable, and thus it is hard to convince the private sector to choose to produce vaccines instead of therapeutics.[3] Several prominent issues keep vaccines from being as profitable as their therapeutic counterparts. For one, vaccines are preventative measures which often leads to reluctance among consumers to pay premium prices for them. Additionally, the broader social benefit of herd immunity created by vaccines is not easily harnessed into a profit by the private sector.[4] Vaccines are also long-lasting, making companies miss profits from repetitive dosage.[5] Though vaccines are administered to a more significant number of people than just individuals who suffer from a condition or disease (who would be the consumers of most

therapeutics), the vaccine still does not earn as much profit because of the lower associated price that people are willing to pay for a preventative measure.

Furthermore, there is a lower tolerance for associated side effects, making for longer and more extensive clinical trials that further slow down the already approximately 10-year-long process of developing and manufacturing vaccines.[6] Vaccines represent substantial at-risk investments, as manufacturing facilities must be constructed before vaccine approval, which entails the potential loss of significant funds if the vaccine doesn't receive distribution approval.[7] Patents are available for vaccines and often last the same amount of time as they do for therapeutics. However, as established above, therapeutics make higher profits and have less associated investment risk. Therefore, patents alone are often insufficient to incentivize the private sector to produce vaccines over therapeutics.[8]

Push and Pull Incentives

Considering the challenges of encouraging vaccine production, the public sector must offset these issues with its own incentives to ensure vaccine R&D moves forward, given the grave importance of vaccination for public health. Vaccine innovation policy encompasses two primary approaches: pull incentives, grounded in intellectual property rights (IPR), and push incentives, which rely on upfront government funding to drive innovation.[9] It is important to note that in the case of vaccines, push and pull incentives complement one another, helping incentivize private companies to participate in vaccine development and manufacturing.

Several global and national publicly funded organizations are involved in creating push incentives for vaccine R&D. The US National Institute of Health (NIH) is the most significant international contributor to research and spent $2 billion on vaccine-related R&D in 2018.[10] NIH funding focuses on the initial innovation stage, funding the discovery of basic scientific principles later applied to vaccine creation instead of late-stage financing development.[11] The Global Influenza Surveillance and Response System (GISRS), run by the World Health Organization (WHO), receives approximately $56

million annually from governments to develop vaccines responding to pandemics and the seasonal flu.[12] The Defense Advanced Research Projects Agency (DARPA), administered by the US Department of Defense, also contributed considerable funds to developing RNA-based vaccine technologies in the 2010s.[13] The Canadian government provided funding for the phase 1 clinical trials of the VSV-EBOV Ebola vaccine, taking on this cost to encourage the further development of the vaccine.[14] As an additional incentive, under the Bayh-Dole and Stevenson-Wydler Acts in US legislation, private companies that receive public research funding can patent any resulting invention.[15] This policy demonstrates the complementary nature of intellectual property incentives and public sector funding in US affairs. The previous incentives are all examples of ex-ante government spending, meaning the monetary or patent commitments are made prior to vaccine approval. These are at-risk investments for the public sector, offsetting the risk for the private sector to invest in vaccine R&D. However, unlike the private sector, the government can reap the benefit from the broader social benefit of vaccine production. Therefore, even though public sector investment is at risk, the potential reward comes not just in monetary form but also in improved public health, thus resulting in healthier, more protected citizens in the long term.[16]

Policy Model for Stimulating Vaccine R&D

The Orphan Drug Act (ODA) is a successful policy model for stimulating vaccine development.[17] The ODA was established in 1983 in the US with an aim to provide enough incentive to small and large biotechnology companies alike to create therapeutics and other treatments to prevent and treat rare diseases.[18] Without these incentives, these rare disease treatments and preventatives would remain non-existent as companies would likely not see as much profit due to their implicitly smaller consumer base. The ODA employs push strategies and one pull strategy to lower R&D costs for the private sector. The push strategies included a 50 percent tax credit on clinical trials (cut to 25% in 2017) and a research grant program targeted at the early stages of innovation.[19] The pull strategy is "a guaranteed seven-year market exclusivity."[20] Orphan drug

designation, achieved when a therapeutic is designed for a disease that affects less than 200 000 people, can also be applied to vaccines.[21] The ODA has had great success in pulling companies into the market of orphan drugs within the USA, with 370 orphan drugs gaining market approval since the establishment of the act.[22] This model could be helpful for application outside of the US context as well as to vaccines without an orphan drug designation, with the goal of offsetting the challenges in incentivizing private vaccine development. The ODA is an example of a policy that effectively incentivized participation in a previously undervalued area of the market and could be used as a model by the public sector to continue improving its incentives for vaccine development.[23]

Shifting Innovation Policy

Innovation policy has shifted because of the COVID-19 pandemic. What would have been an unideal ten years of inventing, producing, and distributing the COVID-19 vaccine during this global crisis prompted the implementation of measures to expedite the approval process. The allocation of additional personnel to assess and authorize COVID-19 vaccines, augmentation of informal deliberations and swift scientific guidance instead of awaiting formal gatherings, and expediting vaccine classification were all considered indispensable actions.[24] IPR for COVID-19 vaccines was also waived during the pandemic in the hopes that this would increase access to vaccines for lower-income countries.[25] The waiving of IPR effectively removed the pull incentive for private companies, so the public sector became even more instrumental in assisting and incentivizing private companies with their vaccine candidates. Finally, there were mass ex-ante government procurement agreements with pharmaceutical companies to secure vaccines for their respective countries, causing a massive spike in demand.[26]

Basic Scientific Research Involved in Vaccine R&D

In addition to the innovation that occurred during the COVID-19 pandemic, it is vital to consider the public sector's involvement in the scientific discoveries that made the quick

production of the COVID-19 vaccine possible. The NIH was and remains a critical player in funding research and working within the pre-COVID innovation system; It funded scientists engaging in basic vaccine research. Barney Graham, a scientist at NIH, used his public funding to create a viral spike protein that would prove to be an essential part of the current vaccines.[27] Another key element of the current vaccine, RNA modification, was developed by Karikó and Weissman at the University of Pennsylvania with project funding from the US National Institute of Allergy and Infectious Diseases (NIAID).[28] Finally, the lipid nanoparticle used in vaccines was developed by Robert Langer (the co-founder of Moderna) and colleagues at the Massachusetts Institute of Technology[29]. RNA modification, lipid nanoparticles, and Graham's viral spike protein are essential building blocks in the most successful COVID-19 vaccines. These examples demonstrate the importance of publicly funded research on the COVID-19 vaccine and show how instrumental the public sector has been in vaccine R&D before and during the COVID-19 pandemic.[30]

Organizations Involved in COVID-19 Vaccine Development

There are several government organizations and public-private partnerships which serve to demonstrate the indispensable role the public sector played in COVID-19 vaccine R&D, downstream research, and manufacturing. Looking into all public sector organizations that participated in the funding of COVID-19 vaccines would be beyond the scope of this paper, so I have chosen a sample of organizations which are some of the most influential and demonstrate that the public sector deserves massive credit for helping to create the COVID-19 vaccine. These examples also highlight the complexities of public-private interactions.

Operation Warp Speed

In May 2020, the US government announced Operation Warp Speed, a federal program for vaccine, therapeutic, and diagnostics development, directing approximately $15 billion to the fight against COVID-19.[31] Most of this funding was led by the Biomedical

Advanced Research and Development Authority (BARDA), with 77% of its budget allocated to vaccine development and administration.[32] During the COVID-19 pandemic, BARDA, which was previously a small agency, took on a more prominent and active role in R&D and manufacturing than the NIH.[33] In addition, BARDA differs from the NIH as it mainly focuses on downstream activities such as manufacturing, late-stage clinical trials, and scaling up production, demonstrating how innovation policy has shifted in the face of COVID-19.[34] Through Operation Warp Speed, six corporations' vaccine candidates were funded at-risk b: Moderna, Pfizer/BioNTech, AstraZeneca, J&J/Janssen, Novavax and Sanofi/GSK.[35]

Pfizer, Moderna and the Public Sector

The public sector's involvement with Pfizer and Moderna has been somewhat contentious. Pfizer claims to have had no funding from the public sector for its vaccine; however, the company fails to mention that its partner, BioNTech, has received significant funding from the German government.[36] On the other hand, Moderna has received nearly $6 billion in funding from the NIH and collaborated extensively with NIH scientists in the development of its vaccines, so much so that the NIH now co-owns the Moderna vaccine patent.[37] However, this public-private relationship has not been smooth – the NIH is currently embroiled in a patent battle with Moderna as they failed to include government-funded scientists on a patent request. Moderna has paid the NIH $400 million in compensation, but the patent dispute has not yet been resolved, and the NIH is considering taking formal legal action.[38] Both cases highlight how the public sector's mass amount of funding contributed to vaccines has been undervalued and underrecognized by the private sector.

Coalition for Epidemic Preparedness Innovations

The Coalition for Epidemic Preparedness Innovations (CEPI) also plays a small but essential role in the innovation incentive mechanism. CEPI is a public-private partnership created in 2017 after the Ebola outbreak to develop vaccines for emerging infectious diseases.[39] The organization receives funding from various sources,

including the private sector, philanthropies, and government agencies from 30 countries.[40] CEPI has committed almost $1.2 billion to multiple vaccine candidates and aims to create a diversified COVID-19 vaccine portfolio.[41] CEPI and WHO are co-leading COVID-19 Vaccines Global Access (COVAX), an initiative vital in acquiring COVID-19 vaccines with advanced purchase commitments to distribute to lower-income countries.[42] Importantly, CEPI also plays a coordinating role "including 'matchmaking' to find competent global producers for different types of vaccines currently in development, eyeing the need for global scale up."[43] Facilitating collaboration amongst global private actors also acts as a push mechanism for innovation.[44] Therefore, as a public-private partnership, CEPI plays a vital role in the COVID-19 innovation system, and the public sector deserves at least partial credit for its assistance in this global effort.

Conclusion

As government recognition of the continuing COVID-19 pandemic loses traction, government funding for vaccine procurement is diminishing, and the future of further COVID-19 vaccine R&D is worrisome.[45] Advanced purchase agreements for COVID-19 vaccines have played a vital role in ensuring a guarantee for manufacturers. Without such an assured market, manufacturers might reduce or cease production, resulting in a worldwide shortage of vaccines.[46] Without public sector investment, vaccine manufacturing incentives greatly diminish, especially with the waiving of IPR for COVID-19 vaccines, emphasizing once again how important the public sector is in creating COVID-19 vaccine R&D and manufacturing incentives.

As demonstrated above, innovation policy has shifted in the face of COVID-19. More than ever, public funding is targeted at downstream research and manufacturing activities, which was very effective during the pandemic. Still, it's important to note that without the fundamental scientific research contributions of Karikó, Weissman, Graham, and Langer, the speed of COVID-19 vaccine innovation would not have been possible. Therefore, if innovation

policy remains as it is right now, it would be necessary not to let essential research funding fall by the wayside. The success of government vaccine pre-purchasing agreements globally during the pandemic also indicates that this may be a method in the future for incentivizing quality innovation.[47] Nevertheless, it is essential to note that this shift in innovation policy happened in a crisis where urgency was of the utmost importance. An emergency can inspire some individuals to act more selflessly to control the situation and earn accolades for their selfless behaviour.[48] Therefore, with the COVID-19 pandemic still unfolding, it is unknown whether this shifted innovation policy can and will last or whether it was just another crisis response.

Pre-COVID, the public sector played an important role in promoting vaccine innovation and production despite the many factors that make the vaccine industry less profitable than the therapeutics industry. During the COVID-19 pandemic, the public sector's already important role expanded, where urgency was paramount and the public sector incentives needed to offset the waiver of COVID-19 vaccine IPR. Therefore, during the pandemic, the public sector had to play an even more active role in vaccine R&D and downstream research and manufacturing to manage the global crisis. It is yet to be seen whether the public sector will remain in this more active role post-pandemic or whether innovation policy will return to pre-pandemic. With an increasing global understanding of emerging infectious diseases, the importance of vaccines has become apparent. Thus, the public sector must continue to play its role in incentivizing vaccine innovation and production for the sake of global public health.

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Mass Incarceration and Its Devastating Effects: Assessing the Ongoing Struggles of Prisoners, Families, and the Prison Environment

Keana L. Jong [a*]

[a] Institute of Criminology and Criminal Justice, Carleton University, Ottawa

0009-0001-8167-9961

ABSTRACT: This research paper utilizes various sources from Canadian studies and firsthand accounts to identify the issues within penitentiaries and the Canadian criminal justice system. There are numerous pressing issues related to the handling, punishment, and sentencing of crime, many of which stem from racial injustice and underlying societal problems. Inmates endure harsh prison conditions and face barriers when trying to maintain connections with their families and friends. The mental well-being of prisoners is often overlooked, creating an unjust and unfavourable environment for Canadian citizens. The legal system requires reform and improvement to support individuals and promote rehabilitation effectively. Addressing these problems requires focusing on systemic injustices disproportionately affecting minorities and impoverished individuals. Studies have demonstrated that visitation and human contact contribute to law-abiding behaviour in criminals. Therefore, to enhance our criminal justice system, we must address the root causes of crime.

KEYWORDS: poverty, crime, incarceration, criminal justice system, reform

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* Corresponding Author - Email Address: keanajong@cmail.carleton.ca

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Incarceration can take a devastating toll on an inmate's mental and physical health, as the conditions and environment within prisons are poor and can be challenging to adjust to. While awaiting trial in remand, presumably innocent people are forced to face harsh prison conditions where their spaces are disorganized, dirty, and completely closed off from the outside world. However, the prisoner is not the only person affected by the incarceration, as these individuals often have spouses, children, and communities who rely on and care about them. Visiting family members in prison is a tedious and timely process which is often delayed or prevented due to extensive paperwork and strict rules and protocols. The issue with mass incarceration as a deterrent to crime is that our criminal justice system is punishing individuals instead of addressing the root problems that lead to incarceration, such as poverty, racism, and homelessness; there is no actual correlation between preventing crime and incarcerating individuals to small, enclosed spaces with a lack of interaction with their families.

The current processes involved when visiting incarcerated individuals is extremely difficult and has a severe impact on both the prisoner and their families. Canada's current criminal justice system needs to address the environment prisoners live in, as well as the issue of mass incarceration, as a solution to crime reduction in our society. The environment of incarceration and the stigma surrounding it has considerable effects on both inmates and their family members who are dealing with significant changes to their lives. Mass incarceration continues to harbour individuals away from their loved ones, particularly those from impoverished neighbourhoods. This retributive approach is doing more harm than good as a solution to criminal behaviour. Mass incarceration is not a solution to preventing crime; instead, it is segregating families from their loved ones at a vast rate which can be detrimental to their rehabilitation. This paper will examine the adverse effects of mass incarceration on prisoners and their families. It will explore the poor prison conditions and the challenges of visitation, discussing how they affect the well-being of families, relationships, and mental health. It will also look at how the punitive aspects of mass incarceration disproportionately affect communities of colour and fails to address the root causes of crime,

ultimately leading to a cycle of incarceration rather than encouraging rehabilitation and crime prevention.

Incarceration Conditions

Spending any amount of time incarcerated certainly is an adjustment that takes a physiological toll on an individual. The conditions in prison are horrific, and people are forced to live in enclosed, bright spaces for the majority of their days. They can be dirty because urgent matters of violence within the prison will take priority compared to someone having a messy cell or missing essential items such as toiletries. The correctional staff has extreme responsibility of keeping prisoners safe from each other with legion hazards, which can range from an inmate throwing feces at a guard or staff being sexually assaulted or killed.[1] Hence, essential survival items can be overlooked due to the constant chaos involved in penal systems. Prisons leave individuals vulnerable to a multitude of issues both during their stay and after they are released due to the lack of supervision and support. The stigma surrounding a criminal record can lead to low self-esteem and self-worth for those wishing to reintegrate into society as law-abiding citizens. Labelling theory suggests that stigmatizing an individual can influence future offending and change their behaviour due to changes in their identity.[2] Being perceived as deviant can induce more criminal acts because if a person believes they are a criminal, they will act upon it. Even though everyone can change, our society is not as forgiving, as most jobs require record checks and avoid hiring those holding a criminal record.

Our provincial prison systems also lack resources because people are frequently cycling in and out, either while awaiting their trial in remand or serving a short sentence. Access to mental and physical health programs is hard to obtain unless sentenced to a federal facility, for instance, after being found guilty and receiving a sentence of two years or more. These prisons have more resources and programming due to the nature of the crimes. Therefore, people suffer from little access to their past life, where their family, community, and workplace are disrupted, and it may not be possible

to return after their release. The term incapacitation describes the inability to commit crimes while detained, which impacts well after release.[3] Serving a sentence will disrupt the lifestyle that person was living beforehand, affecting their family and friends who may depend on them. Prison is a very humbling experience because people become alienated from their loved ones and may not feel good enough to return.

The cycle will continue because punishment is frequently falsely regarded as the best method to deter crime. However, the conditions and dangers in prison can create a mindset of delinquency, as labelling theory suggests, which may lead to continued criminal behaviours. There is not enough supervision or support from the criminal justice system for a successful release to meaningfully assist people in reforming and reintegrating. Being drained while in prison, mentally and physically, makes reintegration feel impossible when the feelings continue because of society's standards and stigmatization of crime. Certainly, incarceration takes a heavy toll on the view of oneself and can affect a person years after being released into society.

Visiting Processes for Families

This paper focuses on determining the direct effects incarceration can have on families with an incarcerated loved one. Maintaining communication between friends and family while incarcerated is extremely important as these relationships can be the one thing individuals can look forward to while imprisoned. For summary offences, these inmates can expect a shorter sentence of six months to two years in jail, and indictable offences can last years to life. Any sentence will result in a loss of income, career growth, and relational developments with spouses and children, causing a severe strain on the livelihood of not only the inmate, but also their family. Furthermore, the processes involved with the visitation of prisoners threaten to ruin some of the only good moments these individuals have while incarcerated. Visitation between prisoners and loved ones is shown to help rebuild relationships in preparation for outside life, making visits a critical part of the reintegration process.[4]

Nevertheless, the process of visiting someone for just a few hours can sometimes take an entire day. To visit someone who is incarcerated, visitors often have to travel to the center, wait to be admitted and are sometimes even turned away for minor issues such as the clothing someone is wearing. The underwire in a bra, the wrong colour of clothing, or items in pockets are some additional examples of reasons that halt visitors' entrance into the facilities.[5]

In *Visiting Days,* based on real-life prison visitation encounters, Beth recalls how excruciating these visitations can be on the outside person looking to see their loved one.[6] The waiting process is the most gruesome, as traffic or a late morning resulting in arriving half an hour later could mean waiting for an additional two hours, which takes away from the short time she would get with her husband. "The lengthy and inefficient queues required for visiting a prisoner do not just belittle the worth of his family and friends' time-they also deprecate the importance of the visit itself."[7] It can feel distressing for these people who go through extensive wait times and endure protocols that dehumanize them, such as metal scanners and pat-downs. These large-scale prisons have hundreds of families daily waiting to be granted only a few hours with their loved ones. Beth describes an encounter in the processing center where a young girl asked her mother, "Why does it take so long, Mommy?" regarding seeing her father.[8] Children are too young to understand what is happening, making the situation intimidating at such an impressionable young age.

Impact on Families

Children are not old enough to understand the intricacies of incarceration and why their father, mother, or family member is so hard to contact. In the United States, the 1991 Survey of Inmates of State Correctional Facilities found that 56% of state prison inmates had children under the age of eighteen.[9] Although Canadian penitentiaries are smaller in numbers compared to the United States, it is not hard to imagine how similar this number is, and three decades later, it is plausible to assume that the number of children affected by their parents entering the prison system is disgracefully high. It has

been discussed how extensive the process is to visit someone in prison, but we also must consider how much harder it can be when a child is involved. Often, toddlers and young children are unaware of what a prison is, nor do they understand the rules that come with visiting a person in one. Mothers with babies and younger children are faced with extreme strain, whether that be financial or mental, as travelling with them is emotionally draining and can be extremely expensive. Institutions can be located hours or even provinces away. Also, adjusting to an income without the other parent can lead to substantial financial strain, as travelling to prisons and even phone calls can cost absurd amounts of money. If the mother is incarcerated, there is an increasing chance the children's father is as well, which can further jeopardize the children's stress and mental health problems.[10]

When youth get older, the absence of a parent can be confusing and difficult to grasp; the ties their parent has to criminal behaviour can lead to similar problems and crimes for young adults. It is also crucial to consider the children who lose both parents to incarceration in certain circumstances, meaning they are forced to grow up in foster homes where visiting their family is not prioritized if a violent crime was committed. In a 2012 Pittsburgh Youth study, it was concluded that multiple problem behaviours existed in youth with parents in the criminal justice system, compared to those with no incarcerated parents.[11] Their conduct ranged from substance use, poor academic performance, and depression.

However, it is essential to consider the differentiating effects of parental incarceration youth feel depending on circumstances: which parent is incarcerated, the parent-living circumstances, and the extent of violent or antisocial behaviours used by parents in the home.[12] Similar outcomes result in the majority of these situations, as being away from any maternal or paternal influence causes a risk for delinquency. The family effects established by Arditti are noted as primary effects directly associated with the parent's incarceration and secondary effects resulting from the changes, such as economic disadvantages and stability.[13] The child's well-being will be threatened if there is immense trauma resulting from losing their

parent; the view of "second-hand prisonization" shows that the absence of a parent can have devastating effects on children.

Mass Incarceration: The Main Issues and Possible Solutions

Prisons have become highly overcrowded, creating unsafe and unsanitary environments for people to live in. Our government has pushed a 'tough on crime' strategy that targets those who are already less fortunate, leading to thousands of people facing jail time. Homeless populations are severely affected by laws made by politicians to stop them from using unconventional forms of making money and surviving on the street. Instead of pushing a strategy to help those struggling, we enforce rules to keep these people in prison. This rise in incarceration significantly affects young, poorly educated, minority males. Expanding prison systems does not strongly relate to crime rates but instead is rooted in policy shifts, closely connected to the government's war on crime and discriminatory drug initiatives.[14] These approaches to crime prevention are not truly meant to stop criminal behaviour but rather to lock up and shield the rest of society from seeing how poorly disadvantaged and impoverished people are treated. Repeat offenders and drug offenders face harsher and longer sentences, resulting in a fast rise in incarceration in many countries.[15] Attitudes from the government and the upper class hold opinions that using penal systems as a threat will prevent these crimes from happening when the lack of leniency actually creates disadvantaged sentencing and an increase in prison populations. Those who already distrust the police due to extreme violence against African American people are further pushed from believing our system is lawful and fair.

Another issue with mass incarceration is the racial discrepancies within the criminal justice system. Black, Indigenous, and other People of Colour (BIPOC) are more susceptible to interacting with police due to racism and the supervision that comes with it; although minorities make up smaller parts of our population, they overpopulate our prison systems. This disparity is a sad reality for many Canadians who have to be extremely cautious in their interactions with police due to the racial profiling they encounter on

a day-to-day basis. According to research, the effects of incarceration may be harsher for racial minorities due to the stigma associated with incarceration and racism in society, having amplifying effects.[16] Policing has held racist ideologies written in the law, whether the officer is aware or not, by allowing frequent traffic stops, monitoring of Black individuals, and profiling that assumes someone with dark skin is involved with criminal behaviour. It is also noted that incarceration rates for African Americans are about seven times higher than those for Whites, estimating that 28.5% of Black men will spend time in prison sometime during their lives, compared to a risk of 4.4% for White men.[17]

The criminal justice system is failing to stop systematic racism that affects millions of people and their communities, allowing discrimination to occur within incarceration. Crime control systems also reproduce social hierarchies of power and inequality from social statuses such as race, gender, age, and class.[18] People who are already disadvantaged due to their socioeconomic status have an even harder time reintegrating into society. BIPOC are the most vulnerable individuals, and their overpopulation in penal systems has been ignored. Millions of people endure the adverse impacts of incarceration, including the affected family members that are suffering against a system that is not attempting to fix nor address the more significant issue at hand.

To improve our prison systems, the relationship between law enforcement and BIPOC must be formally addressed, and a proper solution must be implemented to prevent the increase in their arrests and sentences. There are many disadvantages vulnerable populations face when trying to improve their lifestyle, especially while impoverished. Those experiencing homelessness and poverty are most at risk of falling into a cycle of crime and incarceration. Implementing better resources to support any individual dealing with disadvantages in society is vital to improving crime in Canada and preventing mass incarceration, especially when these individuals have nowhere to turn to or reach out for support.

Conclusion

The criminal justice system forces incarcerated individuals to make challenging adjustments that affect not only their well-being but also their family's and community's livelihoods. The stress of long wait times and protocols for visitation create unneeded stress for those simply wishing to retain bonds with their loved ones while incarcerated. It is heartbreaking for any individual to go through the experience of missing a loved one who has no choice but to finish their sentence, yet the process of visiting them is discouraging, stressful, and timely. Moreover, due to 'tough on crime' antics used by politicians; mass incarceration is growing at an extremely high rate meaning millions are overpopulating prison systems. Often, these sentences are short and could be solved with other sentencing options such as probation or other programs to deter future criminal behaviour; increased prison populations account for a portion of crime prevention, but not all of it.[19] If anything, the threat of more prison time for minor and drug crimes creates further distrust with law enforcement. There are root issues in penal systems, as the majority of the people incarcerated are minorities, facing impoverishment and encountering other problems such as homelessness and substance abuse. Mass incarceration damages family relationships and creates a large funnel of crime that cannot be reversed. The impact of mass incarceration in Canada does not only negatively affect the imprisoned individual, but also their families, their loved ones, and their communities.

Notes

[1] Gary Garrison, *Human on the Inside: Unlocking the Truth about Canada's Prisons* (Regina, Saskatchewan, Canada: University Of Regina Press, 2014), 129.
[2] Joseph Murray, Rolf Loeber, and Dustin Pardini, "Parental Involvement in the Criminal Justice System and the Development of Youth Theft, Marijuana Use, Depression, and Poor Academic Performance," *Criminology* 50, no. 1 (February 2012): 255–302, https://doi.org/10.1111/j.1745-9125.2011.00257.x, 259.
[3] Bruce Western and Sara McLanahan, "Fathers behind Bars: The Impact of Incarceration on Family Formation," *Contemporary Perspectives in Family Research*, 2000, 309–24, https://doi.org/10.1016/s1530-3535(00)80017-5, 5.
[4] Joel Medina and Beth Caldwell, "Visiting Days," *Journal of Prisoners on Prisons* 20, no. 2 (December 1, 2011): 47–63, https://doi.org/10.18192/jpp.v20i2.5128, 62.
[5] Medina and Caldwell, "Visiting Days", 55.
[6] Medina and Caldwell, "Visiting Days".
[7] Megan L. Comfort, "In the Tube at San Quentin," *Journal of Contemporary Ethnography* 32, no. 1 (February 2003): 77–107, https://doi.org/10.1177/0891241602238939, 92.
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[9] Western and McLanahan, "Fathers behind Bars," 5.
[10] Joyce A. Arditti, *Parental Incarceration and the Family: Psychological and Social Effects of Imprisonment on Children, Parents, and Caregivers* (New York: New York University Press, 2014), 59.
[11] Murray, Loeber, and Pardini, "Parental Involvement in the Criminal Justice System," 255-302.
[12] Murray, Loeber, and Pardini, 275.
[13] Arditti, *Parental Incarceration,* 98.
[14] Western and McLanahan, "Fathers behind Bars," 4.
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[16] Murray, Loeber, and Pardini, "Parental Involvement in the Criminal Justice System," 285.
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Indigenous Incarceration in Canada: A Glance at Gladue Policy

Liam J. MacCarthy [a*]

[a] Department of Political Science, Dalhousie University, Halifax

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ABSTRACT: Canadian sentencing law reform in 1996 and the R. v. Gladue 1999 Supreme Court landmark decision, Canada introduced an internationally unique requirement for Canadian courts in sentencing Indigenous offenders to give special consideration to systemic factors in order to address the historic and ongoing experiences of Indigenous people in the criminal justice system Canada. While these reforms to the criminal justice system were centred around alleviating the egregious level of incarcerated Indigenous people, this analysis will reveal the implementation of Gladue principles has not been the transformative change many have hoped for. This Canadian policy research paper argues that the Canadian government's Gladue policy has been underfunded and requires a commitment to the complete implementation of Gladue Reports and Gladue Courts to accomplish its objectives of considering the systemic circumstances of Indigenous offenders and providing criminal justice in a culturally appropriate manner.

KEYWORDS: criminal justice system, Indigenous politics, incarceration, Canadian politics, criminal justice reform, Gladue courts

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* Corresponding Author - Email Address: lm566684@dal.ca
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In the 1990s, Canada initiated a series of reforms to the criminal justice system centred around alleviating the egregious level of incarcerated Indigenous people. This policy research paper is centred around these reforms and the landmark Supreme Court decision, R. v. Gladue 1999, which created the Gladue principles. Gladue marks a transformative shift in Canada's criminal justice policy toward acknowledging Canada's legacy of colonialism and its role in Indigenous incarceration. However, as this analysis will reveal, implementing Gladue principles has not been the transformative change many have hoped for. This essay argues that the Canadian government's Gladue principles have been underfunded and require a complete implementation of Gladue Reports and Gladue Courts to accomplish its objectives of considering the systemic circumstances of Indigenous offenders and providing criminal justice in a culturally appropriate manner.

This paper is subsequently structured into four main sections, followed by a conclusion. These four sections are 1) Colonialism, 2) The History of Gladue, 3) The Current Relevance of Gladue, and 4) Gladue Reform. The first section examines Canada's ongoing legacy of colonialism and how it has contributed to the over-incarceration of Indigenous people. The second section discusses the historical context of the Gladue decision. This section examines the stated goals the Supreme Court outlines in R. v. Gladue and R. v. Ipeelee. The third section explores Indigenous incarceration today and the current government's policy approach. Finally, the fourth section focuses on policy reform options for improving Gladue, looking specifically at Gladue Reports and Gladue Courts.

Colonialism

This first section of the paper describes colonialism in Canada and its implications for Indigenous people in Canada. First, this section begins with conceptualizing colonialism in Canada using Glen Coulthard's 2014 book *Red Skin, White Masks* to link the criminal justice system to systems of colonial oppression. The second part of this section outlines the systemic effects of colonialism and the cycles of violence that colonialism has created. This section

establishes the relationship between Indigenous people and the Canadian state, characterized by a pattern of colonial and paternalistic governance.

Defining Colonialism

In Canada, there has been much attention to the systemic conditions of Indigenous people. The prevailing societal narrative is that the horrific conditions Indigenous people experience today result from Canada's legacy of a colonial past.[1] However, Coulthard explains that this narrative of colonialism as a "legacy of past harms" explicitly ignores the present-day systems of oppression in which colonialism persists.[2] In this way, Indigenous people are described as being held back by the "psychological residue of this legacy" instead of the abusive colonial government itself.[3] With this in mind, this paper uses scholar Glen Coulthard's concept of settler colonialism in which:

> A settler-colonial relationship is one characterized by a particular form of domination; that is, it is a relationship where power—in this case, interrelated discursive and nondiscursive facets of economic, gendered, racial, and state power—has been structured into a relatively secure or sedimented set of hierarchical social relations that continue to facilitate the dispossession of Indigenous peoples of their lands and self-determining authority.[4]

Furthermore, as Jeffery Hewitt explains, settler colonialism has continued beyond the end of official colonial policies and, as long as colonization continues without redress, will never end until it accomplishes the colonial project of "physical elimination, cultural extinction, or assimilation."[5]

Colonialism and Criminal Justice

The links between settler colonialism and the criminal justice system demonstrate these ongoing forms of colonialism. The Truth and Reconciliation Commission explains that the Canadian state has

exploited and victimized Indigenous peoples through legal authority for hundreds of years.[6] This process is demonstrated most obviously in the deadly residential schooling system.[7] Eventually, as Canada gradually rescinded formalized colonial practices, the Indigenous children in this system were transitioned out of residential schools and into state institutions, such as prisons and foster homes.[8] As Juan Marcellus Tauri explains, "The fact that specific colonizing projects and strategies went out of style or were refashioned is unsurprising, as every colonial epoch produces projects that support the continuation of colonialist hegemony."[9] In this way, the Canadian state reshapes the historical practices Indigenous people were subject to, such as assimilation, segregation, exploitation, and violence, and has transformed these practices through language and institutions into the present.[10] Therefore, colonialism itself turns large numbers of Indigenous people into criminals as Canada continues to exercise supreme authority over Indigenous Peoples.[11]

The enduring structures of settler colonialism continue today and have caused Indigenous people in these settler countries to be disadvantaged at every stage of society in Canada's capitalist system.[12] Many Indigenous people live in First Nation communities where conditions caused by government neglect have resulted in large numbers of children placed into foster care, high rates of suicide, and high rates of incarceration.[13]

Annalise Acorn explains that the enduring impacts of colonialism are most apparent in how Indigenous people who experienced physical and sexual abuse in the residential school system are at a high risk of becoming abusers themselves.[14] In these schools, Indigenous children learned that adults often exert power and authority through violence and abuse. These lessons were taught in childhood and often managed to stick with survivors into adulthood as they inflict abuse on their own children in an effort to normalize their traumatic experiences.[15] Ally Sandulescu refers to this effect as "intergenerational trauma," in which the cycles of violence that originated in residential schools persist and manifest themselves in many Indigenous communities.[16]

The History of Gladue

This second section of the paper describes the history of Gladue. First, this section begins by delving into the historical context of its creation in the 1990s. Next, this section examines Bill C-41 and Section 718.2(e) of the criminal code. Finally, the section concludes with an analysis of the stated purposes of Gladue outlined in both the 1999 R. v. Gladue and the 2012 R. v. Ipeelee decision.

Defining Gladue

In the 1999 landmark Supreme Court decision, the court affirmed the need to consider the Indigenous community's "unique, systemic, or background factors which may have played a part in bringing the particular Aboriginal offender before the courts."[17] These unique needs, experiences, and perspectives that Indigenous people live through have come to be commonly referred to as "Gladue Principles."[18]

1990s Criminal Justice Reform

In the 1990s, the Canadian government made substantial efforts to consider the issues that Canada's Indigenous population was facing. Most notably, the Royal Commission on Aboriginal Peoples that began in 1991.[19] The Commission's final report was issued in November 1996, recommending sweeping changes to the Indigenous-settler relationship in Canada. Along with this growing Indigenous movement, in 1984, the Pierre Trudeau Liberals created the Canadian Sentencing Commission, which released the 1987 *Report of The Canadian Sentencing Commission*—a report recommending comprehensive reforms to sentencing laws and practices in Canada.[20] In response to this report, the subsequent Mulroney Conservatives and Chrétien Liberals began a decade of reform to the criminal justice system.[21]

Bill C-41

In 1996, Bill C-41 introduced a comprehensive revision of the Canadian criminal justice sentencing policy. Section 718.2(e) of the criminal code was established through Bill C-41, which recognized that Indigenous offenders should be dealt with in more culturally appropriate ways.[22] Section 718.2(e) directed judges to

look for alternatives to incarceration for all offenders "with particular attention to the circumstances of Aboriginal offenders."[23] Section 718.2(e) of the criminal code became known as the Gladue principles after the 1999 landmark Supreme Court decision.

R. v. Gladue 1999

The Supreme Court's 1999 pivotal ruling emphasized the crucial need to consider the Indigenous community's "unique, systemic, or background factors which may have played a part in bringing the particular Aboriginal offender before the courts."[24] Furthermore, the court additionally mandated Indigenous understandings and practices of restorative justice to be incorporated into the criminal justice system. The Supreme Court wrote, "traditional aboriginal conceptions of sentencing place a primary emphasis upon the ideals of restorative justice. This tradition is extremely important to the analysis under s.718.2(e)."[25] This interpretation by the Supreme Court necessitates the consideration of not only the Gladue factors of Indigenous offenders but also requires the use of restorative justice and culturally appropriate responses when imposing sentences.[26]

R. v. Ipeelee 2012

After the initial ruling, the Supreme Court revisited its 1999 decision in R. v. Ipeelee, 2012. The 2012 Ipeelee decision affirmed much of what was initially stated in Gladue and emphasized the crucial requirement to consider Indigenous people's Gladue factors to address systemic racism.[27] Additionally, the Ipeelee ruling clarified that Judges were to consider Gladue factors in all cases—even the most severe and violent cases.[28] Before this decision, it was clear that the Gladue factors were not consistently applied and were frequently overlooked in more severe cases.[29] Nevertheless, the Supreme Court maintained that the Gladue principles are neither an "excuse" nor an "automatic discount" for Indigenous offenders.[30]

In their decision, the Supreme Court also acknowledged that the overrepresentation of Indigenous people had actually worsened following the Gladue ruling.[31] As a result, the Supreme Court urged the adoption of Gladue Reports as a tool to assist the analysis of

Gladue factors.[32] Alexandra Hebert argues that the language throughout both the Gladue and Ipeelee decisions seems to call for Gladue Reports to be a mandatory part of the Gladue analysis. However, the Supreme Court never explicitly states this requirement, which, as a result, has caused the Gladue principles to remain unevenly implemented across Canadian jurisdictions.[33]

The Current Relevance of Gladue

This next section describes the current relevance of Gladue. First, this section begins by examining the disproportionate level of incarcerated Indigenous people in Canada. This section discusses the 2015 election of the Justin Trudeau Liberals in a majority government and the Truth and Reconciliation Commission as a turning point in the Canadian government's approach to dealing with Indigenous issues.

Indigenous Incarceration

Elizabeth Comack explains that the racialized and violent criminal justice system is the most potent manifestation of the colonial project.[34] In Canada, despite only making up approximately 5% of Canada's population, Indigenous people account for 32% of all individuals in custody, resulting in their incarceration rate being ten times higher than that of non-Indigenous individuals.[35] This situation worsens when examining the number of incarcerated Indigenous women reaching 50% in 2022. In some areas of Canada, like the western provinces, Indigenous representation in prison has reached up to 72 %.[36] There is a widespread consensus that the Gladue reforms to the criminal justice system have been ineffective in reducing Indigenous incarceration.[37] Researcher Ally Sandulescu even found that Indigenous incarceration has increased by an additional 16% since the Gladue decision. This trend has persisted against an overall decline in the incarcerated population since 2012.[38] While Gladue was never supposed to be a single comprehensive solution to the disproportionate incarceration rates of Indigenous people, the aim of Gladue was still to reduce these incarceration levels.[39]

Historically, many governmental bodies have published reports on this issue of Indigenous over-incarceration.[40] Most academics point to the systemic effects of colonialism as the reason for this over-representation in prisons. However, the over-incarceration of Indigenous people goes beyond simply being related to social disadvantage; instead, it is the direct result of the complex and ongoing legacy of colonialism.[41] As Bronwyn Dobchuk-Land describes, "it wasn't 'damaged' families that created most of the problems faced by Indigenous youth, it was the damage inflicted in the course of living everyday life in Winnipeg as an Indigenous person."[42]

2015 Liberal Majority

In 2015, Justin Trudeau was elected to a majority government, beginning a change in Canada's Indigenous-Settler relationship. Along with the new government, 2015 also marked the year that the final report of the Truth and Reconciliation Commission was published. In Call to Action 30, the Truth and Reconciliation Commission called for the "federal, provincial, and territorial governments to commit to eliminating the overrepresentation of Aboriginal people in custody."[43] Furthermore, Call to Action 42 calls for the "implementation of Indigenous justice systems."[44] The Trudeau government is supposedly committed to the calls to action listed by the commission. In response to the final report's release, the Prime Minister issued a statement, declaring, "our goal is to help lift this burden from your shoulders, from those of your families, and from your communities."[45]

Gladue Reform

The Gladue principles have been claimed to be a transformative criminal justice reform; however, the Canadian government has not taken the responsibility to implement the Gladue principles genuinely.[46] This third section of the paper delves into the Gladue principles and provides a proposal for policy reform. First, this section provides a detailed look at Gladue Reports and Gladue Courts. Beginning with Gladue Reports, this section examines

everything they get right and wrong before proposing a reform that will allow for the complete implementation of the Gladue principles. This section ends with an analysis of Gladue Courts and proposes reforms for a more culturally appropriate criminal justice system to ensure the fulfillment of the Gladue principles.

Gladue Reports

Gladue Reports have been used as the primary tool to assist the analysis of Gladue factors. The Gladue Report is a special pretrial sentencing report tailored to assess the "unique, systemic, or background" factors of Indigenous offenders in order to better comply with the Gladue principles.[47] There is a consensus among researchers that—when done effectively—Gladue Reports can provide a comprehensive analysis of an Indigenous offender's Gladue factors and produce lower recidivism rates for offenders.[48] Unfortunately, as the following analysis will show, the Gladue Report process is plagued with problems of lack of access, lack of Gladue professionals, lack of funding, and cultural inappropriateness.[49]

The most apparent problem with Gladue Reports is Indigenous people's lack of access to them. Even after over 20 years of Gladue Reports, most Indigenous people can only access traditional pre-sentencing reports that include Gladue components.[50] In essence, the extent to which Indigenous offenders can benefit from the Gladue analysis they are entitled entirely depends on whether Gladue report funding is available in their location.[51] Indigenous people living in major metropolitan areas may often fully benefit from funded and effective Gladue Reports. At the same time, those outside of large cities often only have access to pre-sentencing reports with Gladue Principles or, at most, unconvincing Gladue Reports.[52] The lack of these legal resources for Indigenous people contributes to a larger pattern of colonial oppression in which the communities that Indigenous people live in have consistently been underfunded, deprived, and neglected. In this way, the unequal implementation of Gladue fits into this broader pattern of colonial oppression that perpetuates the displacement of Indigenous people through limiting and restricting access to essential resources.

Despite their comparatively large Indigenous populations, no Federal, Provincial, or Territorial Gladue Report programs exist in Manitoba, Saskatchewan, New Brunswick, Newfoundland and Labrador, Nunavut, and the Northwest Territories.[53] This lack of access is a crucial problem in the western provinces. Saskatchewan, in particular, ranks close to the bottom of the country regarding the use of Gladue reports.

As previously mentioned, the language in the Gladue decision seems to call for Gladue Reports to be a mandatory part of the Gladue analysis. However, the Supreme Court has hesitated to obligate the Federal or Provincial governments to fund Gladue Reports directly.[54] As a result, this burden has been placed on the defendant. A single Gladue Report costs approximately $ 2,300 and takes about a month to complete.[55] The need for more funding for these programs causes these institutions to prioritize women and young people, leaving gaps in the implementation.[56]

On the rare occasions that Indigenous people have access to Gladue Reports, they are often forced to play up their traumatic experiences to solicit more sympathy from non-Indigenous judges.[57] As a result, many Indigenous people have been subject to unnecessary humiliation as the public is given access to the most personal and traumatic experiences.[58] In Patrick Gilbert's findings, Individuals who completed Gladue Reports disclosed feelings of "embarrassment, degradation, and humiliation."[59] Furthermore, The lack of value given to Gladue analysis has made Gladue Reports develop into a "painful charade" for Indigenous people.[60]

These problems of lack of access, lack of funding, and cultural inappropriateness indicate the need for a comprehensive review of the Gladue Report process. While Gladue is on the right track, funding must be expanded to ensure the complete implementation of the Gladue principles. Extending Gladue Report programs into jurisdictions with none is a crucial step in this process. There is no logical reason to explain why places like Nunavut—with an Indigenous majority population—have no Gladue Report programs.[61] In order to combat this, each province and territory must create a Gladue Report program that the government fully funds. Gladue Reports must be considered and funded as an essential portion

of the criminal justice system to remove the expensive burden placed on Indigenous offenders. In order to ensure this, there should be a statutory requirement for Gladue Reports to be made available to all Indigenous offenders. This idea has been floated by many academics.[62] Indigenous people in Canada should have this "right" to Gladue Reports to ensure consistency and uniformity in applying Gladue principles across the country.

Gladue Courts

In addition to Gladue Reports, the Gladue decision also developed into the creation of dedicated Gladue Courts devoted to processing Indigenous people.[63] Gladue courts can be defined as:

> Gladue courts are regular criminal courts that apply Canadian law in cases involving Aboriginal offenders, but they are distinctive in their approach to sentencing. These courts adjudicate bail, conduct trials, and sentence offenders, but they do so by integrating specialized Aboriginal knowledge to produce alternative understandings of an Aboriginal accused so that bail orders and sentences conform to the intent of the R. v. Gladue decision.[64]

Gladue Courts integrate traditional Indigenous knowledge in conducting trials, bail hearings, and sentencing offenders to ensure conformity to the Gladue principles.[65] Gladue Courts use a team of legal professionals educated in Indigenous understandings to facilitate the Gladue process. These professionals incorporate Indigenous languages and cultures and take additional time to "seek alternatives to prison that are informed by Aboriginal understandings of justice."[66] In short, when utilized, Gladue Courts have the potential to achieve a complete actualization of the Gladue principles in the criminal justice system.[67]

While Gladue Courts are far more effective than other methods, Gladue Courts suffer from many of the same problems as Gladue Reports. The lack of access and funding have caused long dockets and limited time per case, with some courts sitting only one day a month.[68] Furthermore, Gladue Courts do not deal with serious or violent crimes. Most Gladue initiatives rarely have any effect on reducing the severity of sentences imposed on Indigenous people for

more serious or violent crimes.[69] These gaps in implementation denote the need for policy reforms to the Gladue Court process.

In order to ensure the Gladue principles are followed, this Gladue Court system must be expanded. Currently, there is minimal access to Gladue Courts. However, the few successes that have come from these courts illustrate the need to give Indigenous people greater autonomy in building more culturally appropriate programs that have the ability to achieve Indigenous-led solutions to the over-incarceration of Indigenous people. As part of its obligation to reconciliation, the Canadian state must ensure funding to include Indigenous communities, elders, offenders, and victims in this process of building a culturally appropriate legal system. While increasing funding may be expensive at first, all of the financial costs of Gladue Courts and other Gladue programs could be offset by the money saved due to the decreased Indigenous population in expensive penitentiaries.[70]

Conclusion

While the Gladue principles are on the right track, many Indigenous and legal scholars were skeptical about its success from the initial implementation.[71] Scholars have argued that the central problem with the Gladue principles is that it is a state-controlled criminal justice intervention.[72] Rudin claims that turning to the Canadian state and expecting the very same institution that has oppressed Indigenous people for years to dramatically change course is the wrong idea.[73] Even a well-funded Gladue program, if administered through the Canadian state, will be a less effective alternative than the full recognition of Indigenous sovereignty over criminal justice matters. While Gladue's reform may appear to be a transformative or liberating change, in practice, the Gladue principles support the maintenance of a system in which Indigenous people are "filtered through a White judicial lens that perpetuates historical power relations."[74] Adding in Gladue Reports or Gladue Courts allows for a further actualization of the Gladue principles; however, the problem for Indigenous people remains that they must depend on

the goodwill of an often non-Indigenous judge in a non-Indigenous criminal justice system.

The implementation of the Gladue principles has yet to be the transformative change many have hoped for it to be. This essay argued that for the Canadian government to fulfill the Gladue principles, a complete implementation of Gladue Reports and Gladue courts must be undertaken. Only then can the Canadian government accomplish its objectives of providing criminal justice in a culturally appropriate manner and adequately considering the systemic circumstances of Indigenous offenders.

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No More Cattle? Exploring the Sustainability of Eliminating EU Cattle Farming As a Means of Addressing Climate Change

Morgan Martel [a*]

[a] Department of Law and Legal Studies, Carleton University, Ottawa

0009-0000-0534-3545

ABSTRACT: Anthropogenic climate change is undeniably altering planet Earth, and agricultural emissions are a significant contributor to this crisis. Agriculture, specifically cattle farming, is a key emitter of GHG emissions, accounting for 14.5% of global GHG emissions. This paper thus asks, given that cattle farming contributes a significant amount of total global GHG emissions, if the elimination of cattle farming in the EU is a sustainable way to reduce total GHG emissions. This paper explores the sustainability of cattle farming in the EU and highlights the vital role that EU cattle farming plays in the EU economy and in meeting the global food supply. It also explores the role that beef consumption plays in human diets. By researching the available literature, this paper finds that the complete elimination of cattle farming in the EU would have devastating effects on the EU economy and would leave the global food demand largely unmet. Not to mention that the environmental benefits of eliminating cattle farming become less significant when accounting for the emissions of new economic activity on ex-cattle grazing lands. Thus, this paper highlights the importance of improving cattle management and changing dietary patterns to mitigate GHG emissions in the context of a worsening climate and an increasing global food demand that must be met.

KEYWORDS: European Union, cattle farming, GHG emissions, climate crisis, sustainability analysis

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* Corresponding Author - Email Address: martelmorgan27@gmail.com
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The looming and ever-present climate crisis does and will continue to have damning consequences on EU agriculture and, consequently, the global food supply. However, this cannot be mentioned without noting the significant impacts that agriculture, specifically cattle farming, has on accelerating the climate crisis.

GHG emissions resulting in climate change could result in significant losses to European agriculture, with up to a 16% loss of farm income in the EU by 2050.[1] Over the past 40 years, losses from climate change have already amounted to over €487 billion in the EU27.[2] These losses will continue to occur from anthropogenically accelerated processes alongside issues such as soil desertification, droughts, and wildfires.

To some degree, the agriculture industry is the author of its own demise, given that it currently generates 19-29% of global greenhouse gas (GHG) emissions[3], with 14.5% of global GHG emissions being attributed to livestock alone.[4] In 2020, agriculture amounted to 11.78% of the EU's total emissions.[5] Given that cattle farming contributes a significant amount of total global GHG emissions, is the elimination of cattle farming in the EU a sustainable way to reduce total GHG emissions? This paper will focus on the feasibility of the complete elimination of cattle farming, specifically in the EU.

With increasing media attention and public awareness about the steep environmental impacts of animal agriculture, especially cattle farming, more people are turning to meat-free diets. In 2023, 43% of Gen-Z respondents in the UK stated that they plan not to eat meat.[6] Additionally, environmental concerns have played a significant role in the growing interest in veganism in the Western world,[7] where now 2% of European respondents aged 18-34 indicate they follow a vegan diet.[8] With an increasing number of young people turning away from meat consumption due to environmental concerns, it is relevant to consider whether these changes could be moved beyond the individual to a more systemic scale.

The EU boasts one of the world's wealthiest economies when measured by GDP and is also a global leader in climate innovation with landmark legislation such as the *European Green Deal*.[9] The EU's financial ability, innovation, and willingness to take strong environmental actions make drastic changes, such as the elimination of cattle farming most feasible in the EU. Thus, this paper explores the possibility of eliminating cattle farming in the EU as they have a higher likelihood of being able to implement such changes.

Although eliminating cattle farming in the EU could serve to reduce EU GHG emissions, this poses issues for the other key factors of food sustainability; social responsibility and economic viability. The elimination of cattle farming is made difficult by its importance to EU farmers and the EUs position as a top global food supplier, which is especially relevant to the overall rise in food demand, including animal foods, across the globe. However, these issues should not be noted without recognizing the health benefits of reducing meat consumption in human diets. This paper aims to assess how the EU can reduce the environmental impacts of its cattle industry without significantly disrupting the EU economy while still meeting global food demands.

The State of Livestock Farming in the EU

The cattle farming industry in the EU is a complex interaction of economic importance, worldwide demand, and ecological impact. It is a vital and multifaceted sector within the EU, playing a crucial role in both the regional economy and global food production.

GHG Emissions from Livestock and Cattle

Agricultural emissions consist primarily of methane (CH4) and nitrous oxide (N2O) gas emissions. This paper will focus on methane emissions, given that they are predominantly emitted from livestock through enteric fermentation (i.e. livestock belches) and from stored manure and organic waste in landfills.[10] Cattle are of exceptionally high concern regarding methane emissions, given their high emissions relative to other livestock. In fact, they can emit 40-80 times more methane than pigs, depending on the type of cattle.[11] In 2018, EU agri-emissions were dominated by livestock farming, with 39% of emissions coming from enteric fermentation, followed by livestock manure at 20%, and manure management making up 6% of EU agri-emissions.[12] However, it is essential to note that these CH4 and N2O emissions do not consider the impact of CO_2 emissions from fossil fuels and associated inputs (e.g. growing cattle feed) that are essential to raising cattle. When considering these emissions, eliminating all animal agriculture, not just cattle, could offset 68% of current anthropogenic CO_2 emissions[13].

In assessing the sustainability of cattle farming, it is necessary to look at not only how much GHGs EU cattle farming emits, but also at how much GHGs these practices produce in terms of food production and revenue.

EU Cattle Industry Production, Consumption, and Export

Between 2007-2009, animal outputs accounted for 40% of the total value of EU agricultural outputs, making livestock farming a significant producer in the EU food supply.[14] In 2020, there were over 76 million cattle in the EU, with beef production levels reaching 6.8 million tonnes.[15] The EU is the world's third-largest beef producer at these production levels, behind only the US and Brazil.[16] EU beef production is expected to decline by roughly 8% between 2021-2031; however, this is compensated for by increased slaughter weight per animal due to technological advancements.[17]

EU beef consumption is also expected to continue declining, with a 0.9% decline predicted for 2022.[18] However, as the global population rises and incomes increase in some developing countries, there is an anticipated increase in global meat consumption of 1.4% per year.[19] Thus, the globe will need to produce an additional 3.4 million tonnes of meat (poultry and beef) per year to meet the global demand.[20] This context of increasing food demands, especially in developing countries, is marked by staggering figures like an expected 300% increase in beef demand in Asia by 2050.[21] Such increases in demand will place the EU in a critical position when it comes to providing global food security. Related fears about meeting such increased global beef and food supply in the context of rising commodity prices have made economic sustainability an overarching objective of the EU's agricultural policy.[22]

Regarding export, the EU is mainly self-sufficient in beef production, with only 8-10% of EU beef sold for export.[23] Despite the EU being the third largest beef producer, the export market is primarily dominated by the US, Brazil, Australia, New Zealand, and Argentina.[24]

EU Cattle Industry Employment and Revenues

Despite falling cattle production and consumption rates, agriculture remains a significant employer in the EU. In 2020, agriculture employed roughly 4.2% of total employment in the EU, amounting to approximately 8.7 million people.[25] However, agriculture has a significantly higher presence in some EU countries, such as Romania, where roughly one-fifth of the population is employed in agriculture.[26] It should also be noted that these figures do not account for all of the people who work and help out on farms without being employed. Accounting for both paid and unpaid labour, it is found that the EU's overall agricultural workforce is roughly 17 million people.[27] The agricultural industry is also the least productive

in the EU, producing approximately €20,000 per person employed in 2021.[28]

In terms of revenue, agriculture contributed €217 billion or roughly 1.4% to the EU's GDP in 2022[29] It is important to note that the importance of the agri-food system as a whole is likely underrepresented in these data because it only refers to food processing industries. When examining the agricultural output, animals and animal products amounted to roughly 38.5% or €206.7 billion of total agri-outputs.[30] Of that nearly 40%, cattle comprised 6.7% of agricultural output, while milk comprised 14.5% of agricultural production.[31]

The Impacts of Eliminating EU Cattle Farming

When assessing the impacts that eliminating EU cattle farming could have on the EU and the world, there are four primary categories to consider: 1) impacts on the environment, 2) meeting the global food demand, 3) the impacts on employment and revenues, and 4) changes in human diets.

Environmental Impacts

Concerning the environment, eliminating cattle farming would appear to have an immediate benefit given the significant reduction in GHG emissions it would create. Indeed, removing cattle farming could serve to reduce the EU's agricultural emissions of nearly 400,000 kt of CO_2 per year by more than half.[32] However, the removal of cattle also means that a primary source of manure has been eliminated, which could result in fertilizing practices relying on synthetic fertilizers that emit nitrous oxide into the atmosphere (currently, just under the equivalent of 165,000 kilotons of CO_2 is emitted per year in the EU).[33] This would serve to effectively reduce some of the emissions gains made by the removal of cattle farming.

Also, it must be considered what economic activity the land that was once used for cattle farming would be used for in the absence of the cattle industry. If this land use is merely shifted from cattle farming to monoculture farming, the reduction in GHG emissions is quickly lost by the increased use of nitrous oxide emitting fertilizers, not to mention the accelerated degradation of ecosystems and topsoil from pesticide and fertilizer application and tillage practices.[34] Although crop-based agriculture is associated with fewer GHG emissions, its environmental impacts should not be overlooked. Agricultural practices and broader land use decisions reduce the

living carbon potential of the Earth and result in; deforestation and biodiversity loss (as a result of land clearing and monoculture practices), soil erosion and a loss of soil organic matter (as a result of tilling and monoculture practices), and soil salinization, coastal water pollution and ocean acidification (as a result of fertilizer and pesticide application).[35] It should be noted that an estimated 71% of the EU's farmland is dedicated to producing livestock feed (all livestock, not just cattle).[36] In the absence of cattle farming, cattle grazing lands may not need to be converted to croplands to meet food demands. In fact, this could mean that more food is produced on less land, where the benefits of improved cropland management could reduce CO_2 emissions by 1.4- 2.3 Gt CO_2 eq/year in the EU.[37]

Although conversion to croplands is not the sole alternative land use option, it is still essential to consider the emissions that will be put out by any economic activity that ex-cattle grazing/farming lands are turned to be used for. Take, for example, a country like France; the most agriculturally developed country in Europe- where 23% of all utilized agricultural area is dedicated to pasture and meadow land (for all livestock, not just cattle).[38] It is unreasonable to assume that all of this land would be left undeveloped in the absence of cattle farming, especially given the economic losses arising from eliminating an entire industry.

Impacts on Global Food Supply

Concerning meeting global food demand, given the high estimated increases in beef demand, not to mention the EU beef demand that would now need to be 100% imported, the elimination of cattle farming in the EU could lead to two possible outcomes. First, the global food demand is unmet, and food scarcity and malnutrition worsen across the globe, especially among impoverished communities. This is clearly a non-option. Or second, the global food demand is met by displacing the production of cattle products to other countries. The latter would mean that all other beef and cattle product-supplying countries need to increase their production levels to bridge the gap in supply.

This second option may not be environmentally advantageous given that less advanced farming techniques regarding cattle breeding, genetics, and nutrition in emerging economies result in less efficient livestock production.[39] In addition, livestock in tropical regions produces less milk and meat due to the climate,[40] meaning that more cows would be needed to make the same amount of beef in developing or tropical countries compared to places such

as the US or the EU.[41] Not to mention that other nations may not have the capacity to fill this increase in cattle product demand.

Impacts on Employment and Revenues in the EU

Eliminating the cattle industry in the EU would mean eliminating roughly €31.8 billion in cattle and milk products.[42] It would also mean the complete disruption of the agriculture industry. As of 2016, there were over 370,000 specialized cattle-rearing and fattening farms in the EU (excluding the UK).[43] Again, the elimination of cattle farming would mean the unemployment of all full-time employees on these farms and a significant reduction in employment for all part-time employees. The loss of this sector would lead to adverse ripple effects that the complete elimination of the beef industry would have on other industries that are input suppliers to the beef industry.[44] These effects would be especially harsh in countries with the most specialized cattle farms, such as France and Spain.[45]

It should be noted that cattle grazing lands could be used for other purposes, such as crop farming, where farmers and other cattle workers could re-employ themselves. However, this would require significant amounts of time and investments to turn all cattle grazing lands and related farm facilities into ones suitable for crop farming or other economic activities. It is worth mentioning that most of the world's pasture lands cannot grow crops.[46]

Changes to Human Diets

Although this paper primarily focuses on the systemic effects of eliminating EU cattle production, an analysis of the topic would not be complete without understanding its impacts on human diets. Consumption of red meat, both processed and unprocessed, has been linked to an increased risk of death from heart disease, stroke, and diabetes.[47] A recommended diet that promotes overall well-being and low risk of major chronic diseases limits red meat intake, especially processed red meat, and prioritizes protein sources from plants, legumes, nuts, fish, and omega-3 alternatives.[48] Such improvements could be significant considering that, as of 2016, Europeans consumed over 400% of the recommended dietary intake of red meat.[49] Thus, if the elimination of EU cattle production is coupled with an overall reduction in red meat consumption, this shift could improve the average European's health. However, it is essential to note that this shift is not reliant upon the elimination of the EU cattle industry. Diets could shift while cattle production remains

active, but the elimination of the EU cattle industry could serve as a catalyst for such dietary changes.

Is This Sustainable?

In short, the complete elimination of cattle farming in the EU cannot be regarded as a sustainable method for reducing the EU's GHG emissions.

Although it may reduce the EU's total agricultural emissions, such a change may only displace these emissions to countries with less efficient cattle management practices, ultimately resulting in higher global emissions than if the EU raised the cattle themselves. As well, if cattle grazing lands are converted to crop farming or other economic activities, there are significant environmental impacts associated with these land conversions that must be considered. Replacing all animal farming with monoculture farming would decrease the net biodiversity of the planet, which is inherently unsustainable as diversity is invaluable to Earth's ecosystems.[50] Also, switching to a monoculture-only system would force crop farming to rely primarily on synthetic fertilizers (given the reduction in natural fertilizers such as manure), which, aside from their associated nitrous oxide emissions, significantly degrade the quality of topsoil.[51] This degradation is significant because a monoculture farming system that over-relies on synthetic fertilizers could destroy the EU's topsoil so much that those lands can effectively no longer produce food.[52] A food system that systematically degrades its resources to the point where it can no longer produce food is, by definition, unsustainable. A change to other economic activities would also sport their own GHG emissions that must be considered.

The grave impacts that such a reform may have on the environment are not to mention the significant difficulties that would be faced in attempting to meet an ever-increasing global food demand with fewer suppliers. In an already inefficient food system where one-third of global food produced is wasted, removing one of the world's more efficient cattle producers would only place a more tremendous strain on less efficient producers that simply may not be able to account for the rise in global food demands and the demands now posed by EU consumers who can no longer source their cattle products internally.[53] However, this rise in demand may be mitigated by a reduction in meat consumption in European diets. If global food demands cannot be met, and in the context of already rising commodity prices, impoverished people will suffer the most from

food scarcity and malnutrition. A global food system that, by eliminating more-efficient production sources, can no longer produce enough food for the world cannot be said to be sustainable.

In addition, the nearly €32 billion loss of cattle product outputs would be a substantial loss to the EU economy. Although some of these losses could be recuperated over time by converting cattle grazing lands to crop farming or other uses, this does not account for the associated losses from the complete erasure of the beef industry and the losses in industries (e.g. cattle feed, specialized cattle machinery) that serve as input suppliers to the cattle supply chain.[54] Another main issue is the costly feasibility of converting cattle grazing lands into those suitable for crop farming or other economic uses. The elimination of the beef industry and related employment also means the loss of employment for hundreds of thousands of EU workers, many of whom already make relatively low incomes, with the average EU farmer earning roughly €20,000 per year.[55] Thus, eliminating cattle farming in the EU cannot be seen as economically sustainable given the significant losses in revenue and employment that it would cause, with the only way to recuperate these losses requiring considerable time and financial investments.

Potential Other Solutions

The question then begs to be asked, if the elimination of EU cattle farming is unsustainable, what can be done to reduce the environmental impacts of cattle farming in the EU? This primarily comes down to making cattle management more efficient. Boosting livestock productivity (i.e., producing more beef and milk per cow) through better nutrition can effectively reduce the number of cattle necessary to produce the same output.[56] Cattle nutrition can also positively affect how much emissions a single cow produces. Researchers have found that using 1% of seaweed in a cow's diet can reduce their methane emissions by up to 60% without adverse effects on animal health or productivity.[57] Other practices that can help reduce the emissions produced by cattle farming are improved veterinary care, improved grazing management, and improved manure management through methods such as covering tanks that hold semi-solid waste and using digesters that collect manure and turn it into biogas.[58]

Another solution to reducing GHG emissions associated with cattle is by simply consuming fewer cattle products. The 2023 IPCC report has called for a reduction in meat in peoples' diets as a demand-side measure that can reduce ecosystem conversion, reduce methane

and nitrous oxide emissions, and free up land for reforestation and ecosystem restoration.[59] The report calls primarily on citizens of the global north to reduce their consumption, as they are the individuals with the greatest choice and financial ability to change their consumption patterns.[60] Dietary changes could serve to reduce global emissions by 0.7 to 8.0 Gt CO_2 eq/year.[61]

Conclusion

The immediate emissions reductions made by eliminating EU cattle farming cannot be deemed sustainable given the chilling effects that this could have on global food scarcity and malnutrition and the deficits this would cause to both revenues and employment in the EU. Also, when accounting for the increased emissions from other countries that would supplement the beef supply, it is not evident that the elimination of EU cattle farming would result in a net emissions reduction across the globe.

This paper highlights the crucial role that cattle management and dietary change have in addressing the climate crisis and the role of the cattle industry in feeding the planet. It is also important to note the limitations of this paper. This paper does not account for GHG emissions, beyond those directly emitted by cattle, that are more broadly associated with the EU food system. This paper also does not consider how GHG calculations are made or assigned, which countries can manipulate based on their primary emissions use and the emissions accounting systems they use to calculate this. Furthermore, this analysis does not address the feasibility or timeline of eliminating the EU cattle industry. However,, given the unsustainability of this idea, it need not be heavily weighed.

As the climate crisis worsens and global food demand rises, it will be essential that cattle management is made more efficient and less emission-intensive. Given the diversity of climatic and economic conditions across the globe, the question of *how* to improve cattle management will require nuance. A one size fits all solution will simply not be feasible for improving cattle management in developed versus developing versus emerging economies.

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High Stakes: Why Legalization is the Bold Move Canada Needs

Abigail Proctor [a*]
[a] Department of Psychology, Carleton University, Ottawa

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ABSTRACT: Decriminalization and legalization of illicit drugs have been a hot topic ever since they hit the black market and have progressed a long way. The history and subject of drugs continues to be a controversial topic, but it is evident that we still need change. This essay differentiates the concepts of decriminalization and legalization, their effects on drug policy, and their impacts on the user, and argues for the legalization of illegal drugs in Canada. It is argued that the legalization of illicit drugs allows for proper addiction treatment, safe consumption, addresses the large amounts of overdoses and opioid crisis and reduces stigmatization. Systemic and fundamental change is needed to prioritize the health, safety, and well-being of society as a whole.

KEYWORDS: drug policy, legalization, decriminalization, opioid crisis, criminal justice system, mental health

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* Corresponding Author - Email Address: abiproctor01@cmail.carleton.ca
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Drug Policy and the Shift Towards Decriminalization

Drug legalization activists believe society has been kept in the dark regarding the many truths regarding drug use. “We have miseducated the public,” said John Leland in 2021.[1] Drug policy has brought the debate about decriminalization compared to legalization in the context of illicit drugs. When considering drug use in society, it is crucial to consider the lengthy history of our nation in the context of drug policy. Since the 1960s and before, Canada and other Westernized countries have taken a ‘hard on drugs approach’ to criminalizing and penalizing drug users. In 1971, President of The United States, Richard Nixon, began the War on Drugs, majorly increasing drug policy, mandatory sentencing, and ‘no-knock’ warrants.[2] The first sight of decriminalization occurred in 1977 when President Jimmy Carter proposed that marijuana be decriminalized up to an ounce for personal possession.[3]

Nevertheless, another shift occurred in the 1980s/90s, when Ronald Reagan's presidency increased imprisonment rates, specifically drug charges, with incarcerated individuals for non-violent drug charges arising from 50,000 in 1980 to 400,000 in 1997.[4] Anti-drug propaganda such as the ‘Just Say No’ slogan headlined the media, supporting the zero-tolerance attitude of the government. Anti-drug policies continued with the presidency of George W. Bush, with an increase in the militarization of domestic drug law enforcement.[5] We saw a significant change with Barack Obama, who spoke openly about his marijuana use as a kid. This marked a shift in public opinion now dramatically in favour of sensible reform, with health-based approaches and reducing criminality of drug use. Society has seen this through the legalization of marijuana in the last decade and the much more recent decriminalization of small amounts of illicit drugs for personal use in response to the opioid crisis in British Columbia.[6] With these changes and the devastating events of the opioid crisis, much more has been discussed regarding decriminalization and legalization. This essay will differentiate the concepts of decriminalization and legalization, their effects on drug policy, and their impacts on the user, and argue for the legalization of illicit drugs in Canada. It will be argued that legalizing illicit drugs

allows for proper addiction treatment and safe consumption, addresses the large amounts of overdoses and opioid crisis, and reduces stigmatization.

Decriminalization

Decriminalizing illicit drugs entails the removal of criminal penalties for possession of the drug for personal use and possession of drug-affiliated paraphernalia while charges for trafficking and manufacturing still stand.[7] Often decriminalization replaces criminal intervention with civil intervention, where charges would be replaced with referral to education or treatment program or a fine. [8] Decriminalization moves the focus of drug use from a criminal issue to a public health and social issue.[9] Data from 2019 shows that there were 48,000 drug-related offences involving possession for personal use in Canada.

Differentiating Decriminalization from Legalization

It is essential to understand that decriminalization is not legalization, meaning that it is still illegal to manufacture, sell, and possess copious amounts of drugs.[10] Legalization in the context of drug policy includes removal of criminal charges for drug possession for personal use within limits.[11] This means that the drugs would not be controlled and regulated by the government, allowing for the continued mystery and issue of what truly is being put into drugs. Decriminalization does not mean anyone can walk into a store and buy illicit drugs, like tobacco or alcohol. Decriminalization is not new, as we first saw its effects in 1977 with the proposal to decriminalize marijuana in the US, which was later passed, making marijuana legal in most states.[12]

Decriminalization Efforts in Canada

A recent study in Canada showed that 59% of Canadians favoured decriminalizing drugs.[13] The Canadian Association of Chiefs of Police released a review regarding the decriminalization of illicit drugs, in which Bill C-22 is reviewed. Bill C-22 is a comprehensive bill of proposed legislative material to address the

systematic discrimination and disproportionate representation of marginalized communities.

Bill C-5 was introduced to amend the Criminal Code and Controlled Drugs and Substances Act (CDSA). The significant revisions that Bill C-5 include the removal of mandatory minimum sentences for offences within the; the removal of limitations placed on the use of conditional sentences; and amends the CDSA to require that peace officers and prosecutors consider referring people to treatment programs or other support services, rather than prosecuting for small drug charges.[14] Bill C-5 recognizes the impact that the Criminal Code and CDSA have on racialized people, specifically the disproportionate effects on Indigenous and other racial groups leading to overrepresentation in the criminal justice system.[15] The Bill acknowledges the current opioid crisis in Canada and its effect on the criminal justice system. It is necessary to notice that drug use in Canada needs to be seen as a public health issue and *not* a criminal justice issue. The Canadian Drug Policy Coalition (CDPC) acknowledges that previous drug prohibition failed to reduce drug use effectively and, in turn, increased unsafe drug use. The CDPC takes accountability for the prohibition fueling the current opioid epidemic, as the detrimental effects of prohibition are continued to be seen in addiction and illicit drug sales today. By adhering to a public health approach, the CDPC proposes decriminalization is the safest approach to the issue because of the focus on the user's safety and mental health. This public health-based approach allows struggling drug users to receive the appropriate treatment and access appropriate mental health services rather than facing punishment from the criminal justice system. The proposed effects of Bill C-5 are some of the first steps toward decriminalization in Canada. Bill C-5 received Royal assent on November 17th, 2022.

Another example of decriminalization in Canadian policy is the recent change in British Columbia. On May 31st, 2022, Health Canada recently passed an exemption in British Columbia for decriminalizing illicit drug possession for personal use, up to 2.5 grams of specifically cocaine, opioids, methamphetamine, and ecstasy.[16] This exemption only applies to adults over the age of 18 in the province of British Columbia. No criminal charges can be laid for

those possessing up to 2.5 grams of the selected substances for personal use, and they will be referred to appropriate services instead. However, selling, manufacturing, and trafficking charges are unaffected.[17] This act of decriminalization is in response to the devastating opioid crisis occurring in Vancouver. With this recent event, the controversy over decriminalization and legalization has risen. With decriminalization comes many positives as well as negatives.

The Transformative Potential of Decriminalization

Decriminalization would allow for civil involvement in drug-related charges. This would decrease the involvement of the criminal justice system, decrease incarceration, and decrease the financial burden on the court system. With fewer criminal charges of drug-related offences, this puts less pressure on the courts and criminal justice system as a whole, allowing courts and law enforcement to place their focus more on other important criminal matters. This saves the criminal justice system and the Canadian government money, time, and resources. Decriminalization calls for education and treatment in the replacement of criminal charges. This places an increased need for addiction treatment services, allowing the user to reach the help they may need rather than be punished for their addiction.[18] Decriminalization allows those struggling with mental illness to be approached accordingly rather than penalized and their condition ignored. People with mental illness, those experiencing homelessness, racialized individuals, and those of lower social class have been targeted by the criminal justice system concerning drug offences; decriminalization would allow these individuals to reach the help they need for their specific situation.[19] This also increases harm reduction efforts, involving the distribution of clean kits (needles, syringes, pipes, etc.), education on naloxone in response to overdoses, and emphasizing the physical safety of the user. Decriminalization can change society's perception of drugs, reducing stigma. If we break the taboo of conversation regarding safe drug use, we can positively impact the lives and safety of many. Decriminalization can significantly impact the lives of many, including the user, their family and friends, and society as a whole.

However, we must consider the negative aspects or aspects of drug policy that decriminalization does not fix.

The Limitations and Challenges of Decriminalization

Decriminalization continues to be a controversial topic, and we must also address the opposing side. Removing criminal charges concerning drug-related offences allows for deference to appropriate services but does not target some of the root issues of safety in drug use. The overdose crisis is driven by an unpredictable, illegal drug supply marked with adulterants, contaminants and other substances.[20] Decriminalization does not address the opioid crisis caused by unsafe and unexpected substances cut into drugs. Decriminalization does not affect the supply and manufacturing of drugs which would continue to be unregulated by the government. This does not promote a safer supply of drugs but merely the user's safety in the act of use. In order to assure the safety of users, decriminalization must be paired with safer pharmaceutical alternatives to the current toxic drug market.[21] An alternative to decriminalization often advocated by drug policy activists is legalization and regulation, which includes a rule to control who can access what drugs and when.[22] Another primary concern with decriminalization is a possible increase in addiction and substance use; this will be addressed further in the essay. Decriminalization currently addresses some of the many fundamental issues within drug policy but still leaves many problems unaddressed.

Legalization

Legalization in the context of drug policy includes the removal of criminal charges for drug possession for personal use within limits.[23] In addition, illicit drugs would be legally regulated by the government, sold, and manufactured by contained facilities. An example of legalization in Canada is tobacco, alcohol, or marijuana; there are restrictions regarding consumption, manufacturing, and sales. This allows for products to be safe for consumption and knowledge and quality control of ingredients of drugs.

Prohibition to Regulation

Legalization is not new, as alcohol and tobacco have been legally regulated for decades. A report for Congress by Harry Hogan, 1998, looked at the possibility of legalization of prohibited drugs and how this could look. The debate construes if opioid substances could be sold over the counter to the public or through medical institutions where the persons are already dependent on the substance.[24] Legalization brings significant debate to drug policy and has many positive and negative aspects. Legalization has grown in support and has been spoken more about in recent years. A study conducted in Latin America in 2021 looked at the legalization of drugs and its impacts on society, precisely the public opinion. They found there is less support for legalization in countries where the government is less effective and significant public health issues persist.[25] However, it was found that legalization would help to mitigate the many effects of trafficking in Latin America.[26]

Addressing the Failures of Drug Prohibition

Arguments for legalization are rooted in a public health and safety-based approach. As the effects of decriminalization are consistent with legalization, the positive results also apply to legalization. It has been seen throughout history that drug prohibition does not work; if there is a demand for a substance, there will be a market for it.[27] Black markets are the current distributor of illicit substances; they generate crime, allow for inadequate quality of drugs, and are unsafe. Legalization could limit the abilities and distributions of the black market for drugs. Harry Hogan stated that the prohibition or restriction of the availability of a substance is a denial of freedom and that the freedom to experiment with altered states of consciousness is in the same category as freedom of speech or religion in the US.[28] The inconsistencies in the government's regulation of drugs must be pointed out, alcohol and tobacco are both harmful drugs, yet they are legalized and profit the government. Nevertheless, other illicit drugs cost the government, continue to be criminalized and cost the government even more. Legalization of drugs would allow intrinsic freedom and rights of society to be met.

The overdose crisis that is occurring across Canada is being fueled by unsafe and poor-quality drugs that are circulating the

streets. Almost 23,000 Canadians lost their lives due to overdose between 2016 and 2021.[29] Fentanyl is being cut into unsuspecting drugs, causing users to overdose on the unexpected amount of such a harsh substance.[30] These unsafe drugs have taken over the streets and caused other drugs to take over. Recently, there has been a shortage of crystal meth on the streets of Canada, causing crystal users to resort to "downers" and any small amount of fentanyl, causing an overdose.[31] Drugs must be monitored and quality-controlled to ensure the safety of society. Legal regulation, monitoring, distribution, and manufacturing could significantly reduce the impacts of the current opioid crisis.

Challenging Stereotypes and Misconceptions

There is a heavy stigma regarding substance use. Society often generalizes all users together, placing them into the category of addicts, people with no self-control or worth, and "monsters." When this is not always the case, the recreational user of 'hard' drugs exists. It is more common than we think; look at the men of Wall Street, many of whom are avid users of opioids but not the stereotypical 'addict.'[32] There are other examples of recreational users.

Dr. Carl Hart is a well-affirmed academic who heavily advocates for the legalization of illicit drugs. Dr. Hart grew up in the heart of the growth of recreational cocaine in the '80s, living in a neighbourhood filled with drug abuse in Miami, observing the impacts that drugs and addiction had. Despite Hart's rough upbringing, he pursued a prestigious education, attending Columbia University and learning amongst some of the most well-known researchers. Hart argues that the violence and despair that define the crack epidemic had to do more with Black America's social conditions than the physical pull of the drugs. Hart strongly believes that public health and pharmacology are to blame for the lack of change in the war on drugs.

Having used 'soft drugs', Hart experimented using heroin during his research. "He describes using heroin in carefully managed doses, with a product he trusts, in the company of friends, at times when being in an altered state does not interfere with his life, and achieving a dreamy light sedation, free of stress."[33] Hart's heroin use

is never excessive and always used with his and others' safety in mind, never interfering with his functionality in day-to-day life. He relates his drug use to some of the other luxuries in life; he says, “Like vacation, sex, and the arts, heroin is one of the tools I use to maintain my work-life balance.”[34] Hart applies his heroin use in the context of a shared racial identity that he feels he is in a constant state of hypervigilance to minimize the damage caused by living in his own skin. When the heroin binds to the opioid receptors in his brain, it is as if he can overlook his burden and feel he no longer has to constantly fight a battle. Hart's argument also points out how heroin and the use of other illegal drugs are often used in negative contexts to skew the blame of the situation; in this article, the example of George Floyd’s death was used, and there was a slight trace of heroin in his system.[35]

Hart's research concludes that a heroin user is not any less likely to be functional compared to a ‘soft’ drug user. Hart believes that public health is infantilizing Americans and that a more enlightened approach to drugs would allow users to act on their own opinions and preferences. It is no surprise that Hart’s argument is viewed as highly controversial. Much of the media, researchers, and scientists are hesitant towards this argument. Hart has used illegal substances as he grew up surrounded by addiction, so he feels aligned with those vilified for their use. Overall, Hart suggests legalizing substances and that the basic operational pattern of policy regarding the war on drugs has shown resistance to change. The marginalized communities impacted within US society can be seen to be impacted in Canadian society as well, where we also see Indigenous communities stereotyped and affected by drug policy in Canada.

Balancing Act

We must address the negative aspects of legalization and the valid concerns that arise. A significant concern that occurs in the context of legalization and is a primary reason for the lack of support is the suspicion that legalization would increase addiction and drug use. This may not necessarily be true. Many plans and thoughts of legalization are thought to make drugs available to those already dependent on the drug, meaning they could only be distributed and

administered through a medical institution. This would allow those at risk of reaching unsafe drugs to obtain drugs that are safe for consumption. Legalization for those already reliant on the substance would not be much different from many of our medications in Canada. There would still be restrictions in place regarding amounts, age, and other requirements in place for users' safety. Regarding the suspicion of increased addiction, we have seen the evidence against this in past legalizations. Alcohol prohibition in the past resulted in unsafe, illegal markets for alcohol and did not decrease addiction or use.[36] It is safer for society to have the substance legally regulated and manufactured. In the context of the legalization of marijuana, a study conducted by Miceh et al. in 2017 looks at the prevalence of marijuana use in adolescence, specifically over time. It was found that since 2005, marijuana use in adolescents has not increased, despite beliefs of the opposite. Despite the unknown possibilities that may arise with legalization, we must understand that the worst may not always be expected of drastic change. With legal drug regulation comes great restrictions; these drugs would not be available to everyone.

Conclusion

The ongoing debate regarding decriminalization and legalization, and drug policy in general, will continue to be a hot topic. We must consider all relevant criteria when reviewing the positives and negatives of drug policy. There is sufficient support and research for both decriminalization and legalization, but one must be chosen in order for change to occur. Decriminalization can greatly impact the criminal justice system's involvement in minor drug offences and civil involvement in these matters. This would allow for a greater focus on addiction services, education, and other support services. While yes, decriminalization allows more emphasis on the safety and concern of the user; it does not fully address the opioid and overdose crises. Legalization reaps the same benefits that decriminalization offers, yet it ensures the control of the quality of drugs. This allows for the legal regulation of the distribution, manufacturing, and marketing of specific illicit drugs. With this in

mind, there is sufficient and supplementary support for legalization, making it the more appropriate choice for Canadian drug policy. Legalization of illicit drugs allows for proper addiction treatment and safe consumption, addresses the large amounts of overdoses and opioid crisis, and reduces stigmatization. This can greatly depreciate the lives lost to the opioid and overdose crises across Canada. In the dire state of society, action is greatly needed relating to drug policy in Canada. We must see both systemic and fundamental change so that we are prioritizing the health and wellness of society. Drug policy is a public health issue, not a criminal justice issue.

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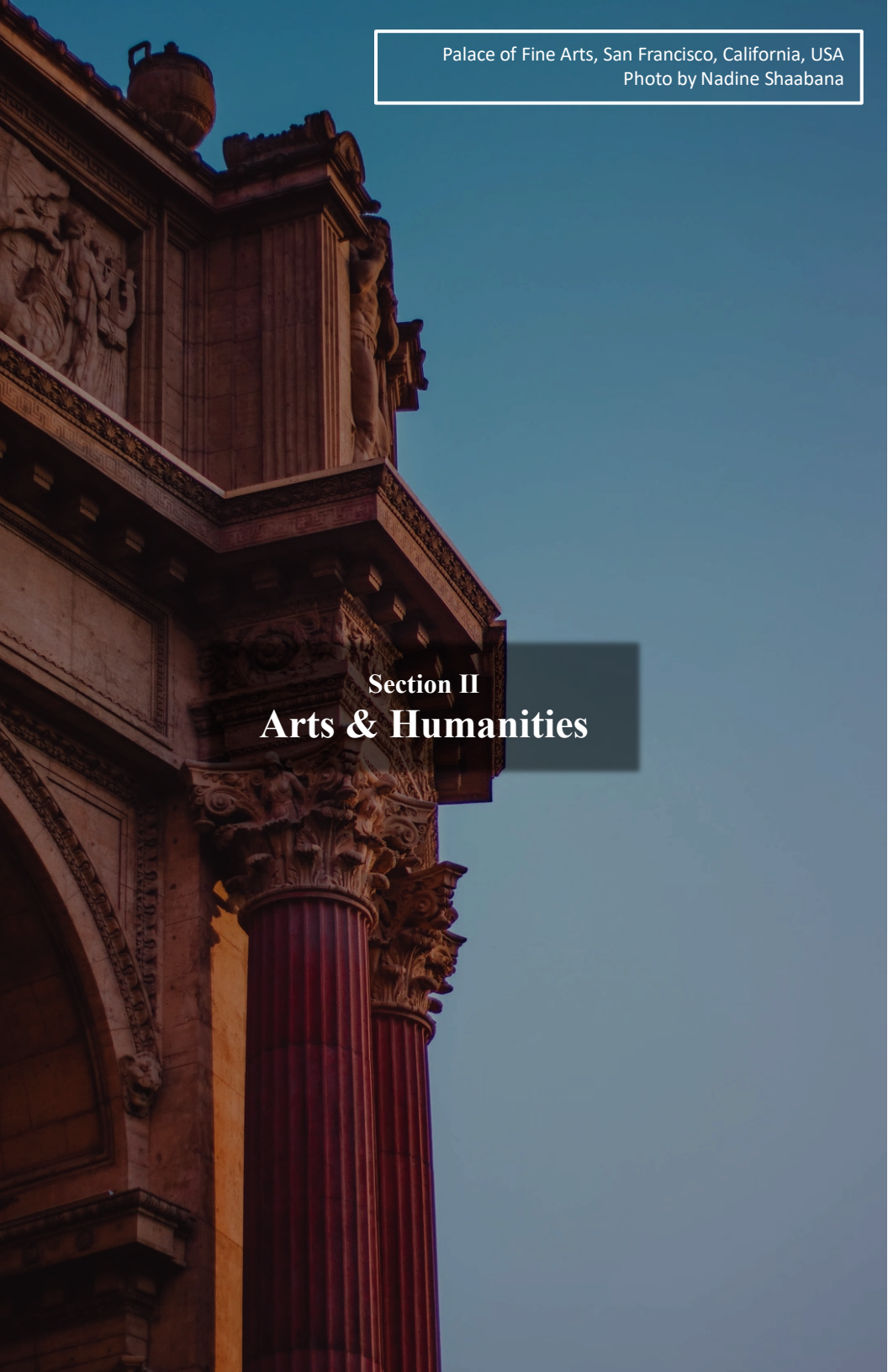

Palace of Fine Arts, San Francisco, California, USA
Photo by Nadine Shaabana

Section II
Arts & Humanities

Mediating Unresolved Conflict Through Mass Media News Discourse: On Cultural Tensions and Collective Memory

Christine Rose Cooling [a, b*]
[a] Department of Communication & Media Studies, York University, Toronto
[b] The Creative School, Toronto Metropolitan University, Toronto

0009-0000-5022-8271

ABSTRACT: Particularly in coverage of unresolved conflicts, mass media news of both the one-to-many broadcast era and the new networked era are not guaranteed to sufficiently provide the historical and analytical depth required for publics to understand these infinitely complex tensions in their respective cultural and temporal context. Mass media news coverage of the day, however, *does* perpetuate mediated images that seek to affect how publics contextualize and collectively remember simmering cultural conflicts into the future, afar and close to home. This article conducts a small-scale theoretical review of the theories of collective memory and agenda-setting, complemented by an analysis of mass media news coverage and literature on unresolved conflicts concerning the *Front de libération du Québec* (FLQ) and "The Troubles" in Northern Ireland. This interrogation, in light of theoretical conceptions of dominant news discourses, offers an explanation as to how publics may come to understand ongoing conflicts in the external world. In shaping understandings of unresolved conflicts by publics, mass media news can play a biased role in making certain political tensions affectively salient for the preservation of a nation's collective *past* by attempting to influence how compassion is evoked from publics in the *present* and even into the *future*. While certainly historically and geopolitically situated, a commonality exists between the unresolved conflicts of the FLQ terrorist attacks in Québec, Canada and the Troubles in Northern Ireland: nationalist cultural tensions, ones that simmer cyclically until discontent erupts between players on opposing sides. Although apparent collectives can seek out countless contemporary alternative sources of information in the digital era of abundance, this paper argues that collective memory remains significant in the context of scrutinizing how mass media news problematically sets biased agendas, which then promotes quite different historical worldviews of deeply complex conflicts.

KEYWORDS: mass media news, collective memory, agenda-setting, conflict

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* Corresponding Author - Email Address: christinerosecools@gmail.com
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If temporality is understood as a linear, static progression of time—of the past, present, and future—then mass media news may be understood as existing to report primarily on the explosive events of the day. Particularly in coverage of unresolved conflicts, mass media news of both the one-to-many broadcast era and the new networked era are not guaranteed to sufficiently provide the historical and analytical depth required for publics to understand these infinitely complex tensions in their respective cultural and temporal context. Mass media news coverage of the day, however, *does* perpetuate mediated images that seek to affect how publics contextualize and collectively remember simmering cultural conflicts into the future, afar and close to home.

This article will conduct a small-scale theoretical review of the theories of collective memory and agenda-setting, complemented by an analysis of mass media news coverage and literature on unresolved conflicts concerning the *Front de libération du Québec* (FLQ) and "The Troubles" in Northern Ireland. This interrogation, in light of theoretical conceptions of dominant news discourses, offers an explanation as to how publics may come to understand ongoing conflicts in the external world. In shaping understandings of unresolved conflicts by publics, mass media news can play a biased role in making certain political tensions affectively salient for the preservation of a nation's collective *past* by attempting to influence how compassion is evoked from publics in the *present* and even into the *future*.

While certainly historically and geopolitically situated, a commonality exists between the unresolved conflicts of the FLQ terrorist attacks in Québec, Canada and the Troubles in Northern Ireland: nationalist cultural tensions, ones that simmer cyclically until discontent erupts between players on opposing sides.

On Collective Memory and Unresolved Conflict

In the context of unresolved conflict, collective memory works to perpetuate intergenerational tensions and affectivities. Beyond the self, collective memory—popularized by Maurice Halbwachs in the twentieth century—embodies the connective

elements that conjoin groups and societies in a shared remembering of the past, mediated in part by mass cultural representations and images. Referring to Schudson's work on mass media news, Hoskins and O'Loughlin illuminate how an "oral culture" created by political elites and journalists was mediated through news discourses of the broadcasting era, perpetuating hegemonic, common-sense understandings of conflicts using intentional rhetorical structures.[1] Building on Hoskins and O'Loughlin's analysis, Edy argues that these rhetorical techniques are used by journalists to depict events that animate the public's understanding of past events, present tensions and social relationships, and future outcomes and expectations.[2] This depiction of the past fosters *collective memory*: "the meaning that a community makes of its past" that is "home to critical aspects of political culture, community tradition, and social identity."[3]

The political project of nation-building inherently necessitates building collective memory to perpetually support national myths of the past during the present and far into the future, which raises the problem of exclusionary and/or biased mass media news coverage of unresolved conflicts. However, Sturken keenly emphasizes the tangled set of meanings which prevent one uncontested narrative of collective memory from collective consumption.[4] The past, then, attempts to be narrated by voices competing for the loudest volume in a process of "contestation, credentialling, discrediting, and marginalization" over time to complicate the politics of remembering, as Zelizer asserts.[5]

Speaking to the role of individual action, Van Dijck sets forth a nuanced explanation of collective memory, arguing that while present experiences are mediated through sociocultural practices, technological affordances, and discursive norms for impression into future memory,[6] the tension between these frameworks and individual agency in recalling significant events is generative.[7] The productive space between this tension is analyzed by Hoskins, who contends that in the digital age marked by hyperconnectivity, technological dependency, and immediacy, remembrance does not function solely by *receiving* fixed representations of the world, as collective memory suggests on the surface; rather, we remember

through *creating* representations of the world that become limitlessly archived in digital formats.[8]

Hoskins describes the *memory of the multitude* as contrasting collective memory in its limitless nature and its freedom from representational constraints of traditional mass media, which inherently require that audiences receive, not participate.[9] Hoskins therefore argues for us to move beyond collective memory to a new conception of memory of the multitude that sees individual-group-societal relations as hyperconnected, facilitated by and through participation in digital archival networks, platforms, and applications.[10] Hoskins describes how publics in the broadcast era were unable to respond to the mass media,[11] identifying the age of collective memory as the age of mass media, given the capacity for radio and later television to mediate cultural events as shared experiences (imagined or otherwise) simultaneously to a national—and later global—audience.[12] Illustrating the unidirectional flow of mass media, Edy finds that news events that invoke collective memory are reported using superficial, dramatic, and rigidly-contextualized narratives that do not foster critical engagement with the past.[13] Peters consequently illuminates how the concepts of heritage, nostalgia, and nationalism are romanticized by the media to shape national collective memory in the present.[14]

Although apparent collectives can seek out countless contemporary alternative sources of information in the digital era of abundance, I argue that collective memory remains significant in the context of scrutinizing how mass media news problematically sets biased agendas which then promote quite different historical worldviews of deeply complex conflicts.

On The Troubles in Northern Ireland and Mass Media News Discourse

Unresolved conflicts attract selective mass media news coverage, thereby helping amplify hegemonic discourses and subsequently swaying the understanding of significant cultural conflicts for collective publics. Notably, according to Höijer, pervasive news media coverage of images depicting distant suffering

has an affective impact on ordinary citizens' perceptions of ongoing crises.[15] The dominant mass media news discourse surrounding the Troubles in Northern Ireland illustrates quite clearly Höijer's claim. The Troubles, persisting from the late 1960s until the 1998 Good Friday Agreement on April 10, involved violent conflict over the political location of Northern Ireland under the rule of the United Kingdom, effectively dividing Ireland into two nations: the overwhelmingly Protestant unionists and the overwhelmingly Roman Catholic nationalists. In an aggressive effort to combat British hegemonic powers, the Irish Republican Army (IRA) unleashed death-dealing guerrilla tactics.[16]

On January 31, 1972, the front-page article of *The Toronto Star,* titled "IRA vows to avenge army 'slaughter' of 13 men," (Figure 1) reported on the murder of thirteen unarmed Roman Catholic civil rights protestors by British Army paratroopers in Londonderry on Sunday, January 30, 1972—collectively remembered today as "Bloody Sunday."[17]

Yet, interestingly, the newspaper article includes a large, eye-drawing photograph of "a hysterical mother" being "helped to an ambulance by [a] policewoman while an ambulance man carries her baby" following a series of bomb explosions from the previous day, which were blamed on the IRA.[18]

The Toronto Star

four star ★★★★ edition

IRA vows to avenge army 'slaughter' of 13 men

Bernadette Devlin hits

Sponsored by Ontario

Mission to China seeks trade for all-Canadian firms

Ottawa planning new aid for poor to buy homes

Figure 1. Jones, Frank. "IRA Vows to Avenge Army 'Slaughter' of 13 Men." The Toronto Star. January 31. 1972: 1.

The agenda-setting function of the mass media delineates the process in which contrasting news discourses become salient in opposing nations or groups to structure public understandings of conflict. According to McCombs and Shaw, the public learns about ongoing issues in direct proportion to the emphasis placed upon them by mass media news.[19] McCombs and Shaw quote Lang and Lang, who observe how the mass media "constantly [present] objects suggesting what individuals in the mass should think about, know about, have feelings about."[20] The editorial decision to accentuate an effective image of a devastated woman and a helpless baby suffering from the horrors of *the IRA's* vengeful terrorism—in an article about *the British Army's* bloody violence—pulls on heartstrings. To evoke compassion from publics across borders for victims of the IRA, the readers' own eyes are drawn to a mediated image amidst a narration of bloody events. This decision is intentional, imbued with a latent bias towards the British Army and the Protestant police fighting on the opposite side.

Supporting this textual and visual interpretation, Molloy finds that newspapers from the same countries were generally consistent in discursive narratives of the Troubles, analyzing how stories in two English newspapers used the words "terrorist" or "terrorism" in relation to the IRA over five times as often as *The Irish Times,* and *The New York Times* thirty percent more often.[21] Mass media news organizations in different nations therefore framed stories to render specific discourses more salient as a strategy to compete for compassion from publics towards the atrocities of unresolved terrorism in a time marked by active hostilities *as well as* into the future, given that nationalist cultural tensions still resonate with collectives.

Furthermore, McCombs and Shaw highlight Cohen's succinct statement that the press "may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think *about*."[22] Additionally, speaking directly to the victimization of civilians through agenda-setting, Höijer argues that the news media may be constructed as an inextricable social link between violent conflicts and both the public and politicians, thereupon influencing public opinion and political

intervention.[23] This theoretical hypothesis, in tandem with the mediated victimization of civilians, reflects how the repetition of discursive news narratives in different collectives—for example, the narrative that the IRA is, indeed, a malicious terrorist organization, as per the judgment of UK and American newspapers[24]—directs public attention to differential sensational aspects of conflict depending on the source of information consumed. Consequently, affective reactions to the victimization of innocent civilians by violent tensions may very well heighten.

Mass media news does not necessarily dictate the ethical or moral principles of consumers in any given nation, but it executes an important function in informing public awareness on dominant conflictual discourses of the day, and in doing so, can complicate the ability of publics to see balance in the mediated images which they consume.

On the FLQ and Mass Media News Discourse

In Canada, the years between 1963 and 1970 are remembered collectively (certainly in Québécois communities) as a period characterized by incessant violence and hundreds of bombings by terrorist cells of the separatist *Front de libération du Québec* (FLQ) movement. The October Crisis in the fall of 1970, however, marked the eruption of a long, dispute-ridden history of cultural tensions between English Canadian nationalists and French Canadians in Québec. In contextualizing the October Crisis, Cohen-Almagor explains that the Québécois, over hundreds of years, shared the traditional elements of a nation: a common language, culture, history, and geographical homeland. Hence, according to Cohen-Almagor, many Québécois were profoundly opposed to the language policy imposed on their province during the 1960s, resisting the hegemonic nationalism of the Canadian government to preserve a distinctive French identity. Cumulating the effects of these tensions, on October 5, 1970, British trade commissioner James Cross was kidnapped by the Liberation Cell of the FLQ, and a political manifesto enumerating seven specific demands was broadcast by Montréal radio station, CKAC. The crisis intensified on October 10, when Pierre Laporte,

Québec Minister of Labour and Immigration and Deputy Premier, was kidnapped and later murdered by members of the Chénier Cell.[25]

Cohen-Almagor argues that during the October Crisis, English-language editorials were hostile towards terrorism and the FLQ's actions, strongly backing the invocation of the *War Measures Act*. Meanwhile, French-language editorials did not associate Québec separatism with terrorism.[26] Hence, two sides of the hostile conflict were mediated through two sides of biased media coverage, subsequently altering public understandings of the crisis dependent on language, culture, and geopolitical location. Reflecting two starkly oppositional frames of collective memory, the notion of differential public understandings offers valuable insight into the intergenerational tensions that persist in the contemporary moment between Québec and the rest of Canada, and which will likely persist as unresolved into the future.

One frozen image of collective memory entails a fight for national unity against terrorism, while the other advances an honourable fight against deteriorating civil rights and French culture. There are democratic implications to such exclusionary news coverage, hindering the ideal of well-informed public debate. This example represents a tendency for mass media news to frame such conflicts as heavily polarized binaries, which is a barrier to the outcome of rationalized public debate due to the difficulty for those with differing viewpoints to achieve empathetic shared understanding.

Moreover, as presented in Robin Spry's 1973 documentary, *Action: The October Crisis of 1970,* on October 13, three days before invoking the divisive *War Measures Act,* Canadian Prime Minister Pierre Trudeau is questioned by CBC reporter Tim Ralfe on how far he would go in suspending civil liberties. Without hesitation, Trudeau replies, "Well, just watch me."[27] Trudeau's response sparked further outrage, ultimately concretizing the notorious political phrase in the Canadian collective memory of the twentieth century—echoed today in contemporary Canadian political discourse. Trudeau's phrase signifies a mediated moment in Canadian history where the nationalist agenda of the federal government was pitted directly against the separatist movement in Québec, affecting which side the

two respective collectives identified with out of compassion for the innocent citizens and political actors involved. These deep-seated, biased identifications have the potential to persist over time, to an extent supporting the unresolved status of cultural tensions.

Conclusion

The mediation of unresolved conflicts on terrorism remains persistent today, especially in popular culture; take, for instance, the 1983 song *Sunday, Bloody Sunday* by U2, representing the atrocities of January 30, 1972, in Northern Ireland, or the close relationships depicted between the IRA and those in Enoch "Nucky" Thompson's organization in the 2010-2014 television show *Boardwalk Empire.* In unpacking the literature and mass media news coverage on unresolved conflict concerning the *Front de libération du Québec* (FLQ) and "The Troubles" in Northern Ireland considering theorizations of collective memory, agenda-setting, and news discourses, this article affirmed how the mass media news can perpetuate biases in cultural milieu by attributing salience to particular aspects of cultural tensions, essentially working to preserve these tensions in a collective's past in an effort to determine the experience of compassion in the present and in some ways, into the future.

Acknowledging the brevity of this article much undoubtedly remains to be questioned and scrutinized on the temporal, physical, and psychic relations between mass media news journalists, political figures, and publics in relation to cultural tensions and terrorism in what Hoskins deems, quite correctly, a "media-drenched age."[28]

Notes

[1] Michael Schudson, “Ronald Reagan Misremembered,” in *Collective Remembering,* eds. David Middleton and Derek Edwards (London: Sage, 1990) quoted in Andrew Hoskins and Ben O’Loughlin, “Pre-Mediating Guilt: Radicalisation and Mediality in British News,” *Critical Studies on Terrorism* 2, no. 1 (2009): 81.
[2] Jill A. Edy, “Journalistic Uses of Collective Memory,” *Journal of Communication* 49, no. 2 (1999): 71.
[3] Edy, 71.
[4] Marita Sturken, *Tangled Memories: The Vietnam War, the AIDS Epidemic, and the Politics of Remembering* (University of California Press, 1997), 182.
[5] Barbie Zelizer, “The Kennedy Assassination Through a Popular Eye: Toward a Politics of Remembering,” *Journal of Communication Inquiry* 16, no. 2 (1992): 22.
[6] José Van Dijck, “Mediated Memories: Personal Cultural Memory as Object of Cultural Analysis,” *Continuum* 18, no. 2 (2004): 261.
[7] Van Dijck, 263.
[8] Andrew Hoskins, “Memory of the Multitude: The End of Collective Memory,” in *Digital Memory Studies: Media Pasts in Transition,* ed. Andrew Hoskins (New York: Routledge, 2017).
[9] Hoskins, 106, 99.
[10] Hoskins, 85-86.
[11] Hoskins, 86.
[12] Hoskins, 99.
[13] Edy, “Journalistic Uses of Collective Memory,” 83.
[14] Erin Peters, “The Heritage Minutes: Nostalgia, Nationalism and Canadian Collective
Memory,” in *The Memory Effect: The Remediation of Memory in Literature and Film*, eds. Russell J. A. Kilbourn and Eleanor Rose Ty (Wilfried Laurier University Press, 2013), 264.
[15] Birgitta Höijer, “The Discourse of Global Compassion and the Media,” *Nordicom Review* 24, no. 2 (2003): 21.
[16] Declan Molloy, “Framing the IRA: Beyond Agenda Setting and Framing Towards a Model Accounting for Audience Influence,” *Critical Studies on Terrorism* 8, no. 3 (2015): 478-479.
[17] Jones, Frank, “IRA Vows to Avenge Army ‘Slaughter’ of 13 Men,” *The Toronto Star,* January 31, 1972: 1.
[18] Jones, 1.
[19] Maxwell E. McCombs and Donald L. Shaw, “The Agenda-Setting Function of Mass Media,” *Public Opinion Quarterly* 36, no. 2 (1972): 177.
[20] Kurt Lang and Gladys Engel Lang, "The Mass Media and Voting," in *Reader in Public Opinion and Communication,* 2d ed., eds. Bernard Berelson and Morris Janowitz (New York: Free Press, 1966), quoted in McCombs and Shaw, 177.
[21] Molloy, “Framing the IRA,” 485.
[22] Bernard C. Cohen, *The Press and Foreign Policy* (Princeton: Princeton University Press, 1963), 120, quoted in McCombs and Shaw, 177.
[23] Höijer, “The Discourse of Global Compassion,” 21.

[24] Molloy, "Framing the IRA," 485.
[25] Raphael Cohen-Almagor, "The terrorists' best ally: The Quebec media coverage of the FLQ crisis in October 1970," *Canadian Journal of Communication* 25, no. 2 (2000).
[26] Cohen-Almagor.
[27] Robin Spry, dir. *Action: The October Crisis of 1970.* 1973; Montreal, QC: National Film Board, Film.
[28] Andrew Hoskins, "Temporality, Proximity and Security: Terror in a Media-Drenched Age," *International Relations* 20, no. 4 (2006): 453-466.

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On the Biopolitics of Suicide: Against a Discourse of Public Health

Zachary Gan [a*]
[a] Department of Arts & Science, McMaster University, Hamilton

0009-0001-5299-6757

ABSTRACT: This essay critically examines the biopoliticization of suicide, challenging its framing as a public health issue which obscures its cultural and philosophical significance. Drawing from Michel Foucault's theories of biopower, this essay argues that suicide is externalized, massified, and medicalized under the discourse of public health, leading to its subjugation to biopower's rhetoric. At the core of this narrative is a powerful presupposition that suicide is separable from the individual who commits the act. Drawing from Primo Levi's *The Drowned and the Saved* and Judith Butler's essay *Violence, Politics, and Mourning*, this essay conceives suicide as an intentional act of agency, occurring under particular conditions of emotional duress which are created by a historical relay of societal violence. This essay seeks to dismantle the prevailing narrative of suicide, free suicide from its biopolitical rhetoric, and argues that suicide ought to be understood as a radical act which bears witness against the violence of the biopolitical state.

KEYWORDS: suicide, biopolitics, biopower, public health

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* Corresponding Author - Email Address: ganz6@mcmaster.ca
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This essay argues that we must reconsider the conception of suicide as a public health issue. Contemporary discourse frames suicide as primarily biopolitical, which obfuscates its cultural and philosophical significance. Understanding the act of suicide as a conscious exercise of human agency, rather than a biopolitical phenomenon which "affects" a population, denaturalizes the conception of suicide as an issue of "public health" and reveals how biopower inflicts violence throughout a society. Drawing from Foucault's lectures in *"Society Must Be Defended"*, this essay will begin by demonstrating how suicide is biopoliticized in popular discourse, under the guise of a "public health issue." Then, using Primo Levi's *The Drowned and the Saved*, this essay argues against the biopoliticization of suicide, rejecting the notion that suicide is a "phenomenon" which "affects" a population.[1] Turning to Judith Butler's essay *Violence, Politics, and Mourning,* this essay examines how suicide is committed under conditions of intense emotional duress, brought about by particular circumstances of societal oppression, and how the biopoliticization of suicide obscures that it is an act of bearing witness against the violence of the biopolitical state.

The prevailing discourse within both state and non-state institutions describes suicide as a "public health issue:" this terminology is employed, word-for-word, on the Government of Canada webpage.[2] This essay argues that it is this framing of suicide as a "public health issue" which constitutes the biopoliticization of suicide, as the notion of "public health" lies at the heart of biopolitical rhetoric. Foucault writes that "biopolitics deals with the population (...) as a problem that is at once scientific and political, as a biological problem and as power's problem."[3] The term "public health issue" is overflowing with biopolitical baggage. It concerns itself with the population, particularly the population's biology, and sets a normalizing standard of "health."

This essay considers three dimensions to the biopoliticization of suicide. First, suicide is framed as something which is external to the individual, something separable from the one who commits the act. A public health issue is endemic, "in a word, illness as phenomena affecting a population."[4] The framing of suicide as a

phenomenon is consistent with the Government of Canada's webpage on suicide, which reports how many people "die by suicide" each year, who is most "at risk of suicide," and which demographics suicide most "impacts."[5] On this webpage, suicide is conceived as an external spectre, a condition which an individual can unsuspectedly contract: suicide is a phenomenon which *happens* to an individual. Subsequently, this essay contends that suicide is massified under the discourse of "public health." Biopolitics is a "seizure of power that is not individualizing but, if you like, massifying, that is directed not at the man-as-body but at man-as-species."[6] The individual's reasons for suicide and the conditions under which an individual would commit suicide, is buried beneath suicide statistics and rates. It is rendered a homogenized phenomenon. The individual conditions of suicide cannot be considered; only the way it "affects" a population is of concern. Finally, suicide is medicalized. Foucault writes that a primary function of biopower is to "teach hygiene and medicalize the population."[7] Christine Moutier, the chief medical officer of the American Foundation for Suicide Prevention, has likened suicide to heart disease, saying; "In addition to biological risk factors, life stressors, the environment, smoking, obesity, stress, and relationship conflict play into heart-disease outcomes. That is the same with suicide."[8] By likening suicide to biological health issues, Christine Moutier medicalizes suicide, rendering it an issue to be addressed by health professionals. The medicalization of suicide is further seen in strategies of "suicide prevention;" [9] the Government of Canada webpage further asks us to watch out for "warning signs of suicide,"[10] as if to combat suicide, we need only notice its symptoms in ourselves and others early on, and address and uproot the illness before it takes effect. This paper argues that we must de-couple suicide from its conception as a mental *health* issue: to imagine that suicide only as a crisis of health extracts it from its social and culture context. Suicide as a "public health issue" has become the norm in the contemporary discourse on suicide. It is a primarily biopolitical problem; it is under biopower's control.

Drawing on Primo Levi's *The Drowned and the Saved*, this essay will argue against the first two dimensions of the biopoliticization of suicide mentioned above: that suicide is an

external phenomenon which "affects" its victim, and that suicide is a "massified" effect. This essay argues that these two points are fabrications of biopower, myths which have become increasingly naturalized under the discourse of suicide as a public health issue. Throughout *The Drowned and the Saved*, Levi's descriptions of suicide are largely at odds with the biopolitical conception. He writes, "suicide is an act of man and not of the animal. It is a meditated act, a noninstinctive, unnatural choice..."[11] By even declaring that "suicide is an act," Levi sets himself against the notion that suicide is a biopolitical issue. If suicide "affects" a victim, as an external phenomenon, it is conceived as undesired, as a condition which has been somehow forced upon an individual. This presupposition forms the basis of a biopolitical justification for interference with suicide throughout the population. Suicide as an undesired phenomenon which "makes die" introduces it into biopower's purview, as the function of biopower to "make live."[12] If suicide is an act, however, it is desired. Indeed, the gravity of suicide is in this desire, and the desire is what constitutes the act as a suicide. The biopoliticization of suicide, and its rendering into a "phenomenon" which "affects," obscures the desire inherent to the act and the notion that the suicide was meditated. Suicide must be confronted as such: as intentional and born out of a careful consideration of one's conditions. In a word, suicide must be considered as "an act of man."

Levi goes on to write, "leaving aside the cases of homicidal madness, anyone who kills knows why he does so…"[13] Certainly, suicide is an act of murder. It is the extinguishment of a human life, even if the perpetrator and the victim are one and the same. To imagine suicide as an act of murder emphasizes that the individual who commits the act is self-conscious. The reason we can prosecute murderers and hold them to account is because we assume an agency when one murders: the same agency should also be granted to the individual who commits suicide. Therefore, suicide is not a phenomenon, not an external spectre which "affects" its victim but is an act brimming with intention and agency. This emphasis on agency similarly deconstructs the "massifying" effects of biopower. Suicide does not occur to a population, but it is chosen by an individual. It is a choice: a choice for which there are reasons and motivations. We

resist the biopoliticization of suicide when we ask: Why does one suicide? What informs an individual's agency and intention when they commit an act of murder against themselves?

As previously noted, suicide is an act of murder, although a murder in which the perpetrator and the victim are one and the same. The individual who suicides is split, a fractured being who is both the perpetrator of and the one wounded by a violent act. Judith Butler writes about the fractured individual in their essay *Violence, Mourning, and Politics*. They consider the condition of grief, "the moments in which one undergoes something outside one's control and finds that one is beside oneself, not at one with oneself."[14] This essay argues that under no other condition can a suicide occur than under the one which Butler describes here. To inflict such violence upon one's own self, their person must be in a state of conflict, "not at one with oneself," simultaneously the perpetrator and sufferer. This understanding of suicide reconciles two observations made earlier: that suicide is a choice, intentional and desired; and that suicide is an act of violence which is inflicted and suffered. It is only when oneself is fractured that they can desire to inflict a violence whose consequence they will directly suffer. Butler further writes about this fractured state; "to be outside oneself can have several meanings: to be transported beyond oneself by a passion, but also to be *beside oneself* with rage or grief. (...) I am speaking [of those] who are living in certain ways *beside* [*themselves*], whether in sexual passion, or emotional grief, or political rage."[15] The notion of the fractured individual, or as Butler puts it, the ways in which one is "not at one with oneself," is in stark contrast with the Enlightenment supposition of the eternally bounded and rational human subject. This fractured subject, for many of us, thus exists outside of the acceptable notion of a human subject that is rationally calculating, and who desires, first and foremost, to survive. The condition of being beside oneself arises from intense emotions—Butler lists passion, grief, and rage. It is those living under emotions of this order, fracturing and all-consuming, who commit suicide. These are the conditions which inform the agency and intention behind the act of suicide.

Intense and transformative emotions such as passion, anger, or grief, occur in "the moments in which one undergoes something

outside one's control,"[16] an external trauma which leaves the individual in a fractured state such that they could commit a murder against themselves. To emphasize that suicide occurs in a state of heightened personal agitation, tied up in emotions such as passion, anger, and grief, resists the third dimension of suicide's biopoliticization; its medicalization. Suicide cannot be contracted, and it is not some latent biological condition which arises at a certain point in an individual's life. Rather, it is born out of intense socially constituted emotions which affect and transform the individual. The biopoliticization of suicide denies its intensely emotive dimension by attempting to render it a medical, biological, or health issue. As have argued above, the act of suicide is a largely individual and personal choice, an exercise of individual agency and intention. However, the conditions under which one suicides are by and large socially constituted; conditions of intense emotion. Such emotions arise because of the ways we are "attached to others, at risk of losing those attachments, exposed to others, at risk of violence by virtue of that exposure."[17] By virtue of us being "socially constituted bodies,"[18] we are at risk of finding our persons fractured or split, completely enveloped by passion, rage, or grief. Thus, there is a fundamentally social dimension of suicide. This essay is not arguing that our social relations, and instances of intense emotion arising from them, are wholly responsible for suicide, but rather that without these socially constituted emotions, the act of suicide would not be possible.

For an individual to commit as serious of an act as suicide, they must have been exposed to an intensely damaging mode of social relationality, exposed to a violence. Butler writes that "violence is surely a touch of the worst order, a way a primary human vulnerability to others is exposed in its most terrifying way,"[19] and that "this vulnerability becomes highly exacerbated under certain social and political conditions…"[20] We do not have to guess what these certain social and political conditions are. The Government of Canada webpage on suicide enumerates which groups are at higher "risk of suicide," including people serving federal sentences, some First Nation and Metis communities (especially among youth), and all Inuit regions in Canada. Further, women have higher rates of self-harm, and suicide ideation is more frequent in LGBTQ youth.[21]

Recent news articles have pointed out that poverty, not health crises, may be what is driving some Canadians to access MAID (Medical Assistance in Dying).[22] Such violences are, of course, related to our societal practices of valuing—the question of which individuals or communities are considered valuable, productive, worth protecting and, fundamentally, a part of "society." Conditions of oppression, whether it be on the basis of gender, race, class, or Indigeneity, place individuals at the end of a "historical relay of violence,"[23] a violence which consists in the mechanism of the biopolitical state to "let die."[24] It is under such conditions of violence which an individual experiences political rage, grief, and mourning, which can drive them to suicide.

The biopolitical discourse of suicide, and its framing as a "public health issue," obscures the fact that suicide is the result of a historical relay of violence in which biopower is complicit. Suicide is an act of bearing witness, a declaration of the anger, grief, and mourning that arises from the many ways that an individual is vulnerable to the violence of the biopolitical state. Levi writes that, in Auschwitz, "the survivors are not the true witnesses (...) [but rather] the submerged, the complete witnesses, the ones whose deposition would have general significance."[25] It is the individual that died in the Lager who is the "complete witness." Their death and their experience of death is the greatest condemnation of and testimony to the violence which occurred in the Shoah. The same argument is applicable as well in "peacetime," applied to the well-functioning biopolitical state. The act of suicide as a desired, meditated, and intended act, which arose from a condition of intense emotion and a fractured self, is an act of bearing witness to the historical relay of the violence of biopower. Each of the three dimensions of the biopoliticization of suicide mentioned above—suicide as a phenomenon, suicide as a massifying effect, and suicide as a medicalized issue—contributes to the distortion of suicide as an act of bearing witness, an act which calls attention to the ways in which violence thrums through the biopolitical state.

To release suicide from its current biopolitical conception is no easy task. Today, rather than be confronted with the momentous significance of a suicide, we avoid the confrontation by handing over

the act to the purview of biopolitics. The very act of suicide, the fact that suicide is a possibility which takes place in this world, is inherently destabilizing to the Enlightenment tradition of which we are a part. To this philosophical tradition, which asserts that there is inherent morality and virtue in each individual and that each individual desires to see this virtue realized, the notion that one would destroy oneself in a desired and intentional manner is seemingly irreconcilable. Kant writes: "To annihilate the subject of morality in one's person is to root out the existence of morality itself from the world as far as one can, even though morality is an end in itself. Consequently, disposing of oneself as a mere means to some discretionary end is debasing humanity in one's person…"[26] Kant declares suicide to be unacceptable: the moral impermissibility of this act has been present in Enlightenment philosophy from the start.

By conceiving suicide as a medicalized phenomena which "affects," however, we are able to avoid the terrifying fact that a suicide is acted and that a human subject, with all of their morality and virtue, carefully considered their conditions and intentionally decided to destroy their own body. Levi writes that, "many Europeans of that time—and not only Europeans and not only of that time— (...) [deny] the existence of things that ought not to exist."[27] When faced with "an impossible reality," they must have dreamed it because "things whose existence is not morally permissible cannot exist."[28] This essay argues that the biopoliticization of suicide is an example of exactly the kind of psychological maneuvering which Levi describes. Suicide, for the Enlightenment, is an impossible reality, an act which is at once morally impermissible and occurs on this earth, intentionally executed by humans. For many of us, it is easier to accept the conception of suicide as a public health crisis and hand over suicide to the language of biopower, so we can more easily deny the existence of this act which we believe "should not exist." To express the will to survive as "natural," and indeed, "moral," is to dually make suicide unnatural, an abomination that has no place in our Enlightenment conceptions of humanity. We thus exclude the possibility of suicide from the human condition, thereby externalizing and medicalizing it when it does occur.

Overcoming our powerful cultural tendency to biopoliticize suicide starts with denaturalizing the three presuppositions concerning suicide delineated above: that it is an external spectre which affects an individual, that it is a massified phenomenon, and that it is a primarily medical issue. To do so, suicide must be conceived as that which is chosen by the autonomous and acting individual, and we must examine why an individual would choose to commit suicide. It is not that historically oppressed groups are somehow more susceptible to the possibility of suicide, but rather that they are at the end of a historical relay of violence, a violence which creates the conditions under which suicide is possible and desired. To conceive suicide as a public health issue is to obscure the way it bears witness: it is to blunt its radical declaration, made out of passion, rage, or grief, that the individual has been subject to an unbearable violence in which the entire biopolitical state is complicit.

Notes

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[3] Foucault, *Society Must Be Defended: Lectures at the College de France,* 247.
[4] Foucault, *Society Must Be Defended: Lectures at the College de France,* 244.
[5] "Suicide in Canada."
[6] Foucault, *Society Must Be Defended: Lectures at the College de France,* 243.
[7] Foucault, *Society Must Be Defended: Lectures at the College de France,* 244.
[8] Julie Beck, "When Will People Get Better at Talking about Suicide?," *The Atlantic*, June 9, 2018.
[9] "Suicide in Canada."
[10] "Suicide in Canada."
[11] Primo Levi, *The Drowned and the Saved* (New York: Simon & Schuster Paperbacks, 1986), 58
[12] Foucault, *Society Must Be Defended: Lectures at the College de France,* 241.
[13] Levi, *The Drowned and the Saved*, 91.
[14] Judith Butler, *Precarious Life: The Powers of Mourning and Violence* (London: Verso Books, 2004), 28.
[15] Butler, *Precarious Life: The Powers of Mourning and Violence*, 24.
[16] Butler, *Precarious Life: The Powers of Mourning and Violence*, 28.
[17] Butler, *Precarious Life: The Powers of Mourning and Violence*, 20.
[18] Butler, *Ibid.*
[19] Butler, *Precarious Life: The Powers of Mourning and Violence*, 28.
[20] Butler, *Precarious Life: The Powers of Mourning and Violence*, 29.
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[22] Brennan Leffler & Marianne Dimain, "How Poverty, Not Pain, Is Driving Canadians With Disabilities to Consider Medically-Assisted Death." *Global News*, January 23, 2023, https://globalnews.ca/news/9176485/poverty-canadians-disabilities-medically-assisted-death/.
[23] Butler, *Precarious Life: The Powers of Mourning and Violence*, 16.
[24] Foucault, *Society Must Be Defended: Lectures at the College de France,* 241.
[25] Levi, *The Drowned and the Saved*, 70.

[26] Immanuel Kant, *The Metaphysics of* Morals (Cambridge: Cambridge University Press, 1996), 177.
[27] Levi, *The Drowned and the Saved*, 150.
[28] Levi, *Ibid.*

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Unveiling the Veiled Narratives: Settler-Colonialism, Matrilineality, and Missing and Murdered Indigenous Women and Girls along the Highway of Tears

Elliot Goodell Ugalde [a*]
[a] Department of Political Science, University Of Victoria, Victoria
0009-0008-1139-0194

ABSTRACT: Critical Indigenous scholars have extensively examined the issue of Missing and Murdered Indigenous Women/Girls (MMIWG) along the Highway of Tears (HoT) in British Columbia and have linked the phenomena to varying underlying colonial structures.[1] However, these analyses often overlook the central role of settler-colonialism in imposing patriarchal ontologies, which perpetuate ongoing Indigenous femicide. To address this theoretical oversight, this document adopts Linda Smith's framework of 'gendering' as a means of decolonial praxis[2] to incorporate feminist social reproduction theory into the discourse of Critical Indigenous scholars' commentary on MMIWG. The aim is to shed light on how the problem of MMIWG is rooted in the imposition of colonial, patriarchal ontologies that disrupt matriarchal social reproduction along the HoT. Furthermore, this document argues that a critical examination of how settler-colonialism disrupts matrilineal social reproduction should occupy a more central position within postcolonial discourses focused on addressing MMIWG along the HoT as per considering the higher matrilineal governance of nations along the HoT.[3] Ultimately, this document argues that a more comprehensive understanding of settler-colonialism's impact on displacing Indigenous matrilineal social reproduction should be given greater emphasis when discussing the causal factors surrounding MMIWG along the HoT. By addressing the theoretical oversights and incorporating a gendered analysis within a decolonial framework, the paper aims to advocate for more effective approaches to address the issue.

KEYWORDS: settler-colonialism, matrilineality, missing and murdered indigenous women and girls, Indigenous femicide, decolonial praxis, postcolonial discourses, patriarchal ontologies

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* Corresponding Author - Email Address: elliotgoodellugalde@gmail.com
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Historical and Theoretical Context

The Highway of Tears (HoT), stretching from Prince George to Prince Rupert in British Columbia, Canada, has become an infamous site of tragedy and injustice. This highway has witnessed a disproportionate number of missing and murdered Indigenous women and girls (MMIWG), sparking national and international concern. To fully understand the complex dynamics at play and the root causes behind this crisis, it is crucial to explore the historical context in which the Highway of Tears emerged by delving into the history of colonization, matrilineality, and settler violence.[4]

Critical Indigenous literature has made significant efforts to address the ongoing Indigenous femicide on Turtle Island, a term used by some Indigenous peoples of North America to refer to the continent,[5] by systematically examining the various colonial assumptions surrounding this issue.[6] Scholars like Cassidy Johnson, who adopt an Indigenous historical-materialist perspective, highlight how colonialism's imposition of inadequate material conditions on Indigenous peoples, coupled with a settler mode of production that necessitates long-distance commuting for one's occupation, leads to hitchhiking as a survival strategy. Consequently, this creates an environment in northern British Columbia that is complicit in the Missing and Murdered Indigenous Women/Girls (MMIWG) crisis.[7]

By combining this historical-materialist analysis, which views Indigenous femicide as a result of the exploitative material vulnerabilities imposed on Indigenous women, with intersectional theory, it becomes evident, and thus, is corroborated by statisticians such as Loanna Heidinger, that women and BIPOC individuals, as structurally marginalized groups, are more susceptible to violence due to policing often overlooking their victimization.[8] Indeed, it is essential to note that such analyses do not fully incorporate the unique colonial histories and phenomenologies of Indigenous peoples living in the vicinity of the Highway of Tears (HoT).

In addition, Indigenous scholars in the field of international relations (IR), such as Rebecca Tallman, argue that settler IR's state-centric, Westphalian approach, which uses the nation-state as its unitary reference object of analysis, neglects the securitization of

non-state actors, including Indigenous nations, and consequently fails to address the issue of (MMIWG).[9] Paradoxically, the focus on the nation-state in settler IR can occasionally unintentionally aid the liberation of Indigenous peoples. This can be seen in the case of settler IR scholars who were unable to predict the Indigenous Zapatista Army of National Liberation (EZLN) uprising. This failure occurred, as per Enloe, partly because existing theoretical frameworks within settler IR models lacked the ability to fully grasp the political influence and power of non-state actors.[10] Regarding this case study, it is essential to acknowledge that Mexico's model of Mestizaje, which constituted the context of the EZLN crisis and emerged through exploitation-colonialism, is wholly distinct from the settler-colonialism experienced by Indigenous peoples along the HoT. Nevertheless, Enloe's central argument remains valid: orthodox International Relations' fixation on the nation-state fails to recognize the agency of Indigenous peoples as political actors. This holds true in both contexts, to varying extents, as Indigenous peoples under both colonialisms failed to utilize non-coerced Indigenous input in constructing the social contracts that presuppose those societies, and the legitimacy of both social contracts continues to validate its legitimacy via a historical "ruse of consent."[11] Still, despite paradoxical outlier situations such as the one described by Enloe, as Tallman observes, settler conceptualizations of international securitization tend to disregard acknowledging the political agency of Indigenous nations, thus, continue to perpetuate the disproportionate victimization of Indigenous peoples, thereby presupposing the issue of MMIWG.[12]

Simultaneous to these realities, critical-feminist theorists like Pat and Hugh Armstrong argue that the structural subordination of women, which inherently implies the occurrence of femicide, serves the interests of capital.[13] According to this line of thinking, women are confined to the domestic sphere and their bodily autonomy is restricted to maximize the reproduction of labour power, providing capital with uncompensated domestic labour. The Armstrongs expose this process as a dialectical contradiction, whereby confining women to the domestic sphere grants them the ability to produce and reproduce social norms. Consequently, capital resolves this

contradiction via a dialectic synthesis by further subordinating women, compelling them to engage in the social reproduction of norms that align with capital's interests, thus further perpetuating instances of femicide.[14]

Establishing an Argument in Amalgamating Theories

While Johnson's critique of colonialism's material subordination of Indigenous peoples and Tallman's critical examination of colonialism's underlying ontological assumptions in the international arena are valuable in understanding the persistence of MMIWG along the HoT, both critiques appear to insufficiently prioritize gender as a central aspect of their analysis. Additionally, Heidinger's analysis may not adequately emphasize the distinct colonial histories of Indigenous peoples residing in the vicinity of the HoT. Furthermore, Pat and Hugh Armstrong overlook the need to racialize the disproportionate victimization of Indigenous women in their analysis of capital's subordination of women.

In response to these shortcomings, this document aims to draw upon the critical frameworks of both Tallman and Johnson, specifically their exploration of material and ontological colonial assumptions regarding MMIWG. By merging their perspectives with the insights of social reproduction theorists like Pat and Hugh Armstrong, this document seeks to establish a more comprehensive analysis that places gender at the forefront rather than treating it as a peripheral consideration to the persistence of MMIWG on the HoT.

To embark on this endeavour, it is worth examining Patrick Wolfe's analysis of settler-colonialism, which is the primary form of colonialism affecting communities along the HoT.[15] Wolfe suggests that settler-colonialism aims to disrupt and replace Indigenous societies and governance structures with settler alternatives.[16] Moreover, feminist social-reproduction theorists argue that both settler and Indigenous ontologies often assign the responsibility of social reproduction, which involves upholding societal norms and governance, to women.[17]

By combining these perspectives, we can infer that the colonial and patriarchal subordination of Indigenous women, detaching them from

their roles as knowledge keepers and cultural disseminators, serves to disrupt their participation in the reproduction of Indigenous society. This erasure of Indigenous women's agency is particularly impactful along the HoT, given that the affected Indigenous nations have a disproportionately higher matrilineal socio-political governance structure.[18] These nations include the Nisga'a[19], Gitxsan[20], Haisla[21], Wet'suwet'en[22], and various Coast Salish nations[23], among others.

This is not to imply that all pre-contact Turtle Island nations ancestrally located outside of the HoT geographically had adhered to patriarchal governance comparable to settler societies. Rather, it is observed that various nations, such as the Kalapuya[24], practised a less profound rendition of patrilineal governance– when compared to settler-patriarchy, while others, like the Ojibwe, maintained an egalitarian, yet non-matrilineal, social structure with distinct gender roles.[25] Moreover, some nations, including the Apache, tended to reject gender roles altogether, while the Navajo even exhibited a fluidity of gender identity, precluding the contemporary pan-Indigenous concept of "two-spiritedness."[26] Nonetheless, the prevalence of explicit matrilineal socio-political governance is notably concentrated amongst the aforementioned communities whose territories ancestrally intersect along the HoT,[27] underscoring the necessity for a specific and focal point of investigation concerning the role of patriarchal settler ontologies snuffing Indigenous matrilineality as a precursor to the ongoing issue of Indigenous femicide along the HoT.

Based on this necessitation, this paper aims to centralize the disproportionately high rate of matrilineality amongst nations overlapping with the HoT through a historical-materialist investigation. The objective is to highlight the significant role of colonial, patriarchal ontologies imposed by settlers in contributing to the issue of MMIWG. By doing so, this paper ultimately concludes that while the problem of Indigenous femicide along the HoT is multifaceted and influenced by intersectional colonial structures explored prior by the likes of Tallman, Johnson and others, a comprehensive understanding of settler-colonialism's impact on displacing Indigenous matrilineal social reproduction should be given greater emphasis when discussing the causal factors surrounding

MMIWG along the HoT. These circumstances do not inherently imply that patrilineal societies encounter diminished impacts from settler-colonialism; rather, they experience a relatively reduced manifestation of the gender-based violence inherent in settler-colonialism. This is observable through the disproportionate incidence of Indigenous femicide within the HoT region, ancestrally characterized by stronger matriarchal socio-political structures.

This document aims to support its theoretical arguments by drawing upon literature reviews conducted along the HoT, as well as exploring instances of Indigenous femicide in other regions of Turtle Island. There are two main reasons for this approach. Firstly, the lack of comprehensive documentation of MMIWG is a result of ongoing Indigenous erasure, making it necessary to supplement the theoretical thesis of this paper with additional explorations of Indigenous femicide.[28] Secondly, conducting a comparative analysis of Indigenous femicide across different territories within Turtle Island allows for a contrasting examination of various colonial histories and their impact on the imposition of colonial patriarchies. Ultimately, this analysis supports the argument that the imposition of patriarchy as a means of disrupting matrilineal social reproduction is a key factor in understanding the problem of MMIWG, specifically along the HoT.

Literature Review

Efforts to incorporate a gendered analysis of colonialism often draw upon Marx's concept of primitive accumulation, which has been further developed by Métis scholar Steve Talbot. According to this perspective, settlers in the 'new world' are not entitled to the surplus value of production because the original capital on which such surpluses depend was stolen[29] and legitimized through a colonial mythos of a 'social contract,'[30] what other postcolonial scholars refer to as "the ruse of [colonial] consent."[31] Talbot emphasizes the role of colonial expansion in capitalist accumulation, stating that "westward expansion across Indian lands had its origin in the purpose of generating capital."[32] However, neither Marx nor Talbot adequately emphasize the subordination of Indigenous women by capital as a

crucial aspect of primitive accumulation, which serves to control both the reproduction of labour power and social reproduction.[33] In order to fully understand the dynamics at play, it is necessary to centralize the intersectional experiences of Indigenous women within the framework of primitive accumulation.

In providing the first—albeit phenomenologically-western, attempt to gender the concept of primitive accumulation, Silvia Federici argues that Indigenous women were disproportionately targeted by the colonial project due to their role in reproducing Indigenous social norms and controlling their bodily autonomy, thereby maximizing the reproduction of Indigenous labour power.[34] According to Federici, "women became the main enemies of colonial rule—refusing to go to mass, to baptize their children" or engaging in other practices of colonial social reproduction favourable to settler replacement.[35] She describes how the subordination of Indigenous women ranged from limiting "the spheres of activity in which Indigenous women could participate"[36] to state concessions regarding sexual violence victimizing Indigenous women,[37] to carceral/torturous disciplining of women who continued to reproduce Indigenous theologian norms under the pretext of practising devil worship.[38] This is despite the concept of the devil itself being a colonial imposition with no equivalent in most Indigenous theologies.[39] Building upon Federici's analysis, a similar argument could suggest that colonial impositions of heteronormativity, which contribute to disproportionate violence against LGBTQ2 Indigenous peoples,[40] are also imposed as a means of incentivizing the reproduction of Indigenous labour power.[41]

However, the accelerated reproduction of Indigenous labour power by tying Indigenous women to the domestic sphere and exerting state control over their bodily autonomy as a means to incentivize reproduction[42] was primarily a characteristic of Luso/Hispaño extraction-colonialism.[43] In such colonies, Indigenous labour power sustained their colonial economies.[44]

In comparison, it is important to note that along the Highway of Tears (HoT), which stretches from Prince George to Prince Rupert in Northern British Columbia, Indigenous femicide primarily affects territories impacted by settler-colonialism[45] rather than under

extractive-colonialism's "enslavement of the indigenous population" to maximize the reproduction of Indigenous labour power for capital procurement.[46] This assertion does not negate the existence of additional distinctions pertaining to Indigenous femicides between the northern and southern regions of Turtle Island, such as substantial population disparities, persistent caste-based politics, and the influence of a miscegenated cultural paradigm known as mestizaje. Instead, it highlights the limited geographic utility of Federici's analysis, which currently represents the predominant, and perhaps unitary, endeavour to understand the gendered aspects of primitive accumulation. These analyses are found to be insufficient for comprehensively examining the occurrences of Indigenous femicide within distinct historical-material colonial frameworks, such as those taking place along the HoT under settler-colonialism.

In stark juxtaposition to the exploitative nature of colonialism found within Federici's analysis, the preeminent colonial framework known as settler-colonialism along the HoT region is chiefly focused on eradicating and supplanting Indigeneity rather than capitalizing on Indigenous labour power. This suggests that the colonial and patriarchal impositions along the HoT were primarily aimed at disrupting and replacing Indigenous social reproduction, as opposed to the exploitation-colonialism's focus on maximizing the reproduction of Indigenous labour power for capital acquisition.

In the context of the HoT, settler-colonialism exerted state control over Indigenous women's bodily autonomy to restrict the reproduction of Indigenous labour power. This is evident in British Columbia's history of forced sterilization of Indigenous individuals,[47] justified through colonial discourses of female hypersexuality,[48] although such examples also reflect the broader proclivities of medical racism within settler-colonialism.

Thus this suggests that while feminist primitive accumulation theorists like Federici primarily examine the subordination of Indigenous women in Luso/Hispaño extractivist colonies as a means to maximize the reproduction of Indigenous labour power, the subordination of Indigenous women along the HoT under settler-colonialism aims to disrupt the reproduction of Indigeneity, given the adherence to heightened matrilineal socio-political governance in the

territory and settler-colonialism's purpose of Indigenous displacement and replacement.[49]

To further corroborate this point, it is worth noting that settler-colonial prescriptions often explicitly challenge Indigenous matrilineality. For instance, the Canadian Indian Act's Band Governance system restricted Indigenous women's ability to exercise inter-tribal political agency and asserted that Indigeneity or the right to Indian status was hereditarily patrilineal, directly contradicting Indigenous practices and traditions, resulting in the disproportionately female loss of status "between 1876-1985".[50]

Centring the Displacement of Indigenous Social Reproduction Within Discourses About the MMIWG Along the HoT

The final report on Missing and Murdered Indigenous Women and Girls (MMIWG) along the Highway of Tears (HoT)—the foremost authority on Indigenous femicide along the HoT,[51] recognizes the importance of gendered and intersectional analysis, acknowledging that Indigenous women and girls were impacted by colonialism "in distinct, though related, ways"[52] when compared to Indigenous men and boys. However, the report falls short of fully addressing settler-colonialism's gendered elements and including settler-colonialism's disruption of Indigenous matrilineal social reproduction. Given the prevalence of increased matrilineality among Indigenous nations along the HoT, it is crucial to centralize the role of settler-colonialism in disrupting matrilineal social reproduction within postcolonial discourses addressing MMIWG along the HoT.

This centralization proves critical in addressing the persistence of MMIWG along the HoT since recognizing the subordination of Indigenous women as a means of disrupting matrilineal social reproduction is essential in understanding the specific colonial histories of the territory. Given that nations along the HoT, which disproportionately experience Indigenous femicide,[53] are also disproportionately matrilineal. This suggests that the disruption of matrilineal social reproduction plays a more significant role in the colonial histories of these territories compared to non-matrilineal and less-matrilineal ancestral territories or territories subjected to wholly

different variants of colonialism such as exploitation-colonialism, which dominates the contemporary literature regarding gendered analysis of primitive accumulation. Indeed, while Indigenous femicide within exploitation-colonialism subject territories may be motivated by the reproduction of Indigenous labour power, the distinct colonial histories of the HoT region indicate that settler-colonialism's disruption of matrilineal social reproduction disproportionately motivates the issue of MMIWG in that region thus, must be fully grappled with in addressing the issue.

In summary, the issue of MMIWG along the HoT is influenced by various intersecting colonial mechanisms outlined in this document. However, in attributing the problem of MMIWG to the imposition of colonial patriarchal ontologies, this document argues that settler-colonialism's motivation to disrupt matrilineal Indigenous social reproduction plays a distinct and primary role in explaining the particular struggle with Indigenous femicide along the HoT, given the affected nations' disproportionate adherence to matrilineality. Existing critical frameworks exploring material and ontological colonial presuppositions, such as those by Johnson and Talbot, Pat and Hugh Armstrong, and Federici, contribute to understanding MMIWG along the HoT but lack a sufficient gendered analysis. Therefore, while these arguments collectively explain the persistence of MMIWG along the HoT, the imposition of colonial patriarchal ontologies as a means of disrupting matrilineal Indigenous social reproduction is often overlooked despite its primary role in the HoT context. Hence, this document argues that such context should occupy a more central position in contemporary discourse addressing MMIWG and the HoT. Overall, this document attests that a comprehensive understanding of settler-colonialism's impact on displacing Indigenous matrilineal social reproduction should be given greater emphasis when discussing the causal factors surrounding MMIWG along the HoT. By addressing the theoretical oversights and incorporating a gendered analysis within a decolonial framework, the paper aims to contribute to the understanding and discourse on MMIWG and advocate for more effective approaches to address the issue.

Notes

[1] Lawrence, "Gender, race, and the regulation of native identity in Canada and the United States." 4-31.
[2] Smith, "Twenty-five indigenous projects." 75-90.
[3] Nyce, "Family of Louisa Oyee: A Matriarch in the Nisga'a Nation." 5-15.
[4] Martin, "Jessica McDiarmid, Highway of Tears: A True Story of Racism, Indifference, and the Pursuit of Justice for Missing and Murdered Indigenous Women and Girls"
[5] Bowra, Mashford-Pringle, and Poland. "Indigenous learning on Turtle Island: A review of the literature on land-based learning." 132-140.
[6] Lawrence, "Gender, race, and the regulation of native identity in Canada and the United States." 4-31.
[7] Johnson, "Willing Victims."
[8] Heidinger "Violent victimisation and perceptions of safety: Experiences of First Nations, Métis and Inuit women in Canada."
[9] Tallman, "Representations of Security and Insecurity in the Highway of Tears"
[10] Enloe, "Margins, silences and bottom rungs." 186-202
[11] Simpson, Audra. "The Ruse of Consent and the Anatomy of 'Refusal'. 19.
[12] Tallman, "Representations of Security and Insecurity in the Highway of Tears"
[13] Armstrong and Armstrong, "Theorising women's work."
[14] Armstrong and Armstrong, "Theorising women's work."
[15] Mcdiarmid, ""Highway of tears."
[16] Wolfe and Kauanui. "Patrick Wolfe on settler colonialism." 343-360.
[17] Federici and Jones. "Counterplanning in the Crisis of Social Reproduction." 153-164.
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[32] Talbot. "Roots of Oppression: The American Indian Question." 24.
[33] Federici. “Caliban and the witch.”
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[35] Federici. “Caliban and the witch.” 230.
[36] Silverblatt. “"Moon, sun, and witches.” 160.
[37] Berque."Indigenous beyond exoticism." 39-48.
[38] Cave. "New England Puritan Misperceptions of Native American Shamanism." 15-27.
[39] Danchevskaya "Good and Evil in Native American Mythology."
[40] Ristock, Passante and Potskin. "Impacts of colonization on Indigenous Two-Spirit/LGBTQ Canadians.” 5-6.
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[42] Armstrong and Armstrong, "Theorising women's work."
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[44] Wolfe and Kauanui. "Patrick Wolfe on settler colonialism." 343-360.
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Phonological Differences Across Varieties of Latin American Spanish

Kathryn Jajo-Yacoub [a*], Mariana Ramirez [b]
[a] Department of Cognitive Science, Carleton University
0009-0003-9869-605X
[b] School of Linguistics and Language Studies, Carleton University
0009-0007-3236-1205

ABSTRACT: Latin America is a diverse linguistic landscape, evident in the extensive phonological variations within its dominant language, Spanish. This study explores the phonological diversity across Latin American Spanish dialects, including processes such as lateralization and weakening of the /ɾ/ and /l/ phonemes, elisions and reductions of the /s/ consonant, and changes in nasal sounds (/n/, /m/, and /ɲ/) within specific linguistic contexts. Understanding these linguistic differences fosters a fresh perspective on Latin Americans from diverse backgrounds. The study considers demographic and socioeconomic factors that shape these variations and their connection to shared historical and cultural aspects. Information from online corpora and previous studies on Latin American Spanish phonology identifies repetitive phonological processes, comparing them across dialects to determine commonalities and differences. Understanding these phonological processes is critical for dispelling stigmas and contributing to bilingual education, mainly in regions where Spanish is learned as a second language. Educators exposed to the diversity of Latin American Spanish can create inclusive learning environments that accommodate students from various backgrounds and dialects.

KEYWORDS: Latin America, Spanish, dialects, phonological diversity, language variation, bilingual education

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* Corresponding Author - Email Address: kathrynjy13@gmail.com
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Latin America is a rich and diverse region reflected in the wide variety of phonological differences exhibited in their majority language, Spanish.[1] Phonological varieties that differ across Latin American Spanish dialects include lateralization and weakening experienced by phonemes /ɾ/ and /l/,[2] elisions and reduction /s/ undergoes[3] and changes nasals, /n/, /m/, and /ɲ/, experience in specific environments.[4] The different phonological processes introduced in this paper are often used to stigmatize specific demographics. Gaining a deeper understanding of these common linguistic differences enables us to attain a fresh perspective toward Latin Americans of various backgrounds and encourages us to be sensitive toward dialectal differences and celebrate them. Research on this topic is essential to highlight variations within regions while considering the demographic and socioeconomic factors of the regions' key shared historical and cultural aspects. Thoroughly understanding different varieties of Spanish is essential– not only to avoid stigmas but to contribute to bilingual education in areas where Spanish is shared as a second language. Educators being exposed to Spanish from various Latin American regions encourages them to be sensitive, accommodate students of different backgrounds and dialects, and help them feel comfortable in the learning environment. Various changes have been adopted in the field of education, reflecting competing perspectives on the role that education should play in shaping the future of society. This paper aims to discover different phonological processes in Latin American Spanish and unveils how these cultural variations manifest within phonological systems among these regions. This ties into the existing field of phonology as it gives us a deeper insight into the dialects and phonological differences within multiple Latin American languages. Different regions, statuses, and education levels are all factors that alter the way one may produce a language. Like with any linguistic change, socioeconomic status, age, and gender must be considered to expand our understanding of Latin American Spanish fully. The phonological processes of lateralization, reduction, elisions, and weakening, as well as the environments of nasals, exhibit variations across Latin American Spanish. Furthermore, there are several common phonological processes within these varieties.

Method and Materials

The primary data presented in this paper comes from various online corpora and previous papers written on phonological phenomena in Latin America. Repetitive phonological processes that appear throughout each variety's transcriptions from the obtained data are identified and analyzed. Within each identified data is a comparison and contrast of the phonological processes, observing any similarities and differences.

Neutralization and Elision of Coda /ɾ/ and /l/

In Latin American Spanish, /l/ and /ɾ/ in the coda position are susceptible to weakening processes. The coda position is the most vulnerable component of the syllable, which influences the weakening and deletion of these phonemes.[5]

Elision of Final /ɾ/ in Verb Infinitives -eɾ Endings and Nouns with Final /ɾ/

There are various ways in which the phonemes /ɾ/ and /l/ may undergo a phonological process. It is typical for final /ɾ/ to undergo complete elision in regions of Cuba, the Caribbean coast of Colombia, and regions of Panama.[6] These changes are prominent in verb infinitives with -er endings or nouns with a final /ɾ/ following a stressed vowel.[7] An example of this can be seen with the infinitive *caminar* 'to walk', /ka.mi.naɾ/ → [ka.mi.na]. The final /ɾ/ in the coda position in this infinitive is weak and therefore is susceptible to total deletion. The same can be seen with the noun *poder* 'power', /po.déɾ/ → [po.dé]. The noun ends with a final /ɾ/ in the coda position and is preceded by a stressed vowel, thus resulting in total elision of the /ɾ/.

Lateralization of /ɾ/ in Coda Position, Word-Final, and Word-Internal

In Puerto Rico and other Caribbean Spanish dialects, a typical phonological process is the lateralization of /ɾ/ in the coda position or a word-final position.[8] An example of the lateralization of /ɾ/ can be demonstrated with *comer* (to eat), /ko.méɾ/ → [ko.mél]. The /ɾ/ found in the word-final position is lateralized and becomes an [l]. The lateralization of /ɾ/ is also found internally. For example, in the

phrase *arte* 'art', /aɾ.té/→ [al.té]. The /ɾ/ in the coda position found in the first syllable is lateralized to [l]. The word-internal combination of /ɾd/ is commonly seen to weaken to a simple [l]. For instance, the phrase *ordenar* 'to order' is modified from /oɾ.de.náɾ/ to [o.le.nál].[9] In this example, two different lateralizations can be observed: the word internal combination of [ɾd] is lateralized to [l], and the final /ɾ/is also lateralized. Since /ɾ/ appears to exist in specific environments that /l/ appears in without changing the meaning of the word, they are allophones of the same phoneme and are therefore in complementary distribution. It is important to note that, like with all phonological processes, there are exceptions to these rules. Whenever an /ɾ/ that would typically undergo lateralization precedes an /l/, the phonological process is not triggered to maintain clarity in the sentence.[10] In a phrase like *comprar los* 'buy them', [kom.pɾaɾ.lo]/, the /ɾ/ might seem like it will undergo lateralization, but because it immediately precedes an /l/, the final /ɾ/ is excluded from the process.

Weakening of Coda /ɾ/ and /l/ to Semivocalic [i̯]

Similarly to how /l/ appears to be an allophonic variant of /ɾ/, semivowel [i̯] in the north of the Dominican Republic and Puerto Rico regions also shares this property.[11] The /ɾ/ and /l/ in the coda position may be weakened and experience vocalization as the semivowel [i̯].[12] An example of this can be seen with the word *comer* 'to eat', /ko.meɾ/ → [ko.mei̯]. The /ɾ/ in the word-final coda position is weakened through vocalization as pronounced as [i̯]. A similar process can be seen in *algo* 'something', /al.go/ → [ai̯.go]. The /l/ in the word-internal coda position is vocalized as [i̯] due to reduction. However, there are exceptions to this phonological process. This weakening process is excluded due to resyllabification when the /ɾ/ is word-final and prevocalic.[13] This exclusion is exemplified with the phrase *comer algo* 'eat something', [ko.me.ɾal.go], since the word-final /ɾ/ appears before the vowel /a/, it does not become the semivowel [i̯]. Despite this exception appearing in Puerto Rico, there are parts of the Dominican Republic where this exclusion does not apply. The weakening process does not occur when the final /ɾ/ or /l/ is prevocalic and occurs in an unstressed determiner (as quoted by Lipski, 2011).[14] This is demonstrated in the phrases, él encontró and

el encuentro. The /l/ in the phrase *él encontró* 'he found' /el.en.kon.tro/ becomes reduced and is vocalized, producing [eḭ.en.kon.tro]. Yet, *el encuentro* 'the finding' [e.len.kwen.tro] will not undergo the phonological process since /l/ belongs to an unstressed clitic marker and precedes a vowel, thus, remaining unchanged.

Gemination of a voiced obstruent following /ɾ/ or /l/

A process commonly occurring in Cuba is the gemination of a voiced obstruent following /ɾ/ or /l/.[15] For example, in the word *largo* 'long', /laɾ.go/ → [lag.go] or the word *salgo* 'I am going out', /sal.go/ → [sag.go]. Since a voiced obstruent follows the /ɾ/ and /l/ demonstrated, they undergo elision and are replaced by a geminate of the obstruent. In Colombia and the Caribbean regions, there is a weaker version of this process where /ɾ/ and /l/ are glottalized and, therefore, only partially geminated.[16] This process could be exemplified by the words *largo* 'long', /laɾ.go/ → [laʔ.go] and *salgo* 'I am going out', /sal.go/ → [saʔ.go]. The /ɾ/ and /l/ are partially preserved before the voiced obstruents /g/ but do not undergo complete gemination since they become glottalized.

Variation in the Phonological Processes of /s/

Among the most variable elements of Spanish phonology is the manner of the /s/ phoneme - how it acts differently in various regions of Latin America is one of the most helpful parameters in defining regional accents. Dialects spoken in the Caribbean, Central America, and regions of South America all feature a decrease in the /s/ consonant in Spanish.[17] This phonological characteristic further contributes to the rich diversity of Spanish accents across the continent.

/s/ Weakening in Word-Internal and Word-Final Contexts

The consonant /s/ in terms like e*s*to 'this', mi*s*mo 'same', i*s*la 'island'[18] might be preserved or omitted, depending on the context. If preserved, it might appear as either an aspirated [h] or a sibilant [s].[19] Word-internal and word-final contexts also exhibit /s/ weakening, as

seen in *casta* 'caste', /kás.ta/ → [káh.ta] or in *los gatos* 'the cats', /los.gá.tos/ → [loh.gá.toh].[20] The number of syllables in a word determines whether the final /s/ is deleted when verbalized. For instance, one-syllable words partially preserve the /s/ as either an aspirated /h/ or the sibilant /s/.[21] In multi-syllable words, dropping the /s/ is increasingly common. The choice of [h] or [s] depends on the word's phonetic context. The aspirated variant is more prone when the phoneme is followed by a consonant, exemplified in the phrase *dos mangos* 'two mangoes', /dos maŋ.gos/ → [doh maŋ.gos]. In this phrase, the final /s/ in *dos* is influenced by the following consonant /m/, which makes it susceptible to the aspirated /s/ variant, [h]. The decision varies among Spanish speakers when a vowel follows the /s/. In the Caribbean, speakers tend to produce an aspirated [h].[22] For example, in the sentence *vamos al cine* 'we are going to the movie theater, /va.mos al ci.ne/ → [va.moh al ci.ne].[23] The coda /s/ in [vamos] aspirates to [vamoh]. However, the /s/ remains sibilant when followed by an unstressed vowel or the first modifier in a noun phrase, ex: *los huracanes* 'the hurricanes', *las otras* 'the others'.[7] Throughout Latin America, /s/ aspiration might sound different. The use of simple aspiration [h] before consonants in the codas of syllables is the most common variant.[1] Glottalization before tonic vowels can be rendered by aspiration in the word-final prevocalic position, such as *los ojos* 'the eyes', /lo.so.jo/ → [lo.ʔo.jo].[24]

Gemination of Voiceless Plosives Following /s/ in Coda Position

Aspiration can also elicit gemination before voiceless plosives /p/, /t/, /k/.[25] An /s/ in an internal preconsonantal position may experience elision and be replaced by a geminate of the consonant.[26] This can be seen with *busca* 'search', /bus.ka/ → [buk.ka]. The /s/ in the coda position is deleted by the /k/ and is replaced by a second [k] through gemination. Another variation of this process can be the elision of the /s/, replaced by aspiration with a geminate of the following consonant.[27] This can be exemplified with *busca* 'search', /bus.ka/ → [bu^{h}k.ka]. The coda /s/ is once again deleted and replaced with aspiration and a geminate of /k/, making it [^{h}k].[28] Lastly, a variation of this process can be seen with /s/ weakening through aspiration in the gemination process with the

word *busca* ‘search’, /bus.ka/ → [buh.ka]. The coda /s/ does not experience complete deletion but is instead weakened during gemination as aspiration.

Variation in the Phonological Processes of Nasals

It is common for many regions across Latin America to vary in the articulation of the nasals /n/, /m/, and /ɲ/. The geographic region of the speakers and the environment of these nasals establishes their behaviour in pronunciation.

Elision of Word-Final Nasal and Nasalization of the Preceding Vowel

A typical phonological process is the elision of a word-final nasal and the nasalization of its preceding vowel. This is common in coastal regions of South America, the Caribbean, and Central America.[29] An example of this phonological process can be seen with the phrase *aqui están* ‘here they are’, /a.ki e.stan/ → [a.ki e.estã]. The /n/ in the word-final position is deleted and appears to influence the nasalization of its preceding vowel, /a/. This process affects nasals in a word-final context as well as those in a word-internal prevocalic coda position.[30] This can be exemplified with *pansa* ‘stomach’, /pan.sa/ → [pã.sa]. The /n/ in the prevocalic coda position is deleted and is instead represented by the nasalization of its preceding vowel [ã]. However, this nasal velarization does not occur if the nasal occurs in a syllable onset position.[31] This exception occurs in the word *cenar* ‘to dine’, the /n/ in the syllable onset will stay unaffected. It will continue being [se.nar] as opposed to [sẽ.ar].

Nasalization Before Frication and in Prepausal Contexts

Furthermore, nasals are vulnerable to effacement before a fricative. During nasal effacement, a nasal that appears before a fricative is elicited, and its preceding vowel is nasalized.[32] This process is conveyed in the phrase *comformar* ‘to be in agreement’, /com.foɾ.maɾ/ → [cõ.foɾ.maɾ]. The nasal /m/ follows the fricative /f/, which causes elision of the nasal and influences the preceding /o/ to become nasalized as [õ]. Nasal velarization may also occur in prepausal vocalic transitions. A ‘prepausal window’ is a cue used in

discourse when a speaker's speaking turn is about to end.[33] The articulation of speech during this wind-down may become naturally drawn out, specifically vowels, which can make preceding intervocalic nasals and word-final nasals susceptible to reduction.[34]

Hypercorrection with nasals and /s/

Within Latin America, hypercorrection is prevalent. Hypercorrection may occur because speakers are aware of the stigmatization of specific phonological processes and, as a result, may overcorrect themselves.[35] The hypercorrection process can be seen with the /s/ and /n/ phonemes since they are commonly elicited in Latin American speech. This means speakers may place these consonants in environments that are usually deleted or weakened.[36] This phenomenon can be exhibited with the word *mucho* 'a lot', /mu.t͡ʃo/ → [mun.t͡ʃo]. Although there was not originally an /n/ in this environment, the speakers overcorrected themselves by adding the nasal [n] in front of the affricate [t͡ʃ], where it would usually experience elision. Another example of this hypercorrection, the insertion of /s/, is observed by Haulde et. al. This can be seen with *fino* 'fine', /fi.no/ → [fis.no]. This word does not originally contain an /s/, but a speaker who typically exhibits /s/ deletion may hypercorrect by adding an [s] in the coda position, where it is usually deleted.

Discussion

Spanish across the vast regions of Latin America varies substantially, and factors such as gender, age and socioeconomic background can be responsible for phonological variations.

Research indicates that the retention or deletion of final /s/ can be affected by the gender of the speaker.[37] As presented in the '*Variation in the Phonological Processes of /s/'* section, many variants of the /s/ articulation are exemplified due to the flexibility afforded by the last syllable environment. The sibilant [s] is more commonly produced by women, whereas its weaker versions, such as [h], are more common among men. In the three modes of communication (informal speaking, reading aloud, and impromptu conversation), men of all

socioeconomic backgrounds are more likely to minimize -/s/ in the word-final position than women.[38] Increased -/s/ production for women is a sign of prestige and high socioeconomic status, while the elision and weakening of /s/ is prominent in the speech of women of lower-middle socioeconomic class.[39] Male speakers with less formal education may potentially experience a weakening of the /s/ sound as well.[40]

To a large extent, /s/ weakening is determined by a person's level of education and socioeconomic background. For instance, most Cuban-Havana Spanish speakers retain sibilants at high levels of education, whereas those with lower levels of education tend to delete them.[41] Those with more formal education are increasingly likely to be exposed to standardized Spanish. Illiteracy is pervasive in Spanish-speaking countries and can be due to factors such as impoverishment, inaccessibility to proper education/resources, rural conditions, isolation of indigenous communities and more.[42] Furthermore, individuals in differing Latin American regions have their own opinions and beliefs on the role of phonological articulation, establishing prestige. Younger speakers in areas like San Juan view the phenomena of speakers of Puerto Rican Spanish articulating /l/ instead of /r/ as a result of being 'uneducated' or as a 'bad habit' exhibited by lower-class people.[43]

Additionally, understanding Latin America's rich history and culture can promote positive views toward diverse languages and civilizations. It is vital to investigate how phonological varieties in Latin American Spanish dialects differ among regions as it enables us to understand different types of Spanish. This can contribute to bilingual education in areas such as the southern United States, where there are many Hispanic immigrants. Educators being more conscious of different Latin American backgrounds and dialects can allow immigrant students to feel more comfortable in their new learning environments. Not only does this help to understand these students, but it can also serve as an opportunity to teach their peers to accept other varieties of Spanish they may not have ever been exposed to and avoid stigmatization. Fostering a welcoming and educational environment is effective while preserving the heritage and celebrating their culture and background.

Notes

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Confronting Propaganda: Performative Pedagogy as Transgender Resistance

Alisa Faingersh [a*]
[a] Faculty of Arts & Science, McMaster University, Hamilton
0009-0007-1974-7875

ABSTRACT: Education is facing a critical threat as those in positions of authority utilize propaganda to advance and promote an exclusionary worldview that serves their own interests. This essay focuses on one such misinformation campaign, which seeks to limit the rights of transgender individuals, including their very existence—a cause championed by right-wing politicians. The paper investigates how the American educational system fuels discrimination towards marginalized bodies, particularly transgender people, and suggests performative pedagogy as a strategy to counteract this oppression. The essay begins by examining how the concept of performative pedagogy is used in contemporary drag shows and how deeply ingrained the idea of white supremacy is in transgender oppression. Through case studies, the paper shows how performative pedagogy serves as a powerful counter to the fundamental ideology of hatred. It explains how, through performative pedagogy, marginalized voices can be strengthened and serve as an effective communication tool for influencing society's future by expressing what cannot be spoken through actions. This study argues that equipping today's children with performative pedagogy enables them to withstand the challenges that they may face and helps them become more resilient in the face of difficulties. It draws attention to the fundamental responsibility of educators to teach for the benefit of society and to provide students with the skills necessary to face and overcome the challenges that will be used against them. Through the embracement of performative pedagogy, contemporary society can raise and foster a generation that actively opposes the oppressive forces that are reinforced and perpetuated by those in power.

KEYWORDS: exclusionary worldview, performative pedagogy, critical though, transgender rights, intersectionality

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* Corresponding Author - Email Address: faingera@mcmaster.ca
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Education is at stake. The following essay explains that the American right wing prefers the enforcement of an education that echoes propaganda promoting an exclusionary worldview, inherently beneficial to their motivations. Wielding education as a tool to construct narratives promoting closed-mindedness and compliance, those in power mock its unique ability to effectively challenge systemic and societal oppression. Luckily, it is shown through deliberation and case studies that the onset of the attack on education and critical thought by the right wing can be mitigated using performative pedagogical techniques, both inside the classroom and out. One of these propagandas is the campaign for limiting the rights of transgender individuals, namely, their right to exist, which has become a popular crusade for right-wing politicians. This essay examines how the persecution of certain bodies, such as those of transgender individuals, is particularly nurtured by the forces at work in the education facilitated by individual and independent American states and how it can best be combatted by the methodology performative educators propose and utilize. Beginning with a preliminary exploration of the meaning of performative pedagogy and how it manifests in today's persecuted drag shows, the essay will move on to define transgender oppression as rooted in white supremacy and go on to explain, with case studies, how performative pedagogy is a firm rebuttal for this foundational ideology of hate.

The lasting impact on individuals cannot be denied, whether through the manifestation of performative pedagogy like Drag Story Hour or when Tucker Carlson distorts it in his theatrical dissemination of propagandized lies. Performative pedagogy, whether manifested as drag lunches or story times, is a tool that is uniquely suited to creating more transgender (and otherwise marginalized) inclusive educational spaces by challenging and disrupting systems of oppression. By centring embodied, creative, and participatory practices in academic settings, performative pedagogy can foster more profound, more meaningful learning experiences that resonate with learners on multiple levels, including emotional, cognitive, and experiential. Today's learners are forced to wade through an education that has become thickly saturated with neo-liberalist ideas, which, at its core, is designed to shape compliant

and docile workers who themselves value stability over progression. By physically asking them to move through these problems, performative pedagogy discourages the degree of separation between the students and the issues they are exploring and fortifies their empathy for others instead of allowing "… the needs of the economy to dictate the principal aims of school… [and] suppress[ing] the teaching of oppositional and critical thought that would challenge the rule of capital."[1] John T. Warren, a communication professor at Southern Illinois University, describes in his journal the time when he was unexpectedly asked to supply for a civics class he had been observing for his research—a class usually facilitated in the predictable organization of a lecture followed by a discussion. He notes that "while [it] engag[ed] students in complex thought, asking them to think about their own implication in systems of racism critically, it did not provide any space for students to engage this material in any other way."[2] As a scholar of performative pedagogy, he predicted that this might be the tool necessary for the more profound challenge these students needed, one of its key features being its focus on embodied practices, such as role-playing, improvisation, and physical movement. Warren implemented precisely this. He writes that he "… wanted them to perform, to move these concepts and ideas into their flesh… To see themselves meant risking privilege."[3] In this way, drag performances, specially catered to children, can be interpreted as a type of performative pedagogy which acts with a secondary purpose of entertainment while primarily delivering transgender narratives to its audiences. Hence, drag performance engages learners in critical reflection and inspires dialogue about issues of gender, identity, and oppression—especially in communities lacking queer representation whose existence inherently challenges queer oppression. By centring transgender voices and creating inclusive learning spaces, drag acts can challenge cis-normative assumptions and foster greater empathy for and understanding of the experiences of transgender individuals. Incorporating transgender narratives and perspectives into curricula and involving transgender individuals as co-creators of knowledge, performative pedagogy is a direct protest against the weaponization of education by right-wing politicians who continue to try to define it

as "an animating space of violence, revenge, resentment, and victimhood as a privileged form of white Christian identity."[4] This context is self-evident as far-right legislators loudly rely on culture war topics to rally their voter base and gain traction for their campaigns by enacting legislation opposing critical race theory and queer existence. Performative pedagogy and transgender activism share a common goal: to challenge oppressive structures and create more equitable, just societies. Performative pedagogy can be used as a tool for activism, and transgender activism can inform and shape the practice of the latter.

It is essential to recognize that this hate perpetuated by the right-wing is rooted in upholding a white supremacist worldview, one which transgender activism inherently opposes. White nationalist movements are not considered revolutionary in this essay, despite being insurgent and agitational in essence—it is the act of rebellion against bigotry that earns transgender existence its 'revolutionary' epithet. Opposingly, gender nonconformity and otherwise radical forms of existence are fundamentally revolutionary in their nature, challenging with their very presence a paradigm that is obsessed with enforcing roles dictated by physical characteristics as anything other than a social construction. Importantly, these roles are delegated by those in power, based on those in power, or more explicitly, based on characteristics like skin colour, nose size, or how well one performs the gender that is societally expected of them. The very worldview that allows fascists to believe that there is no room for the existence of transgender individuals in our world is the same worldview that is governed by values superficially assigned to characteristics resembling those of the wealthy and powerful (i.e., whoever society deems white in any particular historical moment). The mass and widely celebrated book burning of May 10, 1933, by the Nazis becomes present in one's mind when reflecting on such motivations as the "… determined effort to destroy any knowledge that might undermine [a] white supremacist ideology" observed in today's America.[5] Having burned nearly all of Magnus Hirschfeld's library, a Jewish sexologist and facilitator of the first clinic in the world to provide gender-affirming surgeries, the German public demonstrated the power of Nazi propaganda to educate into hate. Today's sudden

choreographed crusade for the loathing of transgender individuals is not a new idea, for they have always been the low-hanging fruit for forces of power to direct the public's real frustrations towards. Difference is inseparably a symbol of challenge to the status quo, which works to extinguish it, and so one can draw a logical throughline as to why a population frustrated with the machinations of neo-liberalism is so susceptible to accepting a particular loathing of transgender identity. In a system that allows for slight chances for upper mobility through conformity, docility is valued above all else. The radicality and nonconformity of the existence of transgender individuals does not fit into the white supremacist worldview, and the masses become vulnerable to propaganda education which convinces them that transgender existence threatens their personal efforts at conformity. In their attempt to conserve their position of power and maintain stability in the way of discouraging critical thought and challenging education, the right-wing works to villainize transgender individuals. Through the same logical framework that upheld white supremacy in WWII Germany (and covertly continues to uphold it in modern-day America), the propaganda machine diverts attention away from the genuine material struggles Americans observe around them and redirects their anger at the lack of a promised meritocracy towards a scapegoat like transgender individuals.

The well-suitedness of performative pedagogy for the exploration of transgender identity directly speaks to its usefulness in combatting the white supremacist propaganda education on the rise in today's America. Embodied practices can be particularly effective in challenging transphobic and racist attitudes and behaviours by allowing learners to explore, experiment, and create new knowledge collaboratively. For example, in a transgender-affirming performative pedagogy classroom, students might engage in role-playing exercises that explore the experiences of transgender individuals or use physical movement to embody the experiences of gender dysphoria. It is understandably difficult to put into words the discomfort of an existence in a body which does not reflect how one sees the manifestation of their identity. With each attempt to convey this crucial and complex concept, the risk of accumulating translation errors looms, gradually eroding the resonance and impact of its

message. Performance avoids the need for the reformatting of this experience and eliminates the creation of additional barriers to understanding. Through these practices, learners can gain a deeper understanding of the challenges faced by transgender individuals and develop empathy and compassion for those whose experiences may be different from their own. In addition to embodied practices, performative pedagogy also emphasizes the importance of dialogue and collaboration in the co-creation of knowledge. This approach can be particularly powerful in challenging transphobic attitudes and behaviours by fostering a sense of community and shared purpose among learners. In a performative pedagogy classroom focused on transgender oppression, students might engage in group discussions, debates, and collaborative writing exercises that explore the root causes of transphobia and identify strategies for disrupting and dismantling these systems of oppression. Through these practices, learners can develop critical thinking skills and gain a deeper understanding of the complex ways in which transphobia intersects with other forms of oppression, such as racism, misogyny, and ableism. Elyse Lamm Pineau explains that "performance studies scholars and practitioners locate themselves as embodied researchers: listening, observing, reflecting, theorizing, interpreting, and representing human communication through the medium of their own and other's experiencing their bodies."[6] The use of the body as a performance venue brings both teachers' and students' origins, differences, and commonalities to light. The transgender body is at the center of what right-wing politicians call a 'debate' on the uncertainty of its deserved existence, making performative pedagogy the perfect ironic rebuttal. Florida Governor Ron DeSantis wages war on critical education "and always with a whiff of high-drama political theatre, which makes clear that the discourses of racial hatred and white nationalism contain valuable political currency."[7] By pointing out that as much as these politicians insist on dramatizing politics for the entertainment and distraction of the public, an alarming lack of transgender individuals are ever given a spotlight on their stage to speak with their voices. In fact, right-wing politicians actively snuff out such attempts at true performative pedagogy, as is regularly seen in their support for the protest of Drag Queen Story Hour. Conceived

in 2015 in San Francisco, the goal of these book readings is not only to foster the love of reading in young children but also to use the opportunity to do so performatively and for the added bonus benefit of teaching kids "diversity, self-acceptance, and to look beyond gender stereotypes… [capturing] the imagination and play of the gender fluidity of childhood [it] gives kids glamorous, positive, and unabashedly queer role models."[8] Kevin Wong, an advocate for the Trevor Project organization, explains plainly that "any positive visibility helps people of all sexual orientations and gender identities, even if they're straight or cisgender, to learn more about other folks," truly underscoring the effectivity of performative pedagogy as a tool in answering the persistent forces of the right-wing.[9] Elizabeth LaFleur echoes the significance of this article in her 2019 editorial, where she details the feedback loop that uncritical propaganda education facilitates—media reporting on the escalating nature of protests outside of a Greenville library hosting a Drag Queen Story Hour and the armed SWAT team monitoring the anticipated protestor conflicts in its vicinity.[10] This documentation of the response to previous reports of armed and agitated anti-LGBTQ protesters only cemented itself in these right-wing communities as further proof that the state is in collusion with the drag queen and otherwise all other queer people and that these concerned Christian mothers were, in fact, the truly oppressed minority. Conflicts similar to the one LaFleur reports on continue to escalate thanks to their prominence in the talking points of right-wing politicians who use them to garner an angrily misled voter base. Ultimately, legislation is proposed, and laws are passed which serve to limit the ability of transgender individuals to exist freely, and it is the inclusion of the context of this law-passing as part of the social spectacle that makes right-wing propaganda a performative pedagogy of sorts. Where it falls short of being a true representation of performative pedagogy at work is in its lack of challenging and, in fact, maintenance of the status quo through the discouragement of presenting multiple perspectives and amplifying the voices of marginalized bodies. Unfortunately, it does borrow from performative pedagogy its effectiveness in rallying and garnering self-dubbed patriotic citizens that enact what they believe to be righteous violence. The Proud Boys are a North American

terrorist organization made up of far-right men, increasingly attractive to Latino and otherwise non-white members, who self-identify as neo-fascist and promote and engage in political silencing violence. Underscoring the organization's role in the escalation of violence outside a Drag Queen Story Hour in New York, Matt Lavietes remarks that "drag, once an underground art form… has become a political flashpoint in recent months," in part thanks to the Proud Boys, who operate as auxiliary arms of the right-wing propaganda education machine.[11] Included in this are several other actors, such as Moms for Liberty, a relatively new organization that has emerged as a vocal opponent of critical race theory and other progressive education, including performative pedagogy in the way of opposing the inclusion of books which give voice to marginalized identities.[12] The Patriot Front, another such group, is a neo-fascist organization that advocates for the creation of a white ethnostate in the United States, explicitly and overtly advertising the white supremacist ideology inherent to the foundation of the beliefs of all of these groups, although some may be more reluctant to admit it for strategic mainstream traction. Both Moms for Liberty and the Patriot Front have taken positions opposed to advancing transgender rights. Moms for Liberty has been vocal in opposing gender identity education and outspoken against the ability of transgender students to participate in the school sports team according to their gender identity. Although the Patriot Front focuses mainly on racial issues, the suppression of LGBTQ+ rights cannot be separated from their agenda, as transgender rights, as aforementioned, represent a threat to their vision of a world where traditional gender roles and the social and racial hierarchies they are adjacent to prevail. All these fraternities of convenience can be seen as pieces of a fabric whose sprawl is intentionally being nurtured by the right-wing political parties and politicians—the final tapestry engulfing as many susceptible minds as it can in its own efforts to educate through propaganda that capitalizes off of the intersection of hysteria and ignorance. Lavin illustrates this sentiment in the following lengthy quotation:

> "What the far right proclaims through explicit street violence it wants to reinforce with the implicit violence of the state. Bills that seek to suppress anti-racist education, anti-trans legislation that seeks to codify antiquated gender roles, and the severe and continual restriction of abortion rights in states with right-wing legislatures typify the ways hatred of gender nonconformity, a desire to control women's bodies, and racism intermingle."[13]

A relevant example to this last point is the Koreatown spa attack by anti-transgender rights protesters in LA in the summer of 2021, where mass hysteria over a suspected and rumoured transgender woman client frequenting the spa was enough to not only draw a mob of people brandished with weapons, but also to incite actual violence. Notably, the five injured individuals, two by a deadly weapon,[14] might be disappointed to find out that while their claim that "a trans woman used a changing room that she was fully allowed to use" has flimsy reasonable standing to begin with, "no trans women actually happened to be using it" that day—it was all a hoax.[15] The *Slate* journalist observes that this "… underscores how thin a pretext is needed to prompt these sorts of outbursts from the far right."[16] The danger must be noted that a common hate campaign toward the rights of transgender individuals centralizes this collective effort of the right wing. This choreographed execution of propaganda education serves the purpose of slowly and carefully shifting the Overton window further and further right until the unthinkable becomes politically fathomable. Henry Giroux summarizes this sentiment in the following lengthy quotation:

> "Republicans, in the years of the post-Trump presidency, who are perfecting the dark art of silencing Americans…. it has sadly become the Republican norm to stifle debate. Don't say gay, don't say gun control, don't say racism, don't let kids read the "wrong" books or be read to by the "wrong"

> people, don't permit children to learn about their bodies or their rights."[17]

Its peaks coincide with the increases in progression made by transgender rights activists, most visible when they are celebrated and performed. It follows, then, that in the presence of any performative pedagogy, particularly on the subject of transgender rights and the oppression of those rights, the company of this oppressive pedagogy of silencing follows. The emergence of books with gay and transgender characters is met with DeSantis's 'Don't Say Gay Bill,' "… forcing teachers to be silent about sexual orientation and gender identity issues while using his office to baselessly target and label people who oppose this bill as pedophiles."[18] Transgender narratives in the form of performative pedagogy are needed education curated by the oppressed for everyone and must be enacted to counter this recurring cycle. By performing and continuing to read books like *All Are Welcome* and *Black Is a Rainbow Color* to children and parents present at these Drag Queen Story Hours despite the persistence of the cyber, actualized, verbal, and physical harassment, queer individuals demonstrate their existence and their right to do so. By physically showing up and being present, not to mention doing so in a high art form such as drag, queer individuals carve a space out for themselves on the stage that right-wing politicians insist on playing out their political scandals. Performative pedagogy is so especially fit as a tool in the fight for the rights of transgender individuals because it makes use of their very bodies, which they are so persecuted for and suffer so greatly because of, to execute education (the most effective form of activism).

This essay aims to demonstrate that American propaganda education that fosters hate, especially with a hyper fixation on a gender non-conforming 'other,' can effectively be countered with transgender narratives in performative pedagogy. By continuing to advocate for the above-outlined benefits of performative pedagogy, more and more individuals will wake up to the contradiction being hidden from them. The façade of freedom and liberty dissipates with even the beginning of critical thought on the subject of DeSantis's true motivations. One begins to understand how he "… and his allies

uphold the kind of indoctrination he claims to oppose" banning and burning books "…because they wrote and taught ideas he saw as a political threat."[19] Performative pedagogy combats the stifling of voice through its power of expressing what can no longer be spoken: through action. Performative pedagogy is the most effective method to communicate this to the future of our society, to our children, who it is our responsibility to educate for the good and, importantly, to be prepared to withstand the bad that will be weaponized to target them.

Notes

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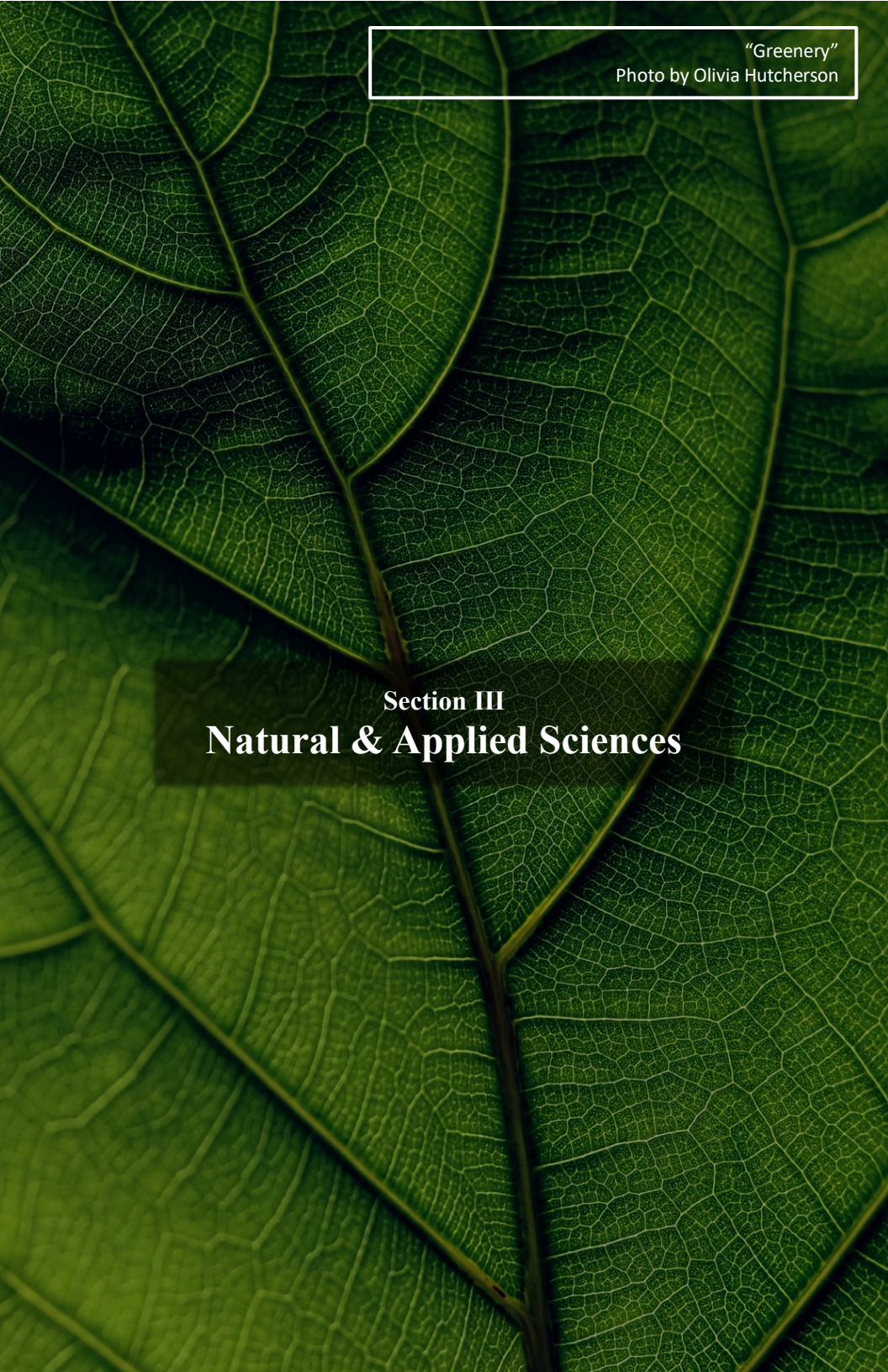

"Greenery"
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Section III
Natural & Applied Sciences

From Primate Myth to Global Concern: Understanding the Human Mpox Virus Pandemic

Isabella Khan [a*]
[a] Faculty of Arts & Science, University of Toronto
0009-0007-3000-4474

ABSTRACT: This analysis delves into the enigmatic nature of the Human Mpox Virus (formerly Monkeypox), a pathogenic virus that affects humans and has recently garnered attention due to its wide range of hosts and a global pandemic in 2022. Despite its misleading name, which implies primate transmission, the true origins and hosts of Mpox remain unknown, sparking debates about its classification and concerns about stigmatization. Through a thorough examination of the virus's historical emergence, clinical manifestations, evolving epidemiology, and transmission patterns, this analysis aims to provide valuable insights into this infectious disease. By understanding its complexities, effective control and prevention strategies can be developed. Mpox, belonging to the Orthopoxvirus species, shares genetic similarities with other poxviruses such as smallpox and cowpox. Early recognition of symptoms is vital for prompt diagnosis and isolation, as there is no permanent cure for Mpox. Preventive measures involve surveillance, early detection, isolation, and vaccination. By further exploring Mpox's complexities, advancements can be made in controlling and preventing this infectious disease.

KEYWORDS: Mpox, pandemic, Orthopoxvirus, zoonotic reservoir, healthcare disparities.

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* Corresponding Author - Email Address: bella.khan@mail.utoronto.ca
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Importance of Understanding Mpox in the Context of a Global Pandemic

Human Monkeypox Virus (Mpox), belonging to the Orthopoxvirus species, is a pathogenic virus that affects humans. Alongside other well-known illnesses, such as smallpox and cowpox, Mpox has captured attention due to its ability to infect a wide range of mammalian species as well as the recent pandemic, which spread to several endemic and non-endemic countries. Mpox is closely related to its Orthopoxvirus counterparts, including the vaccinia virus (VACV), the cowpox virus (CPXV), and the variola virus (VARV). Although the originated host remains a mystery, Mpox may infect a wide taxonomically diverse range of mammalian species. Despite its misleading name, which wrongly implies primate transmission, the zoonotic reservoir of Mpox remains unknown, with many scientists, medical professionals, and patients criticizing the classification of the virus. This analysis delves into the pathogenesis, epidemiology, and preventive strategies associated with Mpox, while also addressing the controversial naming of the virus and its implications. Through an examination of the virus's historical emergence, clinical manifestations, evolving epidemiology, and transmission patterns, valuable medicinal insights can be gained which will lead to a deeper understanding of this enigmatic infectious disease and open the doors to explore effective measures for its control and prevention.

Early Identification and Outbreaks

Mpox was first identified at a Danish research laboratory in 1958 when monkeys experienced outbreaks of what appeared to be a pox-like disease. The attribution of the emergence of "monkeypox" is ascribed by the World Health Organization (WHO) to this occurrence.[1] The virus was not detected in humans until 1970 when the first confirmed case was found in a nine-month-old boy from the Democratic Republic of the Congo.[2]

Human Cases and Outbreaks in the Democratic Republic of Congo

From 1981 to 1986, the Democratic Republic of Congo, formerly known as Zaire, reported 37 documented cases of Mpox.

Between February 1996 and February 1997, an extensive Mpox outbreak took place in the same region. The outbreak sparked concerns regarding retaining smallpox virus samples for research purposes to compare them with related viruses such as Mpox. In 13 villages situated in Zaire, 71 clinical cases of Mpox were reported, among six resulting in fatalities, from February to August 1996. The highest number of secondary cases was recorded in August, at the outbreak's peak. All 11 specimens collected tested positive for Mpox, and minor genetic variations were observed in comparison to other strains collected between 1970 and 1979. Despite David Heymann, former executive director of WHO's Communicable Diseases Cluster, expressing concern regarding the issue, the outbreak continued, with the organization reporting 170 new cases[1] between March and May of 1997.[3] Nevertheless, Heymann cautioned that a portion of the cases might be chickenpox.

In the Katako-Kombe region, numerous instances of a virus were previously researched by a team assembled by the World Health Organization. Ali Khan, from the Centers for Disease Control and Prevention (CDC), led the Zairian Ministry of Health and the WHO. Regardless of experiencing unrest and violent attacks on the local community, Khan and his team visited 12 villages at the outbreak's epicentre in February 1997 and produced a detailed report on April 11th. According to the report, the infection rate increased dramatically from 30% to 73% among the 89 people studied, with 73% of individuals contracting the virus from others. The report also highlighted that one patient appeared to have spread the virus to eight other individuals, twice the previous highest transmission chain. Researchers tested a sample from a person infected in 1996. They found that the virus was not evolving to become more virulent or contagious, eradicating increased virulence or contagion concerns.[4]

Taxonomical Evolution

[1] The World Health Organization reported 58, 52, and 60 cases in May, June, and July, respectively.

The name "monkeypox" immediately spiked controversy because of the disease's association with African countries, leading many scientists to believe this name is discriminatory and stigmatizing; demanding a name change.[5] As of November 28th, 2022, the World Health Organization (WHO), began referring to the disease as "Mpox".[6] To eliminate the pre-existing name of "monkeypox", numerous clinical studies and existing licensed vaccines changed the title to further proceed to documentation. The WHO stated that "monkeypox" will discontinue in a year.[7] Mpox virus has been divided into two genetic subclades: The Congo Basin Clade, also known as the Central African clade, and the West African clade. Utilizing Roman numerals for each clade, The Congo Basin Clade was renamed Clade I, while the West African clade was renamed Clade II, with two phylogenetically separate subclades, IIa and Iib.[8]

Genetic Subclades and Epidemiological Traits

Although geographically separated, these groups exhibit distinct epidemiological and clinical traits. West African populations have experienced a case fatality rate (CFR) below 1%, In contrast, the Congo Basin clade (also known as the Central African clade) exhibited a CFR reaching up to 11%, with instances of human-to-human transmission occurring as many as six consecutive occasions. The origins of Mpox are yet to be fully understood, but it is believed to be a zoonotic disease transmitted to humans through contact with infected animals or animal products.[9] The clinical manifestations of Mpox include fever, headaches, muscle aches, and a characteristic rash that starts from the face and gradually spreads to the torso and extremities. The rash quickly evolves to form fluid-filled blisters that eventually become pustular and then crust over. The lesions typically last between two and four weeks and may leave scars.[10]

A systematic review explored how Mpox has spread since its discovery in 1970 in the Democratic Republic of the Congo. The research synthesis established that human Mpox has now been detected in 10 African countries and four other nations.[11] These countries include Nigeria, where it returned after 40 years of absence, and the United States, which saw an outbreak in 2003 associated with

rodents imported from Africa.[12] Between 2010 and 2019, cases have increased, possibly due to the withdrawal of smallpox vaccines that provided some protection against Mpox.[13] Monitoring and detection programs are vital tools in understanding the ever-evolving epidemiology of Mpox. [15] Historical trends in occurrence rates, distribution, and control of the spread of the infection in endemic compared to non-endemic regions have not been extensively studied.

Mechanisms of Mpox Transmission and Disease Progression

The transmission of the monkeypox virus is the starting point of its disease-causing ability and its impact on the body. It can occur due to close contact between animals and humans, or between humans themselves. The pathogenesis of Mpox is thought to enter the body through the respiratory tract or contusions in the skin. Various African animals have been infected with Mpox, including tree squirrels, rope squirrels, and Gambian pouched rats.[14] The virus replicates in the regional lymph nodes and then spreads to other organs, including the liver, spleen, and bone marrow. In humans, the disease is generally self-limiting, but severe cases can occur, especially in immunocompromised individuals. In terms of diagnosis, treatment, and spread prevention, early recognition of symptoms is vital for prompt diagnosis and isolation of infected individuals. There is no known cure. Treatment is primarily palliative and includes pain management, hydration, and wound care. Albeit the lack of supported evidence on the effectiveness of Mpox, the use of vaccines and immune therapies used to treat smallpox and acquired immunodeficiency syndrome (AIDS) may help alleviate the symptoms and progression of Mpox. In high-risk populations, such as immunocompromised individuals, the disease can be severe and lead to complications such as pneumonia and encephalitis.[15]

Controlling Transmission Among At-Risk Populations

Outbreaks in non-endemic regions may have evolved to become more transmissible among humans. Mpox has been reported in several non-endemic areas, such as the United States and Great Britain. Controlling Mpox outbreaks among at-risk populations, such

as gay, bisexual, and other men who have sex with men (GBM), requires early recognition of symptoms and prompt diagnosis and treatment. Peter, a 28-year-old gay man, openly admitted contracting Mpox at a beach party he attended not too far from New York City. While isolated in Seattle, he pondered about the individuals he had been with at the party and recalled a "little hard spot" located on another man's body. Peter advised gay men to be vigilant for signs of Mpox on themselves and their partners during sexual activities and said, "Don't be afraid to say something."[16] By preventing transmission to others and reducing disease severity for those already affected, communities can help reduce stigma and fear while promoting safe and effective prevention methods. Educating and supporting these groups is also essential to reduce stigma and fear among them. Overall, a combination of strategies is necessary to prevent and control Mpox. These preventative methods include surveillance, early detection, isolation of affected individuals, and vaccination. Further research into the virus' pathogenesis, transmission, and the development of effective vaccines and treatments will be fundamental in this fight against Mpox.[17]

Mpox in Non-Endemic Countries

Non-endemic countries such as the United States of America and Canada have also been affected by Mpox[18]. Mpox was mostly reported in African countries, and as Mpox is not native to North America, the outbreak of Mpox cases was overwhelming in the United States of America. Those at risk, in this case, the GBM community, understood that a behaviour change was needed to see a change in the positive direction. According to a joint survey from the CDC, Emory University, and Johns Hopkins University, data showed that those who limited the number of casual sexual encounters reduced the majority of Mpox transmission.[19] Over 25,000 cases of Mpox have been reported in the United States of America since May 2022, with 38% of those infected also being HIV-positive. An outbreak of Mpox also revealed itself in Canada in May 2022, shortly after the United States announced their public safety concerns. The Public Health Agency of Canada (PHAC) reported 168 cases as of

June 17th, 2022.[20] The individuals who have experienced the most severe manifestations are those who are HIV-positive and have not sought or received proper treatment for their condition.[21] Some patients in the United States required lengthy hospitalizations, with deaths also being reported.[22]

Disparities Between Western and Impoverished Populations

Those from impoverished endemic locations, versus those belonging to a wealthier setting, are more likely to encounter health complications. Sharmistha Mishra, an infectious disease physician from the Emerging and Pandemic Infections Consortium in Toronto, states that access to healthcare is very important. The likelihood that mild cases will be recognized and recorded, with access to sufficient care and diagnosis, reduces assessed case fatality rates.[23]

Healthcare Disparities

Furthermore, the health disparities between African and impoverished countries compared to Western countries have contributed to significant challenges in addressing Mpox outbreaks. The African health system has insufficient testing and monitoring capabilities, which has led to 50% of Mpox cases being misdiagnosed as other infections with comparable symptoms, such as chickenpox. From 1970 to 2018, cases of Mpox have increased with a 10% mortality rate. Mpox has a relatively low contagion rate yet still poses a threat because of the "already drained" healthcare system within African countries.[24] The Mpox epidemic has increased cases among Blacks and Hispanic/Latino communities, with HIV being more prevalent in the Black population than in Hispanics/Latinos.[25]

Attention Disparities

In addition to health disparities, attention disparities have also been evident when it comes to addressing Mpox outbreaks. Historically, diseases that primarily affect marginalized or low-income populations in African and impoverished countries have often received less attention and resources compared to outbreaks in Western countries. This discrepancy in attention can lead to delayed

response and limited efforts to control and prevent the spread of the disease in vulnerable regions. These disparities highlight the urgent need to address health inequalities and strengthen healthcare systems in vulnerable regions to effectively combat the spread of Mpox and other infectious diseases.

Severity in Immunocompromised Patients

Typically, individuals exhibiting severe cases are characterized by HIV infection with CD4 cell counts of less than 200 cells/ml, a significant indicator of severe immunosuppression.[26] Healthcare providers must identify the underlying risk factors and optimize immune function to reduce or avoid severe illness. The best treatment for Mpox in immunocompromised patients should be to optimize immune function, limit immunosuppressive medication use unless indicated by a physician, and utilize antiretroviral therapy for HIV-positive patients. Early recognition of symptoms is essential for prompt diagnosis and isolation of infected individuals. There may also be medical countermeasures to help treat severe illnesses such as oral/intravenous tecovirimat (TPOXX), cidofovir/brincidofovir, and vaccinia immune globulin intravenous (VIGIV), although data regarding their effectiveness against Mpox remains uncertain.[27] These countermeasures should be chosen based on individual clinical factors and other relevant medical factors on a case-by-case basis.

Public Health Management

Smallpox vaccines are effective in protecting against those at risk of contracting Mpox. As a result of smallpox and Mpox belonging to the same genus of virus, Orthopoxvirus, smallpox vaccines produce antibodies that recognize Mpox pathogens. The Food and Drug Administration (FDA) approved JYNNEOS vaccine, known to protect humans against smallpox, is currently used as the primary defence against Mpox in the United States of America.[28] A case-control study assessed the efficacy of JYNNEOS vaccination in preventing medically attended Mpox disease among adults. The vaccine effectiveness was calculated as (1-odds ratio for vaccination in case patients vs. controls) x 100. The researchers found the vaccine

to be effective. The study results showed 66.0% of patients who received two doses (full vaccination) had a more protective effect than the 35.8% of patients who received one dose (partial vaccination). Conclusively, the two-dose vaccination unveiled the highest level of protection against Mpox. The study showed those infected with Mpox had not received either the partial or full vaccination.[29] The Public Health Agency of Canada has authorized three types of smallpox vaccine including lyophilized (freeze-dried) vaccine, frozen liquid formulation vaccine, and Imvamune® which is currently provided provincially for pre- and post-exposure to Mpox.[30]

Conclusion

The global outbreak of Mpox has emerged as a pressing public health concern, demanding immediate attention and collaborative efforts. The escalating number of cases in non-endemic countries underscores the need for comprehensive research investigations, wide-ranging epidemiological studies, and swift, confirmatory diagnoses to understand the virus better. Moreover, identifying natural animal reservoirs and comprehending associated zoonosis is crucial for devising effective prevention and control measures. Continuing research on the historical emergence, clinical manifestations, and evolving epidemiology of Mpox is essential for devising viable control and prevention strategies. Ensuring widespread access to vaccines and antiviral drugs, including JYNNEOS and Imvamune, should be prioritized to combat the rising incidences of monkeypox. To strengthen global preparedness against future outbreaks, increased investment in research and development for new treatments and vaccines becomes imperative. Additionally, heightened awareness regarding the risks of zoonotic diseases and the promotion of preventive measures are vital steps in averting future outbreaks. The Mpox epidemic has shed light on significant disparities in healthcare between impoverished countries and Western nations, impacting the effectiveness of Mpox outbreak management. Addressing these disparities and fostering equitable healthcare systems is paramount to effectively combat Mpox and safeguard vulnerable communities. Rigorous international efforts, evidence-

based strategies, and equitable resource allocation are necessary to combat Mpox effectively. By uniting our collective expertise and resources, we can work towards a safer and healthier global community, better equipped to address emerging infectious diseases.

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Drawing Insights from the COVID-19 Pandemic: A Candid Examination to Bolster Preparedness for Future Outbreaks

John Milkovich [a*]
[b] Temerty Faculty of Medicine, University of Toronto, Toronto
0000-0001-8907-1371

ABSTRACT: The COVID-19 pandemic presented an array of challenges, characterized by its unpredictability and rapidly changing nature. While often referred to as an "unprecedented" crisis, it is important to recognize the shared traits it possesses with previous pandemics. To fortify society against future outbreaks, continued investment in pandemic preparedness is essential. This paper aims to extract valuable insights from four crucial sectors within Canada's healthcare system during the COVID-19 pandemic. The identified areas of focus include: 1) Addressing the "disinfodemic" by effectively countering the dissemination of misinformation; 2) Promoting justice in resource allocation to ensure fairness and equity; 3) Strengthening healthcare infrastructure to meet the demands of resource-intensive crises like COVID-19; and 4) Mitigating the long-term impact of stringent pandemic-related restrictions. Through an honest reflection on these key sectors, this paper sheds light on crucial lessons learned and paves the way for robust preparedness strategies for future outbreaks.

KEYWORDS: COVID-19, pandemic-preparedness, health policy, misinformation

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* Corresponding Author - Email Address: john.milkovich@rogers.com
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Background

If there is one word that would describe the COVID-19 pandemic, it is "unprecedented." Whether through a television commercial, political leaders' speeches, or even Instagram, this word was ubiquitous. In fact, when hearing it now, one can become almost sick of it. It really isn't anything personal though. The common annoyance with "unprecedented" partially stems from its overuse, but it also signifies a scary time for everyone. The Oxford Dictionary defines unprecedented as an adjective that describes something "that has never happened, been done before, or been known before."[1] However, it can be contested that while the COVID-19 pandemic was a distinct and unique era, it was not entirely "unprecedented." While this contention may contradict the opening statement, the word "unprecedented" is instead emblematic of the COVID-19 pandemic as a current public health crisis with many commonalities of previous pandemics. In fact, the viral culprit of the COVID-19 pandemic is "SARS-CoV-2", which stands for severe acute respiratory syndrome coronavirus-2.[2] It should be noted that that the "-2" suffix implies that this is the second viral derivative that the healthcare system has managed. Indeed, its parent virus is referred to as SARS-CoV-1, which was responsible for the 2003 SARS outbreak not too long ago and holds 70% genetic similarity to the latter SARS-CoV-2.[3] According to the World Health Organization, roughly 8,000 people worldwide were infected during the 2003 SARS outbreak, of which 774 died.[4] While this is not nearly on the same scale as the COVID-19 pandemic, where 764,474,387 people have been infected, and 6,915,286 people have died to date, it is an overstretch to label the COVID-19 pandemic, as unprecedented as this ignores the other pandemics that humanity has faced.[5]

Nevertheless, there is no intention to be too critical of a simple word choice made by the media. In all fairness, the COVID-19 pandemic was undoubtedly an unprecedented time in many lives worldwide. However, this form of "tough love" calls for proactivity in the forms of research and innovation so that society is adequately prepared for the next pandemic instead of being blindsided by it.

The seminal idea for the topic of this paper stemmed from an article published in the Toronto Star entitled "We know that there will be another pandemic. Here's what four leading Canadian Scientists are doing about it."[6] Here, the idea of "unprecedented" is refused, which is inspiring. These determined Canadians should be applauded for their dedication, persevering to revamp and improve the current health system despite the apparent lack of urgency and interest surrounding the area of pandemic management, albeit not entirely out of the COVID-19 woods. Dr. Allison McGeer, an infectious disease professor of laboratory medicine and pathobiology from the University of Toronto's Dalla Lana School of Public Health, cautions that "There will be another pandemic. Like death and taxes, it's an absolute certainty … It could happen any time between tomorrow and 30 years from now."[7] Inspired, this paper is put forth to not only reflect on this "unprecedented" time, but also to identify pain points and propose solutions to four key sectors of Canada's healthcare system to ensure that it is equipped with the knowledge and resources to extinguish the virulent spread of the next pandemic at its infancy. Specifically, the four areas that will be discussed in this paper are:

1. Managing the concurrent "disinfodemic" – the uncontrolled distribution of misinformation during the pandemic
2. Promoting justice – both its structural and social derivatives – to ensure that scarce resource allocation strategies are fair and equitable.
3. Bolstering healthcare infrastructure to be able to meet the resource-intensive demands of the COVID-19 pandemic.
4. Minimizing the impact of the long-term ramifications of stringent pandemic-related restrictions

1. Navigating the Concurrent "Disinfodemic": Mitigating Uncontrolled Misinformation Propagation Amidst the Pandemic Crisis

Another Canadian researcher that was interviewed for the Toronto Star article is a familiar face at McMaster University, Dr. Gerry Wright. Dr. Wright is a trailblazer in pandemic prevention and

response research and innovation, heading the Global Nexus for Pandemics and Biological Threats.[8] Also based out of McMaster University, this interdisciplinary research initiative brings together scholars from all walks of academia, including but not limited to scientists and medical researchers, experts in economics, political and social sciences, public policy and health officials, Indigenous leaders, and industry partners.[9] A holistic approach to research and collaboration that spans a diverse array of disciplines is advantageous for not only curbing the spread of infection, but also is the antidote that combats the spread of misinformation. Dr. Wright says, "the thing that terrifies me is that a person with an iPhone can think they're an expert … That people think their opinions matter just as much as those of people who've dedicated their lives to understanding science – and that this is now almost a widely accepted concept – is going to result in a super-dangerous future."[10]

Misinformation during the pandemic took many forms. The most salient occurrences involved high-profile politicians and influential political dissenters. For example, former President Donald Trump frequently undermined the advice of science experts, proclaiming that the anti-malaria drug hydroxychloroquine was the "silver bullet" to the treatment of illness caused by COVID-19. From March 1 to April 30, 2020, Donald Trump posted 11 times on Twitter and made 65 White House briefings that accentuated the unproven benefits of such therapies, which directly contradicted the evidence-based efforts of developing and distributing the imminent COVID-19 vaccine.[11] Trump's social media presence and voice alone elicited an amplification cascade across media outlets, garnering 300% more impression reach than his usual tweets and more than 2% of airtime of conservative networks.[12] In turn, purchases of hydroxychloroquine and its analogs surged on Amazon by over 200%.[13] Another study showed a grim and strong correlation between the degree of approval of Donald Trump and the case fatality rate associated with the COVID-19 pandemic.[14] While these statistics are shocking, blame mustn't be placed on the public. The masses were bracing for the unknown, doing everything within their control to prepare for the harsh waves of COVID-19. Instead, this highlights the pitfalls of combining politics with science, a critical lesson that can be taken

away from this period. The sway of public opinion during a vulnerable time by powerful influencers via unregulated social media streams had adverse and profound effects, stressing the importance of evidence-based discussion. Wright's concerns are clearly justified.

In his Toronto Star interview, Wright admits that he "understands molecules. I don't understand people."[15] In an effort to do so, the Global Nexus for Pandemics and Biological Threats strips down departmental silos to allow for the spread of accurate, evidence-based information between experts from diverse fields of study. More specifically, "this new school tries to marry both the social sciences and humanities with biomedical and clinical research. Because, to me, that was the biggest gap of the last three years."[16] It is surprising that one of the most significant pain points of the COVID-19 pandemic had really nothing to do with the virus itself, but its hosts (the people). The COVID-19 pandemic not only separated us physically but also divided and pitted us against each other and the government, which further compounded the frustrations and struggles of the pandemic.

Furthermore, not only did misinformation promote unproven therapies, but it also stirred mistrust regarding the COVID-19 vaccine. Most hospitals in Ontario were intolerant of vaccine hesitancy of its healthcare workers, enforcing strict vaccine mandates. These policies aimed to prioritize the safety of the patients as well as the healthcare workers in the hospital setting where outbreaks were frequent and had the potential to wreak havoc. However, this policy also disenfranchised healthcare workers who were genuinely concerned about the COVID-19 vaccine, which could have stemmed from misinformation or other factors.[17] Consequently, many crucial frontline healthcare workers took indefinite leaves of absence from their job, which was especially unideal during the pandemic where human resources were limited. However, Sunnybrook Hospital took an alternative approach to overcoming vaccine hesitancy, which resembles the model developed and promoted by Wright and his team at McMaster University.[18] Through "friendly persuasion," internist Dr. Adina Weinerman debunked misinformation regarding the COVID-19 vaccine. She translated jargon-heavy evidence-based research into health literacy that was

understandable to all healthcare workers at Sunnybrook. As part of her initiative, Dr. Weinerman trained roughly 100 "vaccine champions" to have one-on-one conversations and group huddles with people who could ask questions about the vaccine in a safe and confidential environment.[19] This approach is practical as it does not marginalize and outcast those who are vaccine-hesitant, stripping them of their jobs and livelihood during a stressful time, but instead empowers them with the necessary information required to make an informed decision. Through the deployment of these sessions, Sunnybrook reported that over a thousand of its employees engaged in the program, and that their percentage of vaccinated healthcare workers soared to 95%.[20] From doubtful to decisive, Weinerman and her team created a positive impact that not only allowed Sunnybrook's employees to make decisions about their health on their own accord, but also maintained its workforce on the frontline to ensure that the quality of care delivered to its patients was not compromised.

2. Fostering Justice for Equitable Allocation: Addressing Structural and Social Dimensions in Scarce Resource Distribution

Moreover, spreading and consolidating misinformation is not the only factor of COVID-19 vaccine apprehension. In a US survey-based study by Fisher et al., the investigators showed that out of 991 adult respondents who were asked, "When a vaccine for the coronavirus becomes available, will you get vaccinated?", 10.8% reported "no," while 31.6% reported "not sure."[21] In this same study, it was revealed that there were statistically significant differences in the attitudes towards the COVID-19 vaccine between Black and White participants, and that 32.5% of participants refused the vaccine due to a lack of trust of vaccines, governments, pharmaceutical companies, and vaccine development or testing processes.[22] Vaccine hesitancy is a complex issue stratified by social determinants of health, another compelling reason for Wright's interdisciplinary-based solution. Implicit biases are seeded throughout healthcare, and it is vital to weed out systemic racism to ensure that healthcare is

universally accessible and equitable. Another survey-based study by Thompson et al. showed similar results except on a much larger scale, surveying 1835 adults in Michigan.[23] This study took place in a latter phase of the COVID-19 pandemic, indicating that a greater proportion of people are more unwilling to be inoculated by the COVID-19 vaccine (945 participants; 52%).[24] Black participants reported the highest medical mistrust score with a statistically significant result.[25] Empirical evidence suggests that the COVID-19 pandemic disproportionately affected racialized individuals with respiratory comorbidities associated with structural injustices in the healthcare system.[26] Mistrust is only one factor involved in the interplay of racial health disparities observed during the COVID-19 pandemic. Several community partnership-based solutions to this complex healthcare issue include large-scale grassroots initiatives that foster meaningful relationships between healthcare institutions and community-based organizations to form trust.[27] Another approach that has been documented as effective involves allocating funding to community-based organizations to 1) support the career development of people of colour in healthcare and 2) to promote transparency of governmental contracts involving vaccine procurement and distribution by mandating contracts with Black-owned businesses.[28] Through these meaningful actions, the understanding gap between science and people can be filled, which marries utilitarianism with social justice to maximize the benefit of the COVID-19 vaccine for all, irrespective of their racial and ethnic backgrounds.

The marginalization and disenfranchisement of racialized groups stemming from vaccine hesitancy due to historical mistrust in healthcare is not the only injustice that took place during the pandemic. The next topic to be discussed is triaging strategies during the COVID-19 pandemic. Previously, utilitarianism was mentioned, which is an ethical theory that suggests that the most ethical action elicits the greatest benefit for the greatest number of people.[29] During periods of scarcity, like the COVID-19 pandemic, this approach is often embraced as the *modus operandi* to ensure that the maximal number of lives or life-years are saved. On the surface, this approach seems morally reasonable. However, public health directives achieve

this by de-emphasizing the quality of care at the patient level. Instead, they factor in population-based factors, including the probability of survival, the duration of treatment, and the estimated number of resources consumed by the patient during their hospital stay.[30] As a result, younger patients with a better prognosis are typically prioritized due to their more favourable prospect of survival and shorter hospital stay, resulting in fewer healthcare resources consumed and a more efficient patient throughput. This notion was transcribed into the backbone of Ontario's critical care triage protocol for major surges during the COVID-19 pandemic.[31]

According to the Canadian Medical Association, triage is the "process for determining which patients receive which treatment and/or which level of care, and under what circumstances, when resources are scarce."[32] To "save the most lives in the most ethical manner possible," triage systems at hospitals in Ontario were informed to place cancer patients and elderly patients over 65 years old with progressive diseases requiring day-to-day assistance at the back of the queue.[33] Putting this into perspective, nearly 1.4 million Canadians are at least 70 years old and live alone with a disability.[34] To make matters worse, 20% of Canadians fall victim to the "digital divide," meaning they do not have access to the Internet, and 50% of Canadians with a disability require daily assistance with living tasks.[35] The Public Health Agency of Canada recognizes the systemic barriers to healthcare that these individuals face regularly and are now exacerbated by the COVID-19 pandemic restrictions.[36] As a result, these disadvantaged groups were labeled as "vulnerable" in an effort to call for further action by the healthcare system to ensure that no one falls through the cracks during this difficult time.[37]

In contrast, Ontario's critical care triage protocol blatantly neglects these groups, employing ageism and ableism over advocacy and equity. While this may be water under the bridge now, this injustice should stand as a stark reminder for the next pandemic to implement policies that do not exclude anyone from their fundamental civic and human right to healthcare. The civil rights office of the US Department of Health and Human Services issued a statement that effectively consolidates this lesson, stating that "persons with disabilities … should not be put at the end of the line

for health services during emergencies. Our civil rights laws protect the equal dignity of every human life from ruthless utilitarianism."[38] No matter how scarce resources may be, lives from disadvantaged groups should not be traded off for other lives that have potentially a greater chance at survival, thereby reinforcing the lesson learned for the next pandemic that justice should be promoted to ensure that scarce resource allocation and rationing strategies are fair and equitable.

3. Strengthening Healthcare Infrastructure to Address the Resource-Intensive Challenges of the COVID-19 Pandemic

Moreover, triage as a topic of discussion transitions into the third lesson learned from the COVID-19 pandemic, which is that the current healthcare system needs to be bolstered to ensure that it is equipped to handle the resource-intensive demands of the pandemic. At the outset of the COVID-19 pandemic, supplies of personal protective equipment (PPE) quickly diminished, resulting in a nationwide shortage of arguably the most important healthcare resource that mutually protects the patient and the healthcare provider from COVID-19.[39] For the next pandemic, it is paramount that healthcare systems ensure that they have adequate supplies and manufacturing capabilities in place to mitigate the risk of this shortage reoccurring. In the face of uncertainty, other industries and groups stepped up, which aligned with the Global Nexus for Pandemics and Biological Threats initiative's vision and was quite inspiring to observe.[40] For example, the London-Middlesex Primary Care Alliance swiftly responded to imminent shortages of PPE for the primary care physicians in their jurisdiction.[41] A group of volunteers, physicians, and medical students formed a multidisciplinary collaboration where they mobilized efforts to acquire and redistribute community donated-PPE in the London-Middlesex region. In their four-week operation, the group procured and re-distributed over 118,000 gloves, 13,700 masks, 700 wellness kits and reusable cloth masks and gowns.[42] During a time of physical isolation, this grassroots initiative displayed unity for a common cause, resulting in

a meaningful difference that directly benefited their community's primary care physicians.

Furthermore, multidisciplinary teams coalesced to develop and fabricate alternative solutions that could act as safe and suitable substitutes to conventional gold-standard PPE. Several groups around the world simultaneously developed their iterations of a retrofitted full-faced snorkel mask that had dual purpose: 1) to allow for adequate and safe respiration via repurposed medical grade anesthesia filters, and 2) to protect all facial mucous membranes that were potential entry points for the virus, including the mouth, nose, and eyes.[43] Within the McMaster community, the faculty of Integrated Biomedical Engineering Program provided tremendous support to student-led initiatives, offering their facilities for 3D printing. In collaboration with Dr. Michelle MacDonald, Hamilton Health Sciences, and Liburdi Engineering, an engineering firm located nearby in Dundas, Ontario, my brother Matthew and I developed a similar 3D printable mask.[44] Collectively, we mass-printed and distributed over 100 do-it-yourself respirators to North American hospitals and ICUs. We were awarded a COVID-19 Community Response Award from the Government of Ontario for our work. To support Ontario-born initiatives like this, Ontario Health launched the "Ontario Together Fund", which we applied for to request funding and facilities that would allow us to run appropriate and rigorous testing of our functional prototype.[45] The collaboration of many different organizations and industry leaders to produce effective solutions was the "silver lining" of the PPE shortage at the outset of the pandemic. It demonstrated society's ability to be resilient and collaborate in the face of hardship, social distancing, and health resource scarcity. Nevertheless, healthcare planners need to ensure that they do not encounter another issue like this, potentially forcing suboptimal solutions that could put patients and their care providers in harm's way.

Moving on, the COVID-19 pandemic weighed heavily on the healthcare system, which calls for a solution that bolsters it to be more resilient and adaptable in future pandemics where there will also be similar surge capacity scenarios. Dr. Srinivas Murthy, another Canadian research leader that was interviewed in by the Toronto Star,

focuses his research on this area of emergency preparedness. He admits that "we thought we had a health system that would be ready for an emergency … we were unable to adapt. We need to figure out why our system doesn't have the resiliency it needs."[46] A modelling study published in the Canadian Medical Association Journal demonstrates that Ontario hospitals that were responsive and implemented early infection control methods did not deplete their hospital inventory of health resources.[47] However, hospitals that experienced a delay in implementing changes such as physical distancing were projected to deplete their inventories within 14-26 days, resulting in the avoidable and devastating loss of 13,321 patient lives.[48] The investigators advise that these adverse outcomes can be circumvented with aggressive measures that aim to increase the number of ICU beds, ventilators, and acute care hospital capacities.[49] Another simple yet effective solution is an Excel-based tool proposed by Krylova et al., which uses a S(usceptible)-E(xposed)-I(nfected)-R(emoved) model coupled with vaccination status to simulate and forecast the case count of COVID-19 in the community, and the resulting demand for hospitalizations, intensive care unit beds, ventilators, health care workers, and personal protective equipment.[50] One of the advantages of this tool is its versatility and customizability due to its over 40 parameters that can be adjusted to the specific needs and nuances of the community as well as the timeline of the pandemic.[51] With pandemic planning tools like this one, hospitals can be proactive and ensure that they have adequate supplies and resources to manage foreseeable outbreaks of COVID-19 or the next pandemic, which has the potential to save many lives. The goals of these solutions align with Dr. Murthy's research interests and goals, which are to create a centralized national platform that shares data about hospitalizations with severe acute respiratory infections between hospitals.[52] Currently, this data is either missing or its reach and validity is limited by jurisdictional siloes, and so it is impossible to take a collaborative and data-driven approach to decision-making during these stressful times.[53] He also wants to initiate and conduct rapid clinical trials around pandemic preparedness to improve routine hospital care.[54] This "trial and error" approach during a non-pandemic time will enable hospitals to quickly and proactively

optimize their routine to surge scenarios to ultimately bolster their resiliency. Overall, the lesson to take away from the health crises involving PPE and hospital surge capacity and other finite resources is that Canada must strengthen the infrastructure of the current healthcare system so that it can withstand the resource-intensive demands of the next pandemic.

4. Mitigating Long-Term Ramifications: Strategies for Minimizing the Impact of Stringent Pandemic-Related Restrictions

The final lesson learned from the COVID-19 pandemic is to consider the long-term ramifications of stringent pandemic restrictions to minimize their collateral impact. The two areas that will be discussed in this context are social distancing and quarantine, as well as the cancellation of surgeries. To start, it is essential to acknowledge that the COVID-19 pandemic, especially its social isolation, took a severe toll on the mental health of all. The lockdown halted all aspects of life, such as outdoor social movement and in-person socializing events, restraining people to the bounds of their home properties. Coupled with job insecurity and economic turmoil, loneliness, depression, and anxiety ensued, warranting the "looming mental health pandemic in the time of COVID-19."[55] A study by Pretorius et al. found that in a total of 337 young adults in South Africa, 73.3% reported symptoms of anxiety in the clinically significant range, and 71.8% reported severe loneliness during the pandemic.[56] This works also suggests a causal relationship between the pandemic restrictions and these adverse symptoms, finding that these elevated levels of loneliness, anxiety, and reduced life satisfaction are statistically significant compared to pre-pandemic times from similar groups.[57] Even more saddening is the findings by Goto et al., which show a major spike in youth suicides during the pandemic compared to pre-pandemic levels.[58] The investigators suggest that this was due to disruptions in social life and underlying mental health issues exacerbated by the stressors from the pandemic.[59] While these restrictions played an essential role in curbing the spread of COVID-19 and subsequent hospitalizations to

prevent hospitals from being overrun (another reason to bolster hospital infrastructure would be to lessen the severity of pandemic restrictions), it is evident that a major toll was taken on youth's mental health. This necessitates a balanced solution for the next pandemic that weighs both physical and mental health. Anecdotally, my virtual volunteer experience with Hamilton youth revealed the pitfalls of the abrupt transition to virtual learning. Specifically, technology is not universally accessible; the "digital divide" further isolates at-risk youth.[60] Some children could not call into the program because their household had only one computer that was being used. Therefore, policymakers must be cognizant of how the pandemic restrictions may disproportionately disadvantage marginalized groups.

Furthermore, not only did pandemic restrictions halt all aspects of society, like in-person social interactions, but it also cancelled essential healthcare services like surgery. On March 15, 2020, Ontario's Ministry of Health ordered all hospitals in Ontario to "ramp down elective surgery and all other nonemergent clinical activity." This directive was mandated to ration scarce healthcare resources to be diverted to the frontline and to minimize exposure of frontline healthcare workers to COVID-19. I personally witnessed the repercussions of this policy during my co-op work term with the Surgical Oncology Program at Cancer Care Ontario. Attending weekly meetings with Ontario's Regional Cancer Leads, I became aware of the challenges of COVID-19 in each jurisdiction. While there were benefits to ramping down surgeries where the COVID-19 case count was high, surgeries were being cancelled at hospitals, such as in Northern Ontario, where cases were low. Thus, this policy was argued to be overkill. Surgeons expressed concerns over the province-wide cancellation of surgeries, prolonging surgical intervention and increasing the surgical backlog. Inspired by their leadership and advocacy, I put forth my best effort towards learning about the role that public health organizations play and being a part of their mandate. Working with colleagues, we addressed the enormity of the incremental surgical backlog caused by the COVID-19 pandemic. Our efforts resulted in a well-publicized article in the Canadian Medical Association Journal that modelled the enormity of surgical backlogs and the projected timing required to clear the

backlogs, providing rigorous modelling techniques.[61] The results forecasted that the estimated backlog in Ontario was 148,364 surgeries between March 15 and June 13, 2020, with an average weekly increase of 11,413 surgeries.[62] In addition, it was estimated that it would take 84 weeks to clear this backlog, which would incur 719 operating hours, 295 ward beds, and nine intensive care unit beds each week.[63] In another study, the researchers estimated that clearing Canada's surgical backlog would cost additional 1.3 billion dollars per year.[64] Clearly, the ripple effects of this ramp-down are substantial and should have been considered earlier.

However, it is unfair to criticize the cancellation of surgical procedures during this time, considering healthcare planners had no idea what the future of COVID-19 had in store for us. This paper suggests that this be a lesson learned for the healthcare system when it faces this dilemma in future pandemics. Ontario Health eventually resumed surgeries at hospitals in a monitored, careful "phased approach." Still, this rollout plan was slow, and the effects of this vast cancellation on the healthcare system and patients are just beginning to be realized.[65] In another study published in the CMAJ, it was revealed that the pandemic-related ramp-down of surgeries is expected to decrease the long-term survival for many patients with cancer.[66] Overall, while it is important to prioritize public health during the pandemic, pre-existing health issues like mental health and cancer do not resolve during this time. The stringent pandemic restrictions inflicted collateral damage that is now becoming evident. So, a lesson must be learned from this to ensure that a measured and quality-based approach is taken to ensure that everyone's safety, health and well-being is prioritized.

Conclusion

In this paper, four lessons are discussed regarding the COVID-19 pandemic, aiming to improve the healthcare system to ensure that the next pandemic is not an "unprecedented" crisis. The first lesson is inspired by Dr. Gerry Wright: it is equally as important to combat the concurrent "disinfodemic," which can have adverse outcomes on public health and create division during a vulnerable

period. The second lesson to take away is that no matter the difficulty of the situation, particularly regarding resource scarcity, morality should not be sacrificed, and instead justice and equity should be upheld so that health disparities for vulnerable groups are not exacerbated during the pandemic. The third lesson to implement for the next pandemic is that the current health system must improve its infrastructure to be more resilient and adaptable to the volatile resource-intensive demands of the pandemic to ultimately be more prepared to save more lives. Finally, when mandating pandemic restrictions to curb its spread, it is essential to consider the long-term repercussions of such a policy, which organically motivates planning to minimize the collateral damage of the pandemic, such as increased mental health illness, financial and resource burden on the healthcare system, and the reduced long-term survival of cancer patients. While acknowledging a certain degree of hypercriticism towards the decisions and outcomes of the COVID-19 pandemic, the intention behind it is to express "tough love" and ensure preparedness for managing future pandemics. Beginning to see the light at the end of the tunnel, it is worth acknowledging humanity's ability to unite, collaborate, endure, and support one another during this challenging time. The hope is that the lessons learned from the COVID-19 pandemic will lead to positive changes for the future of society.

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Detecting Parkinson's Disease Using Machine Learning from Movement and Memory Data

Emma Richard [a*], Mary Kelly [b]
[a] Department of Cognitive Science, Carleton University
0000-0003-1164-6862
[b] Department of Cognitive Science, Carleton University
0000-0002-6541-2992

ABSTRACT: This study explored the potential of machine learning techniques, specifically decision trees and artificial neural networks (ANNs), to detect Parkinson's Disease (PD) using data collected from the mPower mobile iOS app. Released in 2016 by Sage Bionetworks, mPower enables individuals, both with and without PD, to assess their cognitive and physical abilities through various tasks related to memory, tapping, voice, and movement. The main focus of this study is on the walking task within the app's version 1.0 build 7. Participants were required to walk unassisted for approximately 20 seconds in a straight line, followed by a 30-second period of standing still, and then returning with 20 seconds. The smartphone's accelerometer and gyroscope captured three-dimensional (3D) rotation data (x, y, z) during these movements, with the device placed in the participant's pocket or bag. A convolutional neural network was applied to the movement dataset to assess confirmed PD cases, utilizing accelerometer and gyroscope readings during outward walking, return walking, and rest periods.

KEYWORDS: Parkinson's, artificial intelligence, movement, memory

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* Corresponding Author - Email Address: emmarichard@cmail.carleton.ca
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PD occurs spontaneously, as it affects the nervous system based on motor and non-motor symptoms.[1] The exact cause in most cases is not known or may not be attributed to a specific external factor, but it does not negate the presence of prodromal symptoms or other factors that can contribute to its development. It mainly affects older adults and is less common for people under 40 years old, and it is the second most common neurodegenerative disorder.[2] If you are diagnosed with PD under 40 years old it is considered early onset and it tends to be because of genetics.[3] The main risk factors related to PD are aging, genetics, and exposure to chemicals in the environment.[4] A known environmental risk factor is exposure to the pesticide paraquat, which is used to control weeds.[5] There have been animal models that show similar pathology to PD when they are exposed to paraquat. These models would show animals having an increase in anxiety one-week post-treatment and impaired motor skills 3 weeks post-treatment.[6] There are other neurodegenerative diseases that are similar to PD, such as Dementia with Lewy Bodies or Multiple System Atrophy, but what separates PD is the tremor at rest, rigidity, slowed movement, and poor posture.[7] There are about 60,000 new cases of PD diagnosed each year and 7-10 million people are affected worldwide.[8] When diagnosing PD, it is mainly based on the symptoms because there are no definitive tests to classify it.[9] It can be expensive to diagnose PD because doctors have to eliminate other neurological diseases to correctly diagnose the patient with PD, this can take hours to days.[10] PD typically starts with non-motor symptoms such as depression or anxiety and progresses into the patient having motor symptoms such as slowed movement or akinesia.[11] The later stages of PD can result in the patient having dementia due to the degradation of the midbrain.[12]

Released in 2016, Sage Bionetworks created a mobile iOS app called mPower to allow people with or without PD to measure their cognitive and physical capabilities. They created various tasks that people could complete on the app regarding memory, tapping, voice, and movement. All of these tasks are related to deficits in people with PD. This study will focus mainly on the walking task, where in version 1.0 build 7 the participant was required to walk unassisted for about 20 seconds in a straight line then stand still for

30 seconds then walk 20 seconds back. Any updates to the mPower app after version 1.0 build 7 did not include the participant required to walk 20 seconds back. The participant's phone was asked to be in their pocket or a bag. While using smartphones in pockets or bags may not achieve the same precision as attaching sensors to specific body segments, it remains a valuable and practical approach for movement data collection in certain research settings. The accelerometer and gyroscope data from the phone can capture important features related to walking, gait patterns, and tremors related to Parkinson's disease classification. The motion documentation from the device recorded the phone's three-dimensional (3D) rotation in an (x,y,z) plane based on the movement detected. There is also a demographics survey that asks for the participant's personal and medical information.

Related Work

Previous research has been conducted on the classification of PD using movement data, particularly through the utilization of mPower. In a study conducted by Zhang et al., it was discovered that individuals with PD exhibited shorter steps accompanied by longer strides, along with the presence of a resting tremor. Additionally, Zhang et al. identified certain correlations, such as education level, marital status, and retirement, which may serve as proxy measures for age. However, no correlation was found between the severity of symptoms and the duration of the disease since diagnosis. To achieve optimal model performance, it was recommended analyzing data from participants who engaged with the iOS app between 3 to 5 times.

In a similar vein, Pittman et al. conducted a study focusing on the classification of PD using movement data collected via mPower. To evaluate the data, they employed a 10-fold cross-validation technique. The results indicated that Pittman et al.'s logistic regression model achieved an accuracy of 79%, k-nearest neighbors exhibited 75% accuracy, grid search for a decision tree yielded 86% accuracy, and support vector classification demonstrated 82% accuracy. It is worth noting that a bias was identified in models

predicting a positive PD diagnosis, as there were no features employed to indicate a negative PD diagnosis.

As well, Mehrang et al. leveraged the mPower dataset to investigate the potential of machine learning in distinguishing participants with PD from those without PD based on movement data. Notably, when analyzing the data, they only considered a single measurement from participants with multiple entries. To mitigate confounding variables such as medication time and time of day, Mehrang et al. repeated a random selection of movement data 100 times. The study findings revealed that PD could be accurately recognized, and the utilization of smartphones for remote movement monitoring showcased promise in refining PD diagnosis.

In a similar investigation, Giuliano et al. focused on classifying PD based on voice recordings obtained from mPower. Participants recorded themselves saying "/a/," and their voice data was combined with demographic information, including age, sex, years since diagnosis, and medication start year. The study included 2,253 participants with unique health codes, all of whom were aged 35 or older. After removing inconsistent data based on the time of diagnosis and medication, the final dataset consisted of 933 participants with PD and 1,289 participants without PD.[13] The models were divided into 70% training data and 30% testing data. To simplify the analysis, the researchers reduced the number of vocal parameters from 62 to 5. Utilizing a two-layer multilayer perceptron network with the 5 vocal parameters, along with age and sex as additional attributes, Giuliano et al. achieved an accuracy of 76%. Furthermore, using the same attributes with a logistic regression model, they achieved an accuracy of 73%. These findings highlight the potential of using voice recordings and demographic data to classify PD accurately.

In the context of the current study, it is important to consider the significance and relevance of these related studies in shaping and advancing the research landscape in PD classification using movement data. By acknowledging the contributions of these previous works, the current study can build upon existing knowledge and contribute to the continued progress in this important area of research.

Methods

Movement Dataset

The mPower walking dataset from Sage Bionetworks consists of 3,101 unique participants: 658 participants have a confirmed diagnosis of PD, 2165 participants have not been diagnosed with PD, and 278 participants did not fill out if they have been diagnosed with PD. There are 35,410 unique records of the walking task, in 24,001 of these tasks the participant has a diagnosis of PD, which is 67.7% of unique tasks. We reduced the number of unique records to 21,046 rows to make sure we had a 50/50 split of participants with a PD diagnosis and participants without one. We removed every other datapoint that was recorded by the accelerometer and gyroscope in order to use our data with the convolutional neural network.

Participants who had a professional diagnosis were asked to complete the walking task three times a day, right before taking their medication, after taking their medication, and at another time of their choice. The participants who did not have a professional diagnosis of PD were asked to complete the walking task 3 times a day, but could do it at any time. The participants could also complete other tasks that involve memory, tapping, and vocals. Each participant was asked to fill out a demographics survey indicating their medical history, if they have been professionally diagnosed with PD, the year of diagnosis, and socio-demographic factors such as age, sex, employment, etc. There were 6,805 people who filled out this survey and each participant had a unique healthCode identifier that was matched to their results on the walking activity. The use of an iPhone during the walking task allowed there to be an accelerometer and gyroscope to detect the rotation of the device during movement. This can help recognize slowed movement, tremors, stiffness, and poor coordination. When trying to classify PD we used a 10-fold cross-validation and splitting the data uniquely by healthCode IDs into 70% training and 30% testing we analyzed the data using a convolutional neural network.

Convolutional Neural Network for Walking Dataset

To test if movement data is able to detect Parkinson's we used a pre-existing convolutional neural network from Brownlee. The creators used the convolutional neural network for human activity recognition based on if a person is walking, walking upstairs, walking downstairs, sitting, standing, or laying. Brownlee used the human activity recognition dataset from Davide Anguita, et at. at the University of Genova. From the mPower dataset we used the recordings of the accelerometer and gyroscope of outbound, rest, and return from the participants on the convolutional neural network. The mPower movement data was manipulated through a Python script that we created to split the data into fixed windows of 2.56 seconds, which is 128 data points, with a 50% overlap. We did this because this is how the convolutional neural network was programmed to receive data. When training and testing the convolutional neural network, we had to match when the timesteps were being recorded to when the timesteps were being recorded in the example dataset for the convolutional neural network. In the example dataset their timesteps were being recorded every 0.02 seconds and in the mPower movement dataset they were being recorded around every 0.04 seconds. The number of times that timesteps the were being recorded for the mPower movement dataset were around double the number of times they were being recorded in the example dataset used in the pre-existing code. We were able to use every other timestep in the mPower movement dataset to reduce the number of times the timesteps were being recorded to around 0.02 seconds, which is a close match to the example dataset. We split the data up into 70% training and 30% testing and so there is a 50/50 split between participants having a Parkinson's diagnosis and participants not having a Parkinson's diagnosis. In order to prevent bias each healthCode ID only appeared in either training or testing. There are a total of 9 features that we used in the model. First, is the total acceleration from the phone's accelerometer in gravity units for the x, y, and z coordinates. Next, we use the body acceleration from the phone's x, y, and z coordinates, we calculated this by subtracting the gravity from the total acceleration. Last, we use the angular velocity from the gyroscope for the x, y, z coordinates, this is considered the body gyroscope reading in radians per second.

Outcome Matrix

The outcome matrix used for each test using demographics and movement data was accuracy. Accuracy is the sum of correct predictions (true positives and true negatives) divided by the total number of predictions. A high accuracy indicates that the model is making accurate predictions, while a lower accuracy suggests that the model is not performing well on the given dataset, with 100 being the highest accuracy. Therefore, we had an accuracy for each individual test ran.

Results

Classification of Parkinson's Diagnosis using Movement Data

Classifying PD based on outbound movement data resulted in a 71% accuracy and 63% accuracy for when the participant was resting when using a convolutional neural network. Using the convolutional neural network to detect PD based on return movement data resulted in 68% accuracy based on 16,482 rows. The data manipulations for return were the same that was used for outbound and rest. For outbound, rest, and return the convolutional neural network ran 10 times and the final accuracy was the mean of the 10 trials (see figure 1). When combining the data for outbound and return it resulted in 71% accuracy based on 37,528 rows using the convolutional neural network.

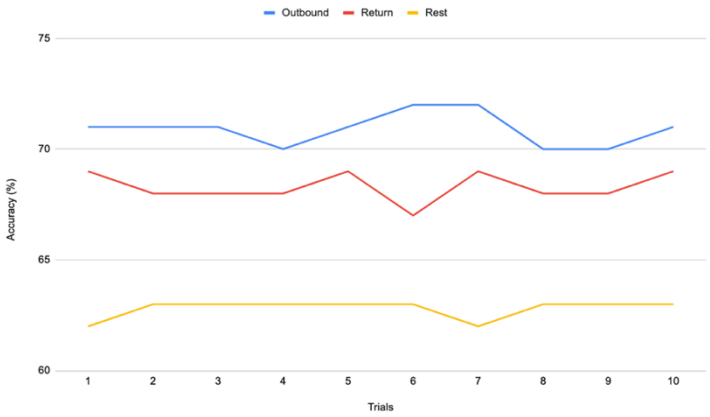

Figure 1. The comparison between the accuracy of each trial tested for outbound, rest, and return of the convolutional neural network.

Type of Model	Test Option	Attributes Used	Accuracy(%)
Decision Tree	10 Fold Cross-Validation	Demographics	97
Decision Tree	80/20 healthCode ID Split	Demographics	99
ANN	10 Fold Cross-Validation	Demographics	91
ANN	80/20 healthCode ID Split	Demographics	99

Table 1. Summary of the results when classifying PD with decision trees and ANNs using a 10-fold cross-validation test and splitting the data uniquely by

Classification of Parkinson's Diagnosis using Demographics

When using the 10-fold cross-validation for detecting a confirmed PD diagnosis (see Table 1) for the decision tree we got 97% accuracy when only demographic data was used to train the model. When using the 10-fold cross-validation for detecting a confirmed PD diagnosis for the ANN we got 91% accurate when only demographic data was used to train the model.

When testing the models with demographic data we used their age, education, employment, gender, marital status, and if they smoke. The results of splitting the dataset into 80% training and 20% testing uniquely by healthCode IDs for the decision tree were 99% accurate for the demographic data. Splitting the dataset into 80% training and 20% testing uniquely by healthCode IDs for the ANN were 99% accurate for the demographic data.

Discussion

For both the decision tree and ANN, the accuracies are highest (99%) when trained on demographics data when splitting the data uniquely by healthCode IDs. Since the results of splitting the data uniquely by healthCode IDs were just as high as the 10-fold cross-validation, this shows that the 10-fold cross-validation test was not just using overfitting to specific participants and using training data from a given participant to recognize the participant again at test.

Instead, the models are able to predict PD from participant demographics even given new participants not seen before. The attribute that is most informative when looking at detecting PD using demographics is age, as the decision tree splits the data by participants younger than or equal to 49 or if they are older than 49. Age is an important attribute when classifying PD because PD is much more common in older adults than in younger people. Another attribute that is important when classifying PD in decision trees is employment. I think employment is an important factor in classifying PD because a retired participant is more likely to be >60", resulting in higher chances of having PD. Additionally, education is another attribute that is important when classifying PD, this might be because people with higher education may have access to more resources to get diagnosed with PD than someone with little or no education. When looking at outbound, rest, and return for the movement data, the convolutional neural network was the most accurate at 71% for outbound movement. The amount of data used for outbound and rest was the same; however, the amount used for return was less since versions created after 1.0 build 7 of the mPower app did not include return. In the future, when trying to classify PD using movement data, I would recommend synthetically generating more movement data so the convolutional neural network would have more data to analyze, which could increase the accuracy.

Conclusion

Through leveraging a convolutional neural network, we surpassed chance-level classification by incorporating outbound, resting, and return movements. The ability to employ machine learning for PD classification holds promising implications, such as enhancing testing efficiency. Advancements in this area have the potential to help classify PD accurately, with discussions focusing on distinguishing early, mid, and advanced stages of the disease. Examining the robustness of the algorithm to classify the same person into the same category would be a valuable avenue to explore and discuss. The potential link between younger age and lower levels of education raises important considerations. Describing the population

under study, ensuring the balance of two groups (gender, age-matched), and verifying potential correlations between factors are essential aspects that require further exploration and clarification. Addressing these issues would enhance the reliability and applicability of the findings in real-world scenarios and contribute to the understanding of PD classification using movement data.

Notes

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