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Global Health: Annual Review

Photo Courtesy of Kaleigh Beauvais

McMaster University

Land Acknowledgement

Global Health: Annual Review (GHAR) is a student-led, open-access, and peer-reviewed journal housed at McMaster University. Before delving into this year's issue, we want to take a moment with you to give honour and thanks to the Haudenosaunee and Anishinaabe nations who are the traditional inhabitants of the lands upon which McMaster University stands. We acknowledge the enduring presence of First Nations, Inuit, and Métis people on Turtle Island, and as guests, we are fortunate enough to live, work, and learn on their beautiful land.

Through GHAR, we hope to highlight and engage in some difficult conversations about global inequities, and while that might seem divorced or separate from Indigenous issues, the reality is that the struggle for Indigenous rights and sovereignty is deeply connected to all global health work. We understand that GHAR is an academic undertaking, and that traditionally, systems of academia and research have been levied to further dispossess Indigenous people of their territories and take away their self-determination rights.

Today, we stand in solidarity with Indigenous people all around the world who are fighting for their freedom and sovereignty.

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Letter to the Reader

Dear Reader,

Welcome to the sixth issue of the Global Health: Annual Review (GHAR). GHAR is a student-led open-access journal housed at McMaster University. Through the journal, students, graduates, and young professionals in the field of global health are able to share their work, increase its reach, and broaden its impacts. GHAR is the brainchild of the alumni of the Master of Science in Global Health Program at McMaster University, who wanted a platform for sharing scholarly work internally amongst students. Since its inception in 2015, GHAR has expanded substantially to include the larger global health community in its contributions and scholarship.

For Issue 6, the editorial team furthered GHAR's progress and made some significant changes. We introduced a double-blinded peer-review process and facilitated workshops for researchers and new scholars. Most notably, we widened our submission criteria and decided to focus more heavily on lived experiences. While the editorial team understands the need to preserve the integrity of health research, we also recognize the value of anecdotes and story-telling in our field. We are proud to present an issue of 43 pieces total, including research articles, opinion editorials, reflective narratives, and art-based submissions for your enjoyment and learning.

The global health field is diverse and encompasses numerous realms, and our issue this year is reflective of this very reality. We focus mainly on five key areas: Health Equity, Health Policy, Maternal and Child Health, Innovations and Empowerment, and finally, COVID-19. These themes are not static, rather, the work contained within them has been curated intentionally to highlight their intersectionality and interplay with one another.

We have spent close to a year labouring over, and crafting this issue for you – we hope its insights nourish your knowledge, inspire your learning, and furnish your curiosity. Creating this issue has been an undertaking catalyzed and pronounced by your continued interest and support in our journal.

On behalf of the authors, contributors, and the entire editorial team, we offer you our thanks and immense gratitude.

Sincerely,

Global Health: Annual Review Editorial Team, Issue 6

HUNSTER YANG
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Editorial Team 2020-2021

Editors-in-Chief

Tanya Tewari is very excited to serve as an Editor-in-Chief and create positive impacts in the global health community through GHAR this year. She is passionate about building cultural bridges and is an avid advocate for open-access publishing. This year, she is taking a hiatus from her Juris Doctor candidacy to pursue her Doctor of Medicine (M.D) at the University of British Columbia. Tanya holds a Masters degree in Global Health from McMaster University, with a specialization in Globalization and Equity. Some of her recent global health projects include raising mental health awareness in northern Canadian communities, research into traditional medicine systems in India, and human resources for health development in the Caribbean. When she is not in a Zoom meeting or buried in books, Tanya enjoys neo-soul music, hearty bowls of ramen, Blue Mountain coffee, and exploring cities that are big and small (all at once).

Hunster Yang is grateful to serve as one of the Editors-in-Chief for GHAR this year. With a passion for health equity and community engagement, Hunster is currently a second-year medical student at the University of Toronto. He also holds a Master of Science in Global Health degree from McMaster University and a Bachelor of Science with an Honors Specialization in Neuroscience from Western University. Some of his interests include immigrant and refugee health, social and structural determinants of health, youth health, community-based participatory action research, and mental health. Outside of work, Hunster enjoys travelling, hiking, breaking out of escape rooms, and exploring new cuisines.

Junior Editors

Hannah Girdler holds an M.Sc. Global Health from McMaster University. She currently works as a Program Coordinator with the Global Health Emergency Medicine program, supporting various education and research initiatives locally in Toronto and internationally in Addis Ababa. She has previously conducted research on ageing, climate change and human migration, and has been an active contributor to public health policy and advocacy.

Ramya Kancherla is a third-year General Surgery resident at McMaster University. She has a longstanding passion for global health, completing her undergraduate in Health Sciences with a specialization in global health. She previously worked for the United Nations Joint Commission on HIV/AIDS, the World Health Organization, and has represented Canada's youth at the World Health Assembly and Pan-American Health Organization. These previous experiences ignited her passion for global health, in particular, health systems strengthening and global surgery education and she is one of the founders of the Canadian Global Surgery Trainees Association.

Editorial Team 2020-2021

Noa Lashevsky is a researcher and advocate at Body Brave – a grassroots organization providing eating disorder treatment. She has helped organize international conferences and develop virtual training for primary care providers. Noa holds a Master of Science in Global Health with a Specialization in Global Health Innovations from Maastricht University in the Netherlands and an Honours Bachelor of Health Sciences with a Specialization in Child Health from McMaster University. She is currently pursuing her Doctor of Medicine at McMaster where she is actively working on revolutionizing healthcare accessibility for all bodies through community-driven research, advocacy, and programming.

Josh Neposlan is a graduate of the M.Sc Global Health program at McMaster University, and is currently in his second year of medical school at Western University. He has spent the past couple of years working on global health research projects in the spaces of international medical education and healthcare innovation. He is especially passionate about exploring cost-effective ways to improve access to medicine and other healthcare supplies on a global scale.

Elizabeth Wallace is a Masters student in the Environmental Sustainability program at the University of Ottawa, focusing on ecotoxicology and environmental health. Prior to returning to school, she worked as a research and analysis officer at Transport Canada, writing policy pertaining to navigation, water levels and flow, and Indigenous rights. She also holds an MSc in Global Health from McMaster University, specializing in climate change and Indigenous health. She is passionate about environmental justice and creating a more equitable, accessible society through policy and structural change.

Jean-Pierre Zeelie works as a Senior Technical Advisor with mothers2mothers, focusing specifically on adolescent health and youth development. He previously led Save the Children Canada's health portfolio with an emphasis on sexual and reproductive health. Prior to that, he spent a decade producing content on weekly, nationally-broadcast TV and radio platforms promoting treatment literacy for youth living with HIV. He holds a MPH degree from the University Cape Town's Health Economics Unit and his research portfolio includes managing a randomized controlled trial to evaluate the role of lay health workers supporting prevention of mother-to-child transmission of HIV, and in piloting different models of delivering family planning services in schools.


Photo Courtesy of Zoey England

ACKNOWLEDGMENTS

THANK YOU FOR YOUR CONTRIBUTIONS TO THIS YEAR'S JOURNAL.

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New This Year: Workshops

This year, GHAR wanted to play a more active role in facilitating the learning of new researchers and authors. In collaboration with global health leaders and community members, our team put together three virtual workshops centred around different aspects of the writing and publication process.

Workshop #1: General Information

Prospective contributors to GHAR's Issue 6 were able to learn about the journal, the submission process, and hear some tips and tricks from a distinguished panel of editors and past authors.

Workshop #2: How to be Submission Ready

Experienced author and GHAR reviewer Danielle Denwood provided tips and suggestions for making final revisions and edits. The workshop focused on the last stage of academic writing and getting a piece submission-ready.

Workshop #3: Narrative and Art-Based Submission Info Session

Art-based researcher Dr. Sonya de Laat discussed the power of art in global health storytelling. The workshoped discussed art-based submissions and how to craft our newly introduced submission category - narrative reflection pieces.

Photo Courtesy of Diego Jimenez

Photo Courtesy of Tanya Tewari

Water: A Precious Gift to Humankind

Every time I use water marbling to create an art piece on water, I am reminded by how precious water is to the essence of our life. Water is fundamental for health and well-being. In 2017, over 785 million people around the world lacked access to basic drinking water, while 3 billion people did not have a hand-washing facility at home [1]. With no access to safe water, millions risk being affected by infectious diseases and contaminants such as chemicals and microplastics, in addition to various issues impacting their psychological and social well-being [1]. Improving water safety and sustainability is thus critical to protecting public and global health and must be urgently enforced for everyone, everywhere [2].

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Art Courtesy of Duaa Kanan

Photo Courtesy of Tanya Tewari

Health Equity

DISCOURSE FOCUSING ON CURRENT CHALLENGES AND SOLUTIONS FOR EQUITY IN HEALTH CARE ACCESS AND DELIVERY

Photo Courtesy of Lua Samimi

Photo Courtesy of Tanya Tewari

REFLECTIVE NARRATIVE

Knowledge-Exchange: Learning about the Sex Working Community in Nairobi, Kenya

Toby Le, University of Manitoba

For more than 35 years, my lab along with others at the University of Manitoba (UM), have worked with the sex working community in Nairobi, Kenya to study HIV infection, prevention, and treatment. In turn, this collaboration has led to numerous discoveries that have had a profound impact on the field of HIV/AIDS. During the early stages of the HIV epidemic, it was through this collaboration that researchers discovered that HIV could be transmitted from mother to child through breastmilk. Researchers from this collaboration, including my supervisor Dr. Keith Fowke, also discovered that there is a unique population of female Kenyan sex workers who were exposed to HIV infection but remain uninfected, known as HIV-exposed-seronegative. Altogether, this collaboration between UM researchers and Kenyan sex workers has, over time, proven itself to be of great significance to the advancement of HIV research. To better understand and appreciate this community partnership, I participated in a knowledge-exchange program that was funded by the Canadian Institutes of Health Research, in which scientists and sex workers were co-leaders on the grant. Thus, in January 2020, I traveled to Nairobi, Kenya to learn more about the sex working community alongside a group of graduate students.

I would like to share my experience of visiting the local hotspots – locations where sex work was conducted – and how it helped me to better appreciate the importance of community-research collaborations. This exchange was led by three peer leaders of the sex working community: Joyce, Emily, and Rosemary. As peer leaders, they advocated for sex workers in Nairobi, Kenya, and were responsible for working with researchers to translate HIV research to the community.

To begin, our first site visit was at a local bar in downtown Nairobi. At this bar, we met two sex workers who had been waiting for clients since 4 am. Rosemary shared with me that sex workers can work as early as 2 am until 11 pm the next day. While I spoke to the two sex workers at our table, I found myself slightly uncomfortable as we spoke about topics related to their work. For an average sex worker to earn 5 CAD, which would afford them two meals, they may need to have sex with two clients who may or may not be willing to use protection. Rosemary also shared several stories about how some sex workers reported experiences of violent abuse by their clients behind closed doors. It quickly became apparent to me there was a substantial lack of advocacy for and empowerment of this sex working community.

The next bar we visited was on the lower-economic scale. Sex workers at this bar were moved into a small room where they squeezed beside an open washroom that drowned the room in urinal stench. At this bar, sex workers were only allowed into the dining room upon invitation from a client. Standing in this enclosed space with these sex workers, I witnessed Joyce speak about the rights of sex workers and how it was unacceptable to be treated in this manner. Joyce emphasized the importance of getting tested for sexually transmitted infections (STIs) and taking advantage of available drugs for the treatment or prevention of HIV infection. To illustrate the importance of her message, Joyce shared her experience living with HIV and how HIV research has tested and proven that antiviral medications are effective, which has therefore made it possible for her to live a healthy and fulfilling life. Joyce further explained that HIV research has also made it possible for uninfected sex workers to use drugs like Pre-Exposure Prophylaxis to prevent HIV infection as well as antiretroviral therapies to control the infection should they become infected. Joyce also reminded the group of their community collaboration with researchers to study infectious diseases as well as to develop healthcare capacity to treat and prevent those same diseases. In her closing remarks, Joyce made the point that there were little excuses to not seek testing or treatment given how many health resources have been made available by this collaboration to protect sex workers against sexually transmitted infectious diseases.

To me, it was amazing to see Joyce, a sex worker, stand up for other sex workers and to provide them with key research information that could save their lives. This experience gave me a new appreciation for community-research collaborations and the potential impact of research dissemination in addressing stigma and taboos around STIs. Additionally, Joyce also helped me realize the importance of this collaboration in providing healthcare services for the diagnosis, treatment, and prevention of STIs that would not otherwise have reached this largely stigmatized population of sex workers.

The final hotspot we went to was in one of the urban slums of Nairobi, Kenya. Walking around this area, I found myself surrounded by mountains of garbage and steel box homes. Rosemary informed me that mental illness was a major issue in this area due to its high levels of poverty and lack of healthcare infrastructure. To self-medicate for mental illnesses, sex workers will often exchange sex for alcohol instead of money. Unfortunately, there have also been reports of female sex workers in the area being raped after becoming unconscious due to alcohol intoxication. However, as sex work is illegal in Kenya, their call for help has often been neglected by the justice system. Consistently, there have also been reports of police officers violently abusing sex workers behind closed doors. To support these women, Emily, who received paralegal training, has been working with the justice system to ensure all sex workers are being treated equally in the legal system. She has been representing sex workers in legal discussions and has strived to prevent all forms of misconduct that could occur due to discrimination or stigmatization. Within the research on this issue, there have also been many studies and reports concerning police mistreatment of sex workers in Nairobi, Kenya. Given the evidence collected, researchers and community leaders have been working together to reform justice systems and policies to be more inclusive of sex workers. Currently, there are also studies in-progress that aim to characterize mental illnesses among sex workers and different approaches for treatment and prevention.

Before this trip, I had read research and review articles about the sex working community in Kenya, however, no study could have given me a more complete understanding of this community than this knowledge-exchange experience. Only through direct interaction with these women did I learn about their stories and experiences. Further, a common issue I find myself battling as a researcher is the tendency to feel disconnected from the real-life implications of research. This experience has taught me that behind every clinical sample is a person with a story and an identity, hence, we must make a conscious effort to treat every clinical sample with great care and respect. More critically, it is also our responsibility as scientists to ensure that our research findings are reaching the very people that they are intended to target. We need to remember that science, without humanity, is meaningless.

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Thank you to my supervisor, Dr. Keith Fowke, for his feedback on this reflection and for providing me with the opportunity to participate in this knowledge-exchange experience.

OPINION EDITORIAL

Partnership is Not Ownership: Indigenous Peoples' Right to Self-Determination within Sport for Development in Canada

Julia Silano, McMaster University

Self-determination and reconciliation remain highly contested in the paradox of sport used to promote health and Indigenous rights. Since the 94 Calls to Action on behalf of the Truth and Reconciliation Commission (TRC), there has been considerable political momentum in making amends with Indigenous people. Although federally funded sport for development (SFD) programs have increased opportunities in particular for Indigenous youth, they have done so by undercutting a rights-based argument for Indigenous self-determination. This essay will examine a SFD program called Promoting Life-Skills in Aboriginal Youth (PLAY) delivered across Canada by Right To Play, an international non-profit organization (NPO). Considering the inequities in provincial and federal funding SFD organizations collaborating with Indigenous communities may not be the most appropriate delivery agent.

SFD is a broad term that encompasses physical activity programs to foster individual and community development by confronting a variety of social, health, and cultural issues [1]. However, residential schools promoted sport and recreation under similar guises used by modern SFD organizations [2]. Sports were introduced to exert control and power over Indigenous children and assimilate them into "mainstream" Euro-Canadian culture in the Canadian residential school system [2]. Hence why the use of sport and recreation to attain particular outcomes has created a controversial lasting legacy. Today, Indigenous children and youth, a target population for Canadian SFD initiatives, represent one of the fastest growing demographics in the country. Low levels of physical activity are a significant factor to the widespread health issues of Indigenous and non-Indigenous youth alike [3,4]. Preventable lifestyle diseases such as type two diabetes, high blood pressure and obesity are significantly higher among Indigenous youth than the general Canadian population [3-5]. Therefore, the basis for implementing SFD initiatives is to foster healthier Indigenous youth who in turn can contribute to healthier communities at large [6].

Official political apologies have addressed past wrongs and sparked meaningful social projects in promoting reconciliation with Indigenous Peoples. In 2015 TRC report, Calls to Action 89 and 90, recommend policies that "promote physical activity as a fundamental element of health and well-being" and, "in collaboration with provincial and territorial governments, stable funding for, and access to, community sports programs that reflect the diverse cultures and traditional sporting activities of Indigenous peoples" [7 p10]. In 2016, the Trudeau government finally announced its full support for the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Although a non-legally binding resolution, this declaration states that Indigenous peoples have the right to self-determination to pursue their form of cultural, economic and social development [8].

Funding for Right To Play's SFD initiative in Ontario has gained public controversy in recent years. In the

2018 federal budget, the Government of Canada invested $9.5 million annually, to expand the use of sport for social development in more than 300 Indigenous communities [9]. This investment made in response to the TRC, was directed to SFD initiatives that strive to help Indigenous youth engage in their community culture, keep them out of the criminal justice system and address pervasive issues such as mental health and childhood obesity [10]. Right To Play received large portions of these funds; $1.5 million to offer PLAY programming just within Ontario and an additional $2 million from private sponsors [11]. However in the 2017-18, the Aboriginal Sports Circle (ASC) and its provincial and territorial partners received only $800,000 from Sport Canada to offer similar sport initiatives throughout the country [11]. While the massive allocation of federal funds may indicate a commitment to supporting Indigenous sports, it is of question as to how serious the Canadian government is about achieving reconciliation with regards to the prioritization of non-Indigenous, international SFD organizations.

When the Government of Canada announced its funding for the ASC, it claimed to be “determined to make a real difference in the lives of Indigenous people by supporting self-determination through reconciliation” [11 p10]. While Right to Play’s efforts to support marginalized communities in Canada, as well as the Global South are certainly important, it is questionable if it is the best and most appropriate delivery agent in Indigenous communities. PLAY is designed and delivered by an NPO – it was not created by Indigenous peoples like the ASC. Government and far reaching NPOs use the word collaboration with regard to SDPs joined with communities, however it still does not provide ownership. Through ownership comes financial control, which the federal government has not prioritized amongst Indigenous sports organizations to deliver their own SFD programs.

Since Eurocentric culture has deeply influenced sport and recreation practices in Canada, scholars have argued for the need for Indigenous people to implement their own recreational pursuits and programs [12-14]. In Arellano and colleague’s evaluation of PLAY, which included Indigenous and non-Indigenous staff members, a need for community ownership was a central theme [15]. Kent explores a multilevel mosaic model, which shows promise for promoting ownership of health governance within Indigenous communities [16]. In this system, communities with greater needs receive more support, while high-capacity communities are able to maintain more control [16]. If this model is applied to the PLAY program context, whereby communities could directly manage the program as they develop capacity.

Essentially, SDP programs should be led by Indigenous Peoples and fundamentally shaped by “Indigenous voices, epistemologies, concerns and standpoints” [17 p1]. Ideologies related to Eurocentrism, neoliberalism, good citizenship and health are often disseminated through educational tactics implicit in SFD programs. Indigenous pedagogies of health are starkly different from Western conceptions of the utility of physical activity as a precursor for productivity and longevity. Arguably, SDP programs are often based on Eurocentric beliefs and thus often marginalize and suppress participants’ knowledge [17]. SDP programs have the potential to be used in ways that can promote Indigenous peoples’ self-determined goals and values in order to take better account of the Indigenous identities of the young people they target. Indigenous knowledge holds a separate value system from Western ones [17]. In that sense, placing Indigenous people at the helm of leadership positions is equivalent to allowing communities to make decisions for themselves without ethnocentric interference.

As sport can play an important role in the development of Indigenous communities, it is crucial that the Canadian government recognizes Indigenous Peoples’ right to self-determination within SFD initiatives. Indigenous people have and continue to use sport to assist their broader goals for self-determination, which is not only a basic human right, but also a fundamental component of well-being. Meaningful self-determination in the form of greater individual and communal life control is a contributing factor to improved levels of Indigenous physical and mental health, and, conversely, that control and domination by others is a contributing factor to ill-health and elevated levels of mortality in Indigenous communities [18]. Indigenous people should not be held in a position of dependence and subordination thereby denying them of their fundamental human right and basic psychological need for autonomy.

Ultimately, Canada's implementation of the UNDRIP's transformative capacity depends on how it is interpreted, especially whether self-determination is allowed to trump partnership. It can be discerned that recent federal funding schemes have undermined Indigenous-lead sport organizations, like the ASC, towards enhancing youth development through sport and recreation programs. Canada should discontinue the rapid growth of non-accountable NPOs representing forces of neoliberalism, which undermine the future scale up of national, Indigenous-lead sports organizations.

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OPINION EDITORIAL

The Global Health Community Must Reckon with Realities of Neocolonialism, Racism, and Racial Trauma in Current Practice

Stephanie Wiafe, Queen's University; **Madilyn Darrach**, Queen's University

Global health boasts many highly skilled and altruistic researchers and practitioners across the world, many of them White people from the Global North conditioned by paternalistic views on the Global South. The history of global health includes many great strides, but still, the global health community needs to reckon with its relationship with racism, colonialism and intergenerational trauma to reimagine, dismantle, and rebuild its practices to prevent further violence.

GLOBAL HEALTH: A VIOLENT HISTORY

In A History of Global Health, Randall Packard illustrates how the field of global health is subject to colonial approaches, often governed by vertically structured non-governmental organizations that have little vested interest in transforming the conditions in which people live. Rather, these organizations are inclined to do what is "cost-effective" and optically beneficial (rather than what is equitable); treating symptoms instead of causes to acquire an immediate (but often temporary) change [1]. Global health governance powerhouses, such as the World Health Organization, have been questioned for their failures to substantively address the "upstream" causes of illness and disease in the Global South [2]. Despite billions of dollars of investments in global health solutions, including education and infrastructure, the social and economic conditions needed to promote global health; health and wellness remain unchanged [1]. To paraphrase Tim Lang [3], can we justify continued investment into technical "fixes" when we know the root causes are social, economic, and historical?

In 1965, Ghanaian revolutionary Kwame Nkrumah described neocolonialism as a system reminiscent of the old colonialism, where the power of the Global North is maintained through economics, culture, and high-interest aid [4]. Perceived illness or poverty within the Global South stems from racist assumptions that are wrongly operationalized to justify interventionism. Nkrumah's words still reflect the power dynamics and governance of global health today, revealing that colonialism never went away; it simply became harder to identify [3].

We posit that global health research, practice, and governance remain largely neocolonial. The Global North extracts resources in the form of research and knowledge, gains social and intellectual capital, ultimately leaving the communities they claim to serve unchanged, or in worse condition than before [1]. While indeed treating disease and illness is important, the approach from many prominent organizations does not transform the conditions and systems necessary to treat disease [1]. We have made many strides in understanding the biological mechanisms of disease, but less so on how to actually change the material conditions that are the "causes of causes" [3]. The idea that global health itself is extractive and perpetuates the status quo in favour of the Global North adds complexity to our understanding of global health practice, research, and governance, as we are the "causes of the causes". It is indeed a vicious cycle, where those with power cause trauma, extract resources and further exploit trauma, all in the name of "health" [5].

RACISM, RACIAL TRAUMA, NEOCOLONIALISM AND CURRENT GLOBAL HEALTH PRACTICE

Global health has made some improvement by naming neocolonial practices such as: top-down implementation strategies and governance, narrow biomedical approaches to addressing health issues (which do not consider important social and cultural contexts), and exploitation of communities through labour, publishing, research and development to gain political/ economic/ academic influence [6]. Despite these strides in awareness and recognition, power dynamics in the field remain largely unchanged. For more than 100 years, global health has remained largely governed by the same multilateral organizations which contribute to the problematic nature of policy, research, and governance, while being detached from the communities which they affect [6]. Global health may appear to be a rapidly evolving field, with more practitioners and organizations recognizing the field's relationship with neo-/colonialism. However, with historic structures continuing to be upheld, it begs the question: how much substantive change to global health practice has actually occurred, and with increased awareness and recognition of neocolonialism in practice, research and governance, why are we still upholding the status quo?

Historically, where there is medicine, there also exists racism, torture, abuse, and colonialism, which persist in research, practice, and governance [5]. Racism has been intricately woven into the history of global health, and for racialized individuals and communities, it was and remains a rarely benign experience. The stressors and injuries of racism continue to leave many with lifelong racial trauma (the physiological, psychosocial, and emotional damage resulting from racism) [7]. Racial trauma is debilitating and can be passed down from generation to generation through epigenetics, resulting in intergenerational racial trauma, a phenomenon that has been affecting BIPOC (Black, Indigenous, and People of Colour) since colonization and enslavement [7]. Despite overwhelming evidence that racial trauma has negative effects on health outcomes, in addition to being an important contributing factor to race-based health inequalities [8], historically and currently it is seldom acknowledged, neither considered, nor addressed in global health practice [9]. This denial of evidence reflects the repeated failures of the global health community to reckon with historical injustice, which colonial powers were, and still are, responsible for. Global health cannot be extricated from nor forgiven for its history.

Racial trauma is perpetuated through global health programs importing practitioners from the Global North, who are unaccustomed to local dynamics, cultures, and languages, to "help" communities in the Global South. Their work is often temporary, and does not acknowledge (or perhaps even consider) that many of the issues they are there to address are rooted in historical colonial wrongdoings from their organization or home country; therefore, further perpetuating the intergenerational racial trauma that these communities and individuals are experiencing [9]. Neocolonial power dynamics and the failure to understand and acknowledge racial trauma in global health practice upholds white supremacy, and is ultimately an injustice to the individuals and communities which global health practitioners seek to uplift.

CALL TO ACTION

The global health community needs to substantively reckon with the historical and present realities of neo-/colonialism, racial trauma, and racism that are woven into the very fabric of its being [10]. First, researchers, practitioners, and decision-makers need to integrate a higher degree of intellectual honesty by identifying the systemic causes of persisting global health issues, acknowledging the violence perpetuated by the institution of global health, and locating one's own position and power. Racism and racial trauma perpetrated by the Global North are historical and present day truths that the global health sector fails to confront in the operations of their work. By omitting these histories and realities from global health education and practice, white supremacy is upheld.

Second, global health practitioners, researchers, decision-makers and institutions should integrate an anti-racist and anti-oppressive praxis (applying theoretical concepts in a practical way to move towards action and change). Rather than carrying on with the sector's status quo lens of "helping vulnerable people and communities," global health should be understood as a means to justice, as reparations for historic and present cycles of violence, whereby we recognize global health itself as a "cause of the causes".

Lastly, the communities who have been historically impacted and who continue to be victims of racism and racial trauma, due to the current status quo of the global health sector, should hold the power in making decisions about what justice and reparations look like for themselves. These changes will not solve white supremacy, but hopefully a radical transformation to the structures of global health will prevent further harm and achieve wellness for oppressed peoples.

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RESEARCH ARTICLE

H. Pylori Infection: A Silent Epidemic that Affects Disadvantaged Populations in Haiti

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ABSTRACT

Helicobacter pylori (HP) infection is the main cause of chronic gastritis and the principal etiological agent for gastric cancer and peptic ulcer disease. Its prevalence is generally related to socioeconomic status and levels of hygiene. In Cornillon, a commune in Haiti, a large number of patients with gastrointestinal complaints reinforced our commitment to look for the correlation with HP infection in Haiti. This is a qualitative and quantitative observational study that gathered data from 109 patients who went to Sainte Thérèse Hospital in Miragoâne, Georges Gauvin Hospital in Grand-Goâve, and the Health Center of Cornillon Grand Bois for gastrointestinal complaints from April to July 2019. The seroprevalence of the HP infection was 87.2% and the sex ratio of patients M/F was 0.45. We found that 88.5% (n=96) of all patients were from the lower social class and disadvantaged communities in rural areas. The majority of infected patients were street traders, farmers, students and jobless individuals. 42.2% (n=46) of all participants were street traders and 91.3% of the street traders had a positive HP result. The HP infection itself is not fatal, but its resulting complications are for those who live in the Global South (lower income countries) with a lack of adequate primary care. The high burden of gastric cancer in Haiti is likely one of the consequences of the high prevalence of HP infection.

INTRODUCTION

Helicobacter pylori (HP) is a bacterium that infects the epithelial lining of the stomach, its main mechanism of spread is intrafamilial transmission [1]. HP infection is the main cause of chronic gastritis and the principal etiological agent for gastric cancer and peptic ulcer disease [2]. Its prevalence is generally related to socioeconomic status and levels of hygiene; its incidence can be decreased with improved standards of living [1]. In 2019, we noticed a large number of patients with gastrointestinal complaints during consultations in three different health facilities in Haiti. They were mostly from disadvantaged communities in rural Haiti who were seeking solutions for their sicknesses. This attracted our attention to look for the correlation between gastrointestinal complaints and HP infection within the larger context of social determinants of health. A precarious socioeconomic situation exists in Haiti that encourages the HP infection to spread and remain prevalent. This study highlights the impact of HP infection on vulnerable populations in Haiti and the burden of gastric cancer as a possible consequence.

METHODOLOGY

This is a qualitative and quantitative observational study that gathered data from 109 patients who went to Sainte Thérèse Hospital in Miragoâne, Georges Gauvin Hospital in Grand-Goâve and the Health Center of Cornillon/Grand-Bois for gastrointestinal complaints from April to July 2019. A literature review was conducted and patient data was collected from questionnaires completed on the day of the medical examination. The results of the biological analysis (serological testing for evidence of HP) were reported on the questionnaires. To ensure ethics compliance, each patient meeting the inclusion criteria was identified with alphanumeric codes and signed the consent form to take part in the study.

Inclusion criteria:
1) Patients 20 to 60 years of age with gastrointestinal symptoms. 2) All patients in the age range with a definite indication for HP eradication (formal or discussed).

Exclusion criteria:
1) Pregnant women. 2) Those who refused or could not consent. 3) Those with gastrointestinal hemorrhages or any life-threatening medical condition. 4) Patients treated with anticoagulants.

RESULTS

A total of 109 patients were enrolled. 51.4% (n=56) were evaluated at Georges Gauvin Hospital in Grand-Goâve, 38.5% (n=42) were evaluated at Cornillon Grand Bois Health Center and 10.1% (n=11) at Sainte Thérèse Hospital in Miragoâne. The seroprevalence of the HP infection was 87.2% and the sex ratio of patients M/F was 0.45. This study was carried out according to the age range of patients between 20 to 60 years, with an average age of 36. We found that 88.5% (n=96) of patients who went to the health facilities for gastrointestinal complaints were from the lower social class and disadvantaged communities.

42.2% (n=46) of all participants were street traders and 91.3% of the street traders had a positive HP result. The most frequent chief complaints for patients who participated in the study were: epigastralgia (73.4%), heartburn (65.1%) and acid reflux (57.8%). We found that 34.9% (n = 38) of the treatment to eradicate HP. Of those, 97.4% were still symptomatic with a positive HP test. It was found that 87.2% (n = 95) of the patients took their daily meal at home and 86.3% of the patients who took their daily meal at home were seropositive for HP.

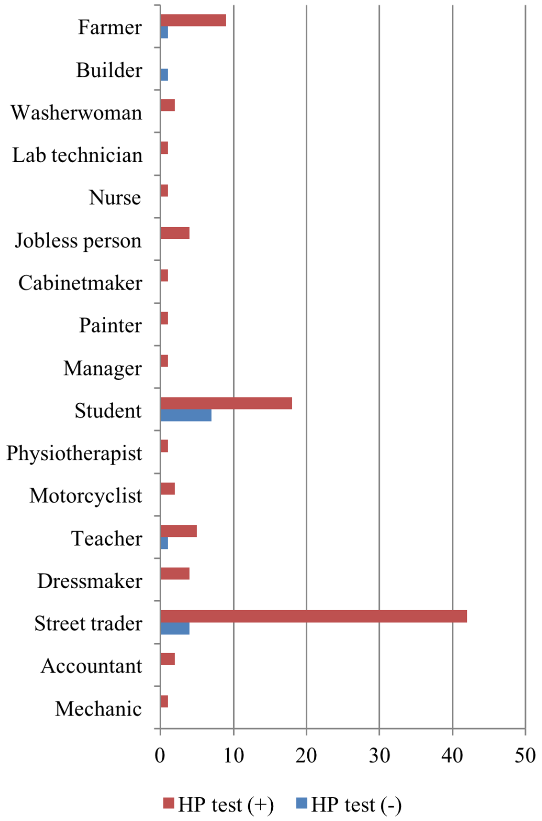


Figure 1. HP test results by patients activities.

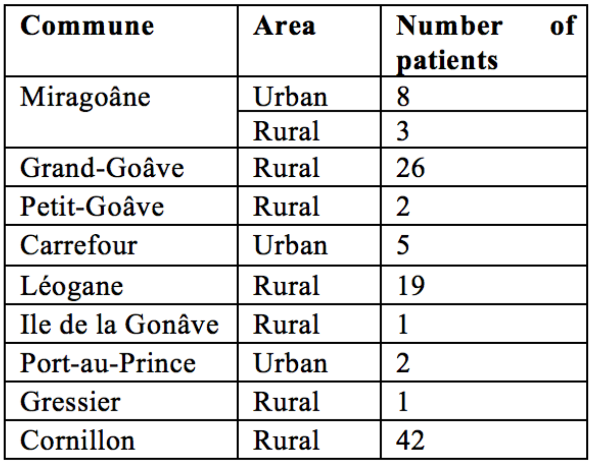
DISCUSSION

With a prevalence of 79.1% in Africa, 63.4% in Latin America and the Caribbean compared to 37.1% in North America and 24.4% in Oceania, HP infection disproportionately affects populations of low economic status in the Global South (lower income countries) [1]. Gathering data on patients' lifestyle, daily activities and locations was one of the most concrete methods to determine their socioeconomic status.

The majority of infected patients were street traders, farmers, students and jobless individuals with low income. They were mostly from the rural areas of

Cornillon, Grand-Goâve, Léogane, and Miragoâne, four regions with low resources and limited access for primary care in Haiti [3]. There are significant wealth and public health gaps between rural and urban populations in Haiti, with almost 70% of rural households considered chronically poor, compared to little over 20% urban households. Only 16% of people in rural areas have access to improved sanitation compared to 48% of people in urban areas [4].

Table 1. Number of patients by commune.



Commune	Area	Number of patients
Miragoâne	Urban	8
	Rural	3
Grand-Goâve	Rural	26
Petit-Goâve	Rural	2
Carrefour	Urban	5
Léogane	Rural	19
Ile de la Gonâve	Rural	1
Port-au-Prince	Urban	2
Gressier	Rural	1
Cornillon	Rural	42

The results of a similar study in Cameroon also demonstrated low socioeconomic status as a potential risk factor of HP infection [5]. Beyond general sanitation and improved socioeconomic status, HP can be eradicated by different drug regimens. This study shows that 97.4% of 38 patients who already received an appropriate eradication treatment were still symptomatic with a positive HP test. This is evidence that prescribing drug regimens without addressing non-medical factors such as income levels and living conditions, is insufficient.

In populations where HP infection rates are high, stomach cancer is a significant public health problem despite other risk factors control (diet, smoking, body weight and alcohol use) [6]. Countries in Western Europe (e.g. Germany, the United Kingdom, and Spain) and in the United States, saw a decreased burden of stomach cancer with an increased control of HP infection. In comparison, countries in the Global South are struggling to control HP infection and decrease the burden of stomach cancer [2,7].

When disadvantaged communities have limited access to primary care and the Haitian healthcare system is unable to provide adequate care, infections like HP have the power to silently spread, evolve and cause fatal complications in vulnerable populations [3,8]. Based on the findings of this study, the high burden of gastric cancer in Haiti may be correlated with the high prevalence of HP infection. With a mortality rate of 62.7%, gastrointestinal cancers have the highest incidence in comparison to all other cancer types in Haiti. Gastric cancer is the second most common type of gastrointestinal cancer; and with growing evidence of a link with HP, colorectal cancer is the most common type of gastrointestinal cancer [9].

CONCLUSION

The seroprevalence of HP infection in this sample of the Haitian population is extremely high. This infection disproportionately affects disadvantaged populations in Haiti and around the world. The HP infection is not fatal in and of itself, but its complications are for those who live in the Global South with limited primary care. The high burden of gastric cancer in Haiti is likely a consequence of the high prevalence of HP infection. In this pandemic era, we need to be aware that social determinants of health matter and solutions to epidemics go beyond biology. HP infection must be eradicated with holistic and medical approaches to prevent long-term complications for the most vulnerable. We strongly recommend further exploration on HP infection and its correlation with gastric cancer in Haiti.

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OPINION EDITORIAL

The Healthy Immigrant Effect: Is Canada's Health System Failing Immigrants?

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A globalizing world has led to increased immigration to Canada as a result of the desire for success, safety, and happiness, because Canada is perceived as a nation where these desires are more readily available [1]. Canada receives over 240,000 immigrants annually, and recent estimates suggest that first-generation immigrants account for approximately 20% of Canada's population [2]. With Statistics Canada estimating that immigration will be the driving force of population growth by 2030, overtaking natural increase, immigration into Canada has important implications for individual health, population health, and healthcare systems [3].

A phenomenon called the "healthy immigrant effect" describes the process through which immigrants arrive with better health than the Canadian population, but suffer subsequently worsening health over time, leading to a convergence of health status between the immigrant and native-born populations [4,5]. The healthy immigrant effect characterizes the experience of majority of Canada's immigrant population, with the effect being strongest for the adult immigrant population [5]. Several causal factors have been linked to the deterioration of immigrant health in Canada, including discrimination, cultural and language barriers, and healthcare system-related factors, such as the inadequate cultural education provided in Canadian medical schools [6]. Institutional barriers including municipal, provincial, and federal laws, and healthcare practices have contributed heavily to disparities immigrants experience when seeking healthcare in Canada, such as challenges adapting to new cultural norms and social institutions [7]. Despite Canada's reputation for providing superior access to healthcare and socioeconomic advantages, its healthcare system often fails to replicate these outcomes for immigrants in Canada due to structural, cultural, and communication barriers and inadequate cross-cultural training for healthcare providers [7].

BARRIERS TO HEALTHCARE ACCESS

Immigrant access to healthcare is impeded by several substantive barriers. Structural barriers involve barriers at the legal and institutional level, such as navigating a complex health system, unfamiliar system norms, and culturally insensitive health policy [7]. Communication barriers arise due to language differences, such as misinterpreting medical advice and having to provide an interpreter [6]. Finally, cultural barriers include racial and cultural insensitivity, as well as misunderstanding cultural differences [6]. The challenges faced by immigrants accessing healthcare are intensified in racial, ethnic, and religious minority groups [4].

STRUCTURAL BARRIERS

Structurally, the Canadian health system is a complex labyrinth for those who are unfamiliar with its procedures and services. The restructuring of the Canadian health system by the Liberal Party of Canada in the 1990's created additional fiscal pressures imposed on healthcare and increased the proportion of non-insured care, which had unequal impacts across the population [8]. Low-income and Canadians with less education, many of whom are also immigrants, struggled to deal with these systemic changes [9]. Compounded with an often culturally insensitive health system, immigrants face profound barriers to accessing care, such as diagnostic delays, incomplete services, and service gatekeeping, which describes the role of primary care physicians in authorizing access to specialized care [10]. Indeed, a 2018 study conducted by Son et al. found that minority groups received diagnoses later than the cultural majority group [11]. When they do receive their diagnosis, ethnic minorities often suffer inferior access to essential services compared to other Canadians [12].

COMMUNICATION BARRIERS

Social norms governing communication and social power dynamics in Canada's health system also serve as a challenge. In many countries, physicians hold persuasive authority over patients, and patients are expected not to share information unless prompted [13]. This lingering power dynamic may lead patients to withhold concerns and relevant information [13].

Navigating the healthcare system is a structural support challenge, exacerbated by communication barriers [10]. Lai and Chau found that Chinese immigrants tend to access services when provided by practitioners ethnically and linguistically similar to the patient [14]. Khanlou et al. reported that many immigrant mothers did not understand the meaning of complex medical terms and were not able to articulate a request for care [15]. For immigrants, language is an obstacle to accurately conveying health concerns and interpreting medical advice from physicians [16].

CULTURAL BARRIERS

Cultural barriers to healthcare access for immigrants are well-researched. A study surveying Hmong, Mexican, and Somali immigrants demonstrated that patients frame their healthcare experiences in terms of their ethnic identities, and often find healthcare resources within their communities [17]. Immigrants rely heavily on community members to supply information about available resources, so social isolation may occur if resources are not familiar or targeted to these communities [17]. Of note, many immigrants do not have immediate community support, leaving them unaware of available services and, in turn, reducing utilization [17]. The necessity of community support is driven by a lack of familiarity with Canada's health system and challenges with accessibility. For instance, immigrant women often prefer female physicians for care, a barrier introduced by socioeconomic conditions [5]. Female Muslim immigrants have reported concerns about male staff entering their hospital rooms without warning or respect for modesty, which demonstrates such cultural insensitivity [5].

BARRIERS WITH HEALTHCARE PROVIDERS

Despite demonstrable proof that increased cultural awareness improves cross-cultural medical encounters, cultural sensitivity remains an illusory concept [18]. In a Canadian study conducted by Papic et al., 69% of surveyed physicians received no cross-cultural training during their medical education and careers. In fact, 68% of physicians wished they had received more immigrant-specific cultural training, which is notable considering that most physicians are Canadian-born Caucasians [18,19]. Notwithstanding this professed desire among physicians, less than 20% of surveyed Canadian physicians believed that it was their responsibility to arrange for an interpreter, demonstrating a serious misalignment with best practices for immigrant care [19]. Alongside physician reliance on improvised strategies and personal experience for approaching immigrant care, these examples demonstrate that many practicing physicians do not have the adequate cross-cultural skills necessary to provide culturally-sensitive immigrant care [20].

CULTURAL TRAINING IN CANADIAN MEDICAL SCHOOLS

In 2000, over two-thirds of Canadian medical schools did not include cultural education involving either of Canada's largest non-white ethnic groups: Indigenous people and Asian Canadians [21]. Further, in 2002, only eight of 17 medical schools listed cultural sensitivity requirements in their curricula [21]. Since, it has become a requirement for medical schools to offer cultural education; however, a 2010 review suggests that this education differs greatly between schools, and the gap is increasing [21,22]. As of 2010, cultural education in Canadian medical schools is mandatory, but the length of time dedicated to cultural diversity education differs between schools, with some schools offering only elective courses for cultural training while others provide continuous exposure through placements and clinical courses [21]. Medical education in Canada is becoming increasingly sensitive to cultural differences, but evidently, practicing physicians remain under-informed.

While structural, communication, and cultural barriers pose challenges to immigrant healthcare access in Canada, Canadian medical education is improving. Cross-cultural training intended to ensure that the next generation of healthcare providers have the skills to mitigate the "healthy immigrant effect" is a step in the right direction. These improvements demonstrate progress towards building more inclusive health systems. The body of literature detailing the diverse experiences of immigrants without English proficiency and other racial, ethnic, and religious minority groups in Canada is growing, and necessary to create a holistic picture of the immigrant healthcare experience. Furthermore, standardizing medical education and the responsibilities of healthcare providers regarding cross-cultural care is a prerequisite for improving immigrants' quality of healthcare in Canada. No longer should immigrants be required to supply their own interpreter or face diagnostic delays due to a culturally insensitive healthcare system. The healthcare system must be restructured to address the hardships faced by immigrants to ensure all Canadians, regardless of birthplace, have equal access to healthcare.

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OPINION EDITORIAL

Informal Caregiving in Mental Health: Issues of Justice and Relative Invisibility

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An “informal caregiver” can broadly be defined as anyone who partakes in a caring role without financial compensation. These carers are often family or friends of the individual who is cared for. This relationship sets informal carers apart from health professionals and involves an added degree of complexity. Research has found that family carer involvement reduces hospital admissions, burden of care, and relapses while increasing compliance [1-4]. These carers are also able to identify early signs of relapse and significant side effects of medication [5,6]. The magnitude of carers’ contributions to sustaining the healthcare system is exemplified in one study which finds that a conservative estimate of the economic contributions of informal caregivers in Canada is 25 billion dollars annually [7]. Despite invaluable insight and significant contributions, support for informal caregivers remains starkly lacking in mental health care [8].

Although caregiving can be a fulfilling experience, a chronic lack of support can contribute to debilitating stress and burnout [9-11]. Deinstitutionalization, which refers to the widespread closure of psychiatric institutions on a global scale, provides crucial context [12]. The resulting relocation of care to the community has considerably expanded the role of informal carers despite insufficient investment in support for community carers [12]. Overall, the lack of recognition for the unpaid labour of informal carers in welfare reform policies has resulted in a deficit of monetary and institutional support [9]. Thus, economic insecurity presents a significant burden for informal carers. On average, caring for a child with a mental health condition is more expensive than caring for a child with a physical illness [9,13]. Furthermore, thorough accounts of the costs of adolescent mental health care accumulated by carers usually do not factor in the time spent in caring roles, psychological stress, or time away from work [9].

As central advocates of those they care for, informal caregivers must contend with different contexts that can bring about situation-specific barriers to healthcare access. Within Australia and the United States, carers in rural settings navigate through numerous barriers, including lengthy waitlists, geographical distance and most significantly, inadequate resources [9,14,15]. Close-knit communities can simultaneously act as both an obstacle to care and a source of support. The intimate nature of rural communities allows for emotional and practical support, as well as health information distribution [15]. At the same time, gossip, stigma, and public surveillance can occur through word-of-mouth information flow and hinder access to care [15]. In Global South countries, the burden of mental health is the highest, and yet it is met with the lowest proportion of services [16, 17]. Furthermore, the bulk of health care services are overwhelmed by diseases such as HIV/AIDS, which results in the sidelining of mental health care [17]. Low and middle-income countries lack regulatory bodies, trained practitioners, and legislative frameworks [18]. Overall, inequitable mental health resources can lead to the loss of patient autonomy when families resort to coercive practices such as covert medication or physical restraint due to a lack of alternatives [18]. Ultimately, inequality is perpetuated by neoliberal perspectives which uphold the duty of individuals to draw upon personal resources to support those they care for [19,20]. Neoliberalism is premised on market-oriented policies, individual responsibility, and the privatization of care so as to avoid public expenditure [19]. By shifting the responsibility of care to communities and family members, government accountability and massive economic gains from unpaid caregivers are obscured while caregivers continue to confront barriers to access [19].

A carer's relationship with those they care for may contribute to and complicate an obligation to provide care. Informal carers must navigate conflicts between a responsibility to attend to the individual they care for and concern for their own well-being [21]. Feelings of guilt commonly characterize caregiving experiences [22]. This tendency to self-blame highlights the extent to which relationships between the carer and patient inspire a sense of duty [22]. For parents who are informal mental health carers, a sense of blame, and thus responsibility, can arise from stigma that extends to their interactions with healthcare professionals. Carers describe judgmental attitudes and behaviours from health professionals who may perceive mental health issues as a reflection of bad parenting [19,23]. Responsibility is underscored in East Asian family ethics derived from Confucianism, which emphasize harmonious interpersonal relationships within a family [24]. Due to these Confucian social norms embroiled into East Asian family dynamics, family carers often harbor a strong sense of responsibility for family members with mental illnesses. For East Asian families in the West, the relational aspects of care may conflict with the western emphasis on individual patient autonomy [24]. Overall, the ambiguity involved in the role of informal caregivers may stem from the neoliberal context which has pushed caring roles to personal networks [19]. By emphasizing personal responsibility, the burdens of care are not seen as a result of unjust structural failure but as inevitable and natural [25].

In summary, informal carers are often left unrecognized by the mental health care system despite the substantial reliance the system has on them [5,26,27]. In advocating for those they care for, informal caregivers are confronted with significant barriers preventing equitable access to mental health care. It is important to recognize the range of experiences involved in caregiving, including love, joy, hardship and sorrow. By viewing the weight of informal care in relation to systemic injustice rather than as a natural aspect of caregiving, it is possible to take steps towards ameliorating the burdens faced by informal mental health caregivers.

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House of Cards

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Health Policy

PERSPECTIVES ON CURRENT AND PRESSING HEALTH POLICY CHALLENGES AND ISSUES

Photo Courtesy of Zoey England

REFLECTIVE NARRATIVE

Out of Reach, Out of Hand, and Out of Mind: Reflections on Perspectives of Health in Rural India

Peter Anto Johnson, University of Alberta

Having returned to Angadickal, a rural village situated in the outskirts of Pathanamthitta, a town in southern mainland India, where I had spent six years of my life before eventually immigrating to Canada, I experienced a reverse culture shock. Perhaps my clinical shadowing and research internship placement experiences in Canada throughout my undergraduate and graduate training made my return to India's healthcare scene somewhat extravagant and eye-opening. The disparity between India's rural and urban healthcare system is something I believe most people find quite easy to distinguish – more often than not, rural healthcare is on its last legs.

As a part of a four-week volunteer service program, I shadowed a primary care physician at a private practice close to my residence. It was 07:30 AM in the morning in early May when I awoke under the heat of the scorching sun. Abiding by my daily routine, I would open up as soon as I woke up. Typically, we didn't have many visitors – usually four or five patients scattered throughout the day at most – however, today was different. It was still early in the afternoon when a patient arrived with heavy external bleeding. He was a late middle-aged man who had his hand wrapped around with his shirt, which was stained in red and blood was falling to the floor as he entered. He was ostensibly distressed and desperate for treatment, but our clinic clearly didn't have what we needed to manage his deep open wound, which had partially exposed the outer surface of his radius. From what we gathered, the nature of his injury was construction-related and when I saw sawdust and pieces of wood that needed to be cleared, I recognized immediately that this would evidently be outside of our scope of practice.

Given the nearest public hospital was roughly 10 km away and calling an ambulance would unquestionably take longer for it to come into the village from the hospital and make a round trip back, the best option was to call a local rickshaw. Given his circumstances and occupation, I could tell that seeking private care was out of question for him. Due to his insistence for painkillers, my preceptor and I gave him an elastic wrap bandage to help control the bleeding and paracetamol tablets. We urged him to seek care from the public hospital for his wound but he was reluctant to travel for his injury, even after we informed him about the increased risk for infection.

At this point, what astonished me the most was that he had begun to leave shortly after he received the painkiller, expressing his gratitude – he was convinced that covering up the wound was the best possible treatment for his injury. He reminded me of my grandpa, who was adamant that he would never go to a hospital even if he had to face anguishing pain. No matter how I tried to convince him, the lack of awareness or education there made it impossible for me to explain myself and the cogency of my concerns. He made me think back on other villagers I knew and brought me to a realization that this may have well been a communal thought both shared and entrenched in much of the older generation, which I was powerless to argue against.

A week later, he dropped by the clinic on his trip to the grocery store and showed us that his limb had to be amputated below the elbow. It appears that his adult kids were concerned about his injury and persisted for him to get it checked out at the public hospital just in case. When they arrived at the hospital, he required immediate surgery and the infection had progressed too far and irreversibly. I was then left wondering if I could have done something differently to get him immediate care that would have prevented him from losing a hand.

Within the village itself, knowledge even about hospitals and government-funded services was quite limited. Accessibility and even information about when one should visit the clinic or go to the hospital was but another barrier to the entire process. In addition to this lack of knowledge and awareness, the entire community relied extensively on traditional medicine. Perhaps, one common sentiment was that a wound can be treated if covered up or if a full cup of ginger tea was served.

In contrast, health care in Canada provided individuals with the practical knowledge and tools to deal with such emergencies. Additionally, the accessibility of services such as ambulances and hospitals in close proximities, even in rural areas, plays a huge role in equipping the public with basic health care resources they need to respond in similar situations. I believe the contemporary global health care system is characterized by a patent disparity geographically not only in terms of resource accessibility, but also with regards to the quality of care and understandings of health care within the community. In theory, like the issue of socioeconomic disparity, I believe these resources should be available to every individual in the world. Ultimately, the responsibility to make this a reality relies on fair resource distribution ethics and falls on those that possess the tools and technology to implement change.

OPINION EDITORIAL

Antimicrobial Resistance: A Bottleneck in the Achievement of the United Nations' Sustainable Development Goals

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INTRODUCTION

Now one of the top ten threats to global health, antimicrobial resistance (AMR), a phenomenon whereby microbes become resistant to therapeutic drugs, may launch humanity to a pre-antibiotic era and hinder treatment of common clinical conditions, leading to broader public health and economic challenges [1,2]. It is estimated that infections caused by drug-resistant microbes will cost the equivalent of $100 trillion USD and cause 10 million deaths per year by 2050 [3,4]. The AMR crisis has been exacerbated by systematic misuse and overuse of antibiotics in clinical, industrial, and agricultural settings [5]. In a society marked by transnational food production systems and trading of goods and services, medical tourism, and frequent human travel, resistant organisms spread rampantly [6–8]. The multi-sectoral, transboundary nature of the AMR crisis mandates urgent, coordinated action from all sectors nationally and internationally. This article outlines the impact of AMR on global development, reviews current barriers to reducing AMR, and suggests critical points of intervention.

AMR IMPEDES ACHIEVEMENT OF THE UN SDGs

Despite the growing threat of AMR on global health and development, it is not mentioned within the current goals, targets, and indicators of the United Nations' (UN) Sustainable Development Goals (SDGs) [9]. Yet, AMR impacts the achievement of SDGs. Most apparently, infections caused by resistant pathogens hamper good health and well-being globally (SDG 3) and result in increased mortality and morbidity. Antibiotics, when used judiciously, are vital to reducing maternal mortality, reducing the under-five child mortality rate, and controlling the spread of communicable diseases [10]. Moreover, antibiotics have made possible the prevention and control of infection during cancer treatment and organ transplantation [11].

The impacts of AMR extend beyond health metrics. AMR hampers sustainable economic growth (SDG 8) and poverty alleviation (SDG 1). One estimate suggests that widespread AMR would cause a 3.8% dip in the global gross domestic product by 2050 and launch an additional 24.1 million people into extreme poverty by 2030 [12]. Unsurprisingly, 18.7 million of those impacted would be from low-income countries, exacerbating current global inequities (SDG 10). AMR will continue to disproportionately impact low- and middle-income countries (LMICs) – especially those burdened with high transmission of communicable diseases, lack of affordable treatment options, and weak hygiene and sanitation systems [1,13].

The overuse and misuse of antibiotics, along with the growing intensification of agricultural practices, raise concerns about the emergence of AMR within the food production sector [14]. The spread of drug-resistant pathogens would not only keep antimicrobial resistant organisms (AMROs) within food chains, but also contribute to loss of livestock and animal protein (SDG 2).

Given these complex interlinkages, we conceptualize AMR as an "SDG bottleneck" as it impedes the achievement of targets across goals

[15]. Therefore, reducing AMR is intricately linked with the progression of the SDGs.

BARRIERS TO ALLEVIATING AMR

AMR continues to spread due to: i) a lack of sufficient research and development (R&D) on new antibiotics [16]; ii) over-prescription of antibiotics [17]; iii) lack of consumer and prescriber awareness [18]; iv) over-the-counter purchase of antibiotics and self-medication [19,20]; v) over-medicated livestock [21]; vi) lack of hygiene and sanitation [13]; and vii) environmental contamination of antimicrobial resistance genes (ARGs) and antibiotic residues [10,13].

The ongoing Coronavirus Disease 2019 (COVID-19) pandemic has drastically altered the global health landscape and represents another barrier to alleviating AMR. It has been suggested that the therapeutic use of antibiotics on COVID-19 patients presenting with respiratory symptoms will exacerbate the AMR crisis [22,23]. The rapid mobilization of global resources towards the COVID-19 pandemic illuminates the effectiveness of coordinated governance and political will [24–26]. Similar global coordination and action has not been achieved in the context of AMR.

Indeed, global governance initiatives on AMR were limited until the World Health Organization (WHO) convened in 2015 to develop a Global Action Plan on AMR [1]. Here, AMR was recognized as a One Health problem and the WHO encouraged an investigation of the intersections between AMR, human and veterinary medicine, agriculture, and environment. Yet, surveillance and regulation of antibiotic consumption have been limited to the human sector, indicating gaps within the animal and environmental sectors [27]. WHO reports this as “an emerging area of concern” where the issues and agenda for action remain unclear [27]. This beckons further inquiry into the role of the environment and water as propagative and protective agents against AMR risks.

RECOMMENDATIONS AND CONCLUSIONS

The AMR crisis will continue to impact global health, poverty, and the economy while exacerbating global inequities. The global community must therefore work to mount an aggressive, equity-centred response to the crisis. Here we outline two critical points of intervention.

1) Strengthened implementation of SDG 6 (Clean Water and Sanitation) interventions in vulnerable settings

Water, sanitation, and hygiene (WASH) practices represent the most cost-effective interventions for reducing the burden of infectious diseases [28,29]. Unclean water carries many infectious pathogens, and water-related diseases abound [30–33]. Basic WASH practices must be adjusted to alleviate the spread of AMR. This need is underpinned by the understanding that unsanitary practices enable environments rich with infective agents, which increases the use of antibiotics [34].

Implementation of SDG 6 must include sustainable innovation and equity. Reducing inequities (SDG 10) in WASH access is key to combating AMR. Clean water access is disproportionately limited to high-income countries (HICs) and 55% of the global population lacks safely managed sanitation [35]. Such inequities in access to WASH among HICs and LMICs increase the risk of AMR emergence in vulnerable settings, which has the potential to spread internationally [36]. Promoting equity in WASH requires understanding of local challenges and collaboration with LMICs to ensure contextually appropriate interventions. Additionally, strengthening innovation and infrastructure (SDG 9) is needed to address the intersection of AMR with WASH. Key efforts include R&D related to the environmental drivers and mitigators of AMR and the development of sustainable technologies to remove AMROs and ARGs from wastewater [37,38]. Innovation and infrastructure should reduce the burden on users and the need for behavioural change to ensure high uptake of interventions, along with training and education [39].

An international commitment towards the provision of WASH services, with an emphasis on equity and innovation, can therefore be conceptualized as an "SDG accelerator" and represents a necessary step towards accelerated progress in the battle against AMR and achievement of multiple SDGs, including SDGs 1, 3, and 6 [15].

2) The inclusion of AMR-specific targets and indicators within the UN SDGs.

The UN SDGs are currently the most prominent internationally accepted framework for global development. While the current SDG indicators are AMR-sensitive and indirectly impact AMR (e.g., infection prevention and control), there are currently no AMR-specific indicators or targets included within the SDG framework [9,11]. We support the inclusion of AMR-specific indicator(s) and believe that such recognition would represent an ambitious and important next step against the global AMR crisis. While the SDGs are not legally binding and recognition of AMR-specific indicator(s) would not be a quick fix solution, UN member-states are expected to uphold the development and execution of frameworks towards the achievement of the 17 goals [40]. Spotlighting AMR as an ongoing threat to the sustainable development of the planet would advance the placement of a truly global crisis onto national agendas.

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RESEARCH ARTICLE

Risks and Protocols for Occupational Infections in Norwegian Nursing Programs

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ABSTRACT

Hospital-acquired infections (HAI) affect millions of patients and healthcare workers every year. Nursing students are a particularly vulnerable population at increased risk of occupationally-acquired infections and injuries. In this qualitative study, we explore the risks and protocols currently in place for occupational infections in Norwegian nursing programs. Stress and lack of resources were among the identified individual and systemic risk factors, respectively. Accessible reporting systems and surveillance registries were also noted to be lacking across all participating universities. This paper highlights areas of improvement that nursing programs around the world may consider to better protect their students.

INTRODUCTION

Hospital-acquired infections (HAI) are a significant public health threat. In the European Union alone, over four million individuals acquire a HAI every year [1]. According to the World Health Organization, a HAI can be classified as any infection acquired "during the process of care in a hospital or other health care facility which was not present or incubating at the time of admission" [2]. This definition encompasses risks to both patients and healthcare workers (HCWs). Working on the frontlines, HCWs are at an increased risk of needlestick and sharps injuries (NSIs), blood or bodily fluid exposures, and unprotected exposure to contaminated surfaces. Falling under the umbrella of HAI, these workplace health risks can be termed "occupational infections".

In Norway, there were 2,219 cases of NSIs officially reported from employees in the fields of health and social services between 2015 and 2018 [3]. This number is estimated to be significantly higher due to under-reporting of occupational infections. In fact, one study found that reporting rates for NSIs could be as low as 10% [4]. Although much of the current literature focuses on protecting hospital staff and patients, a critical population often falls through the cracks: students.

To fill this gap, this qualitative study aims to explore the risks and protocols currently in place for occupational infections in Norwegian nursing programs. The results of this work can help guide future curriculum improvements for nursing programs around the world.

METHODOLOGY

This qualitative, phenomenological study explored the ideas and experiences of 10 program coordinators of various Norwegian nursing programs. The study population was gathered through purposive sampling and included six different campuses distributed among three universities. A semi-structured interview was conducted with each participant and included questions regarding infection control in the curriculum, major risks to students, and current strategies for infection prevention. For this research study, an occupational infection was defined as any infection obtained by nursing students during their clinical experiences. Interviews were collected through audio recordings and transcribed verbatim. All identifying data were removed prior to transcription to ensure confidentiality. The research team reviewed the transcripts and the first author coded units by hand into analytic categories. By comparing and contrasting categories across the transcripts, higher order themes were developed. Ethics approval was not required in Norway as identifiable data were not collected; however, informed verbal consent was obtained from all participants.

RESULTS

Risks

Both individual and system-level factors may contribute to a student's increased risk of infection. Common themes among individual factors included observed lack of preparation for simulation labs, general "negligence" as stated by the participants, and lack of experience. These were all subjective factors mentioned by staff. One participant importantly noted that mental health concerns, such as depression, stress, and anxiety, could also impact a student's ability to focus, thus putting them at an increased risk of NSIs. System-level risk factors included lack of resources (i.e. inadequate number of needle disposal boxes in simulation labs), lack of education given to students (i.e. outdated curriculum), lack of organization and supervision (i.e. high student-to-faculty ratios), and lack of time (i.e. overloaded student schedules).

Protocols

University protocols on occupational infection exposure differed quite significantly. Some programs offered online checklists for students to follow in the event of an occupational infection or injury, while others required that students and supervisors fill out incident reports. Notably, some campuses lacked an organized system altogether. Although incident reports were implemented at some campuses, the information from these reports was not used for infectious disease surveillance purposes. None of the universities represented in interviews had a registry in place to track occupational injuries among nursing students. However, all participants noted that this should be implemented in the future. One participant indicated that this lack of registry was "a weakness" of their nursing program.

DISCUSSION

Although mentioned by many participants, the subjective individual factors, such as lack of preparation or general "negligence", are difficult to measure and even more challenging to address at the system level. For these reasons, there is lack of strong supporting evidence in the literature. However, our results underlined an important risk factor that can be both measured and addressed systemically: the impact that mental illness and stress can have on a student's risk level. A positive correlation between stress perception and NSIs has also been found by other researchers [5]. Another study found that decreasing burnout in HCWs by 30% led to over 6000 fewer hospital-acquired urinary tract infections for patient, thus showing a positive impact on patient health as well [6]. Universities are encouraged to screen students using tools such as the Nurses Work Functioning Questionnaire; this valuable tool may help assess the effects of mental disorders on the work and safety of HCWs [7]. The results of these questionnaires can help guide future wellness initiatives and mental health resources for students.

In addition to individual risk factors, system-level factors were said to increase one's risk of infection. Placing needle disposal boxes at the bedside has been shown to decrease the rates of needle recapping and subsequent injury [8]. Other suggested strategies include wearing double gloves [9]. Furthermore, nursing curriculums should be assessed to ensure student schedules are reasonable. A study from the United States found that overburdened nurses (working more than 13 hours per day) had an increased risk of occupational infection or injury [10]. Overnight shifts were also found to significantly increase the risk of NSIs [11–13].

Although occupational infection rates may initially seem low, it is thought that most HAIs go unreported [4]. Our results suggest that this underreporting may be due to a lack of accessible, easy-to-use reporting tools and registries. A study in Singapore found that students may be more likely to report HAIs if the online system was more user-friendly [14]. The authors also suggested that a 24-hour reporting hotline be implemented [14]. With the claims that are submitted, universities are encouraged to form organized registries to monitor trends over time and prevent future injuries and infections. This was a noted gap among all participating universities. A study in Norway found hospital-based surveillance systems decreased the rate of surgical site infections by 57% [15]. Similarly, researchers in France saw a 58.6% reduction in infections after the implementation of a surveillance system [16]. There is, unfortunately, a lack of data on the student population and university registries. Currently, Norway has a national record-keeping system under the Norwegian Surveillance System for Communicable Diseases; however, this relies on accurate reporting by HCWs and student injuries are often left unreported.

Due to researcher time constraints and student holiday schedules, we were unable to interview the nursing students and gather their lived experiences regarding occupational infection control practices. As such, our study population – comprised only of university faculty – may introduce a sampling bias. Other limitations of this study include language barriers and potential social desirability biases when interviewing faculty leaders on behalf of their university program. In addition to interviews, an anonymous survey and a larger sample size would have been valuable. Future research is needed to minimize these biases and to gain a deeper understanding of the student perspective.

CONCLUSION

Occupational infection control is a critical component of healthcare and must be distinctly distinctly incorporated into the curriculum of nursing programs. This study explored the risk factors and protocols currently in place in Norwegian nursing programs. Most notably, it highlighted a widespread need for increased mental health resources and accessible reporting systems and registries. When updating the nursing program curriculum, all universities are urged to prioritize occupational infection control and to consider implementing any appropriate changes.

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OPINION EDITORIAL

The Interplay between Cultural Practices, Food Insecurity, and Poverty in the Consumption of Wild Meat

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INTRODUCTION

Zoonotic diseases are a global health threat that have caused billions of dollars in economic damage [1]. The Centers for Disease Control and Prevention, defines zoonotic diseases as infections that can spill over from animals to humans (Figure 1) [2]. Worldwide, zoonotic diseases are believed to account for 2.7 million deaths and 2.5 billion cases of human illness a year [3]. For the past 70 years, over 60% of infectious diseases faced by humanity have been caused by pathogens of zoonotic origins, the most recent being SARS-CoV-2 [1,4]

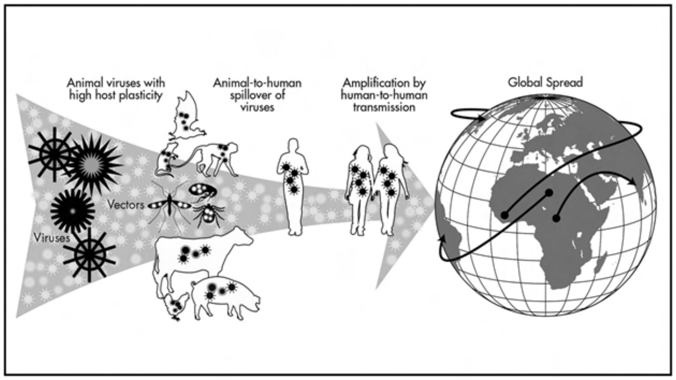

Figure 1. Spillover of Zoonotic Disease from Wild Animals to Human Host. Adopted from Kreuder Johnson et al., 2015 [5].

Unfortunately, SARS-CoV-2 will not be the last zoonotic pathogen to harm humanity. In 2018, Carrol et al. [4] estimated that there are at least 1.67 million unknown viruses harbored by animal hosts, 37-50% of which are expected to have zoonotic potential (Figure 2) [4]. One of the major risk factors for zoonotic spillover is the consumption of wild animals, also known as wild meat [6]. Wild meat alone has accounted for several zoonotic spillovers that have given rise to multiple highly profiled pathogens that including HIV, ebolavirus, Simian T-lymphotropic virus 1, and anthrax [7,8]. Despite its negative implications, the consumption of wild animals has remained a common practice globally. In this commentary, we aim to provide a brief overview on the utilities of wild meat for human subsistence and key issues that must be addressed to reduce the consumption of wild meat.

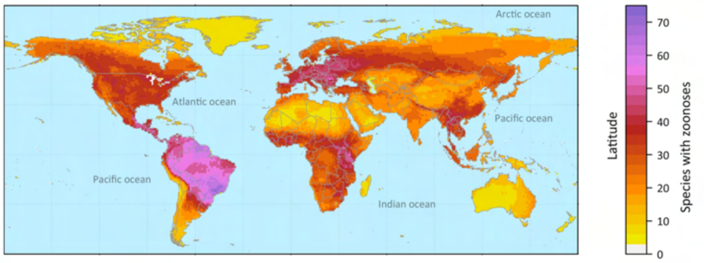

Figure 2. Geographical Distribution of Zoonotic Wild Animals. This map highlights the zoonotic potential of 5007 wild animal species from 27 orders. Adapted from Han, Kramer, & Drake, 2016 [9].

WILD MEAT AND FOOD SECURITY

In low-and-middle-income-countries (LMIC), wild meat is a vital source of protein and is protective against food insecurity [10]. In West and Central African countries, wild meat can account for up to 90% of animal protein consumption [11]. Many communities also depend on wild meat because of its abundance of micronutrients. One modelling study found the absence of wild meat to be associated with a 29% increase in cases of anemia among children in Madagascar [12]. In the same study, researchers found children from the poorest households had three times the risk for anemia compared to those from middle and high-income households [12]. Such findings indicate the importance of wild meat within low-income settings and their significance in alleviating food insecurity.

FINANCIAL SECURITY AND INCENTIVES

Not only is wild meat important for food security, but it is also a source of income. Wild meat can be a source of immediate income when households face unemployment, crop failure, and other financial hardships. When agricultural production is low, many rural households rely on selling wild meat as a 'safety net' to remain financially afloat [13,14]. Some households even use wild meat as a buffer to raise their domestic livestock for higher returns [15,16]. In some instances, such as in Equatorial Guinea where more 50% of men depend on hunting wild meat as the main source of income [17].

Wild meat has grown to be a large market globally. In China, the wild meat industry employs millions and is estimated to be valued at US $7.1 billion [18]. There are several favourable characteristics of wild meat that contribute to its profitability as a sector. In particular, wild meat has a high price-to-volume ratio and can easily be preserved through smoking or salting [19,20]. Through the establishment of commodity chains (i.e. supply, producers/hunters, wholesalers, retailers, and market demand), transportation of wild meat has also become more accessible, enabling rural hunters to generate income at distant markets at reduced transportation cost [21–23].

ALTERNATIVE OPTIONS

Overall, wild meat has become an important tool for addressing food and financial insecurities in low-resource settings. To reduce the consumption of wild meat, it is imperative that these communities be provided with alternative venues that can ensure their food and financial securities.

An initiative that has been proposed to address these combined issues is small-scale sustainable farming. An example of this would be 'family poultry', which are small-scale poultry systems that are managed by local families [24]. Family poultry is suggested to have important benefits for poor communities due to the affordability of chickens in LMIC and their associated nutritional values. In a report by Aklilu et al. [25], farmers from Ethiopia shared an expression that "Poultry are the seeds you sow to get the fruits, cattle". This expression is a reference to how poultry is a last source of capital for poor households to overcome. poverty. In family poultry, poor households can maintain a steady source of income from selling eggs as long as they can sustain regular production cycles. Eggs are also one of the most affordable animal sources for several nutrients, including proteins, fatty acids, Vitamin A, selenium, Vitamin B12 and more [26]. Other similar approaches include small-scale pig farming, pulse/legumes farming, and grass cutter farms [27–30].

CULTURAL SIGNIFICANCE

In some cultures, wild meat can also be recognized as a prestigious commodity or a symbol of social status [10]. In the Republic of Congo, wild meat is regarded as an exclusive luxury food item, as it is perceived as a natural, pure, organic and fresh [31]. Since wild meat is viewed as a rarity, it is customarily consumed at special occasions [31]. The perception of wild meat as a status symbol bestows a special status to those who can afford to provide or consume wild meat [31]. These cultural practices are also observed in China, where the consumption of wild meat is associated with elite status [23].

In a 2014 survey, over 80% of respondents from Guangzhou province reported consuming wild meat in the past year [32]. To counter the cultural perception and value of wild meat, researchers have suggested public health education around risk awareness of wild meat as potential measure.

RISK AWARENESS AND EDUCATION

Researchers found that individuals in rural, central Africa who recognized the disease risk of wild meat were less likely to butcher wild animals than individuals who did not perceive the associated risks [33]. However, this risk perception did not translate to reduced consumption and hunting of wild meat. Authors of the study speculated that this discrepancy could be attributed to individuals acting on their perception of what activities constituted as high-risk (i.e. butchering wild meat) versus low-risk (i.e. wild meat consumption, hunting) [33]. Consistently, another study also found risk perception of bat wild meat to be higher among groups who did not consume or hunt wild meat, compared to those did [34]. Based on these associations, health-risk education might be an effective approach to mitigating wild meat consumption, which empowers communities with the basic knowledge of zoonotic infections in wild meat consumption. With that in mind, these ideas require further research that considers the complex incentives that contribute to the consumption of wild meat in different populations.

CONCLUSION

Despite the associated risk of zoonotic infections, wild meat is essential for addressing food and financial insecurity in LMIC and is an important aspect of cultural practices in many countries. To ban the consumption of wild meat is to neglect its role in cultural practices and its utilities among populations facing food insecurity and poverty. Governments and public health figures need to consider the contextual importance of wild meat in different settings and to recognize that there is no one-size-fits-all solution for reducing the consumption of wild meat.

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OPINION EDITORIAL

Striving Towards Accessibility for Prescription Drugs: The Need for a Pharmacare Program in Canada

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In 1984, the Canada Health Act ensured Canadians receive necessary physician and hospital care at no cost [1]. Problematically, this excludes prescription drugs. Instead, these medications are covered through a patchwork of provincial programs, private insurance plans, and out of pocket costs from patients [2]. The end result is a fragmented system that leaves one in five Canadians struggling to cover the cost of prescription drugs [2]. Most importantly, these inequities have only heightened as a result of the COVID-19 pandemic. This article will examine the urgent need for pharmacare in Canada: a system in which universal healthcare covers the cost of prescription drugs [3].

BARRIERS TO PRESCRIPTION DRUG ACCESS

Critics of pharmacare often cite existing provincial programs that assist in covering the cost of prescription drugs [4]. For instance, the Ontario Drug Benefit covers this cost for those over 65 under specific conditions [5]. However, this argument overlooks three key issues. First, these programs vary significantly between provinces. In six provinces, those receiving social assistance do not pay out of pocket, whereas in the remaining provinces they do [6]. Patients in some provinces pay a premium before receiving coverage while others cover the cost out of pocket until a deductible amount [6]. This disjointedness means that Canadians receive coverage on the basis of where they live which, evidently, is unjust.

Even private or provincial coverage does not fully resolve patients from paying. Canadians still face the cost of premiums, deductibles, and copayments [7]. For this reason, nearly 22% of total expenditure on prescription drugs in Canada is out of pocket [8]. Lastly, the millions of Canadians who fall through the cracks of this patchwork of programs are left to deal with these costs unassisted as 11% report not having prescription drug insurance [9]. This has serious health implications since patients may choose to not take their medications altogether or take a decreased dosage so they last longer [10]. In fact, 26.5% without insurance report cost-related non-adherence to prescription drugs [10]. These apparent structural flaws in the Canadian drug system underscore the critical need for reform.

IMPACT OF COVID-19

COVID-19 has only widened the inequalities present in prescription drug access. It is estimated that two thirds of Canadians rely on private insurance coverage through employers [11]. Alarmingly, nearly 44% of Canadians have lost work or been laid off due to the pandemic and, consequently, do not have the private health insurance their former jobs once provided— assuming they had coverage to begin with [12]. To add to this crisis, copayments and dispensing fees have risen since pharmacies are instructed to dispense a month's supply of medication at a time. In a time when Canadians are most vulnerable, they are subject to increased barriers to medicine necessary for their well-being.

Further, Canadians who are self-employed and do not receive employer or provincial coverage are also left vulnerable. These Canadians already had the burden of no insurance plan, but now do so with decreased income. Yet again, stark differences between provincial plans aimed to cover low-income families only add to this issue. In British Columbia, the fair PharmaCare Plan covers 70% of costs for a family with a net income of less than $15,000 [13]. In contrast, the Non-Group coverage in Alberta only applies for families earning less than $39,250 and still requires a monthly payment of roughly $82 [13]. COVID-19 has illuminated these stark differences in coverage for low-income Canadian families. This uncoordinated coverage only doubles down on existing health inequities that are associated with lower socio-economic status. Implementing a national pharmacare program would ensure that Canadians regardless of their type of work, province of residence, or income can enjoy necessary access to prescription drugs.

IMPLEMENTING PHARMACARE

Despite the long-standing argument that a pharmacare program would be an immense financial burden, it is a cost-effective strategy. Current efforts to reduce drug prices in Canada are limited by the fact that provinces individually negotiate costs [8]. Clearly, this is an inefficient strategy due to diminished purchasing power. Canada is ranked third among the Organization for Economic Development countries in drug prices [14]. The cost of drugs has risen to 15.3% of total healthcare costs in 2018 which surpasses that of physician services at 15.0% [15]. Under pharmacare, however, Canada, as a single national body, negotiates with pharmaceutical companies. This renewed system holds significantly more negotiating power to drive down drug prices. An article by Morgan et. al. reported that a pharmacare system that accounted for 44% of prescription drugs would save the Canadian government $4.27 billion a year [16]. A similar strategy is also used in Europe. The most prominent example is the bloc formed by Austria, Netherlands, Luxembourg, and Belgium to effectively negotiate prices of orphan drugs [17].

Recent political will to implement pharmacare has brought light to this conversation. In March 2020, Members of Parliament unanimously voted to move ahead with a pharmacare program [18]. Although, no significant progress has yet been made. The presence of existing provincial programs likely explains the lack of urgency to develop such a paradigm shifting program. There has also been overwhelming support from Canadians for pharmacare. A 2020 survey by Angus Reid found that 89% support the idea and 77% say increasing prescription drug coverage should be a top priority [12].

RECOMMENDATIONS

A national pharmacare program directly addresses the flaws of the Canadian healthcare system. The national pharmacare program of New Zealand, called the Pharmaceutical Management Agency, illustrates this clearly [19]. In 2015, Canada spent $1,015 per capita on drug expenditure [19]. In contrast, New Zealand only spent $372 per capita [19]. Shockingly, New Zealand also insures all of its population — including vulnerable groups such as those with disabilities or chronic illnesses [19]. The reason behind New Zealand’s successes stems from their increased negotiating power, which is only possible through a nationalized pharmacare program. Clearly, a pharmacare program decreases pharmaceutical costs, increases prescription drug accessibility, and eliminates inconsistencies across jurisdictions.

CONCLUSION

The Canada Health Act was founded on the principles of universality and accessibility [1]. Although, it has become strikingly clear that the disjointed Canadian drug system fails to deliver on these fronts. The fact remains that Canada is the only developed country with universal healthcare that does not include prescription drugs [2]. A pharmacare system ensures that every Canadian, regardless of their province or income level, receives necessary medication. COVID-19, if nothing else, has emphasized these pressing inequities. It's time for prescription drug access to be based on the principles the healthcare system was founded upon.

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RESEARCH ARTICLE

Analysis of Chronic Pain Management in Canada and South Asia

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ABSTRACT

Chronic pain is a complicated condition that involves biological, sociological and psychological aspects. Management of chronic pain vastly differs between high-income and low- and middle-income countries due to variances in pain education, drug accessibility, governmental policies, culture and infrastructure. Therefore, this literature review analyzed chronic pain management in Canada and specific South Asian countries, including India, Pakistan, Sri Lanka and Bangladesh, to examine these differences, as well as what sociocultural and infrastructural factors contribute to them. In Canada, chronic pain still presents a major obstacle for society due to opioid misuse and mortality, patient beliefs, and poor pain education in professional health science programs. However, Canada's approach to pain assessment and management is more standardized through the regular use of pain scales and treatment guides and less hindered when compared to the South Asian countries examined. These South Asian countries face different barriers to providing effective pain management. Cultural beliefs, physician education, infrequent use of standardized pain assessment tools and healthcare infrastructure all present as barriers to effective pain management. Therefore, in Canada and the four South Asian countries examined, significance should be placed on the field of pain management via education, funding, and legislative changes to increase accessibility to suitable treatments.

INTRODUCTION

Chronic pain is pain that is experienced for longer than the expected recovery time, usually lasting longer than three to six months, and involves biopsychosocial aspects that complicate its management [1]. The term chronic pain encompasses many conditions including cancer pain, neuropathic pain and musculoskeletal pain [1]. About 20-25% of the global population experiences chronic pain and it can severely hinder a person's daily activities, promote depressive symptoms and impact relationships with others [1,2].

General global guidelines for chronic pain management stem from the World Health Organization's (WHO) analgesic ladder that provides stepwise recommendations for handling pain management [3]. Steps include use of non-opioid drugs, weak opioids and strong opioids as pain intensity increases [4].

Management of chronic pain vastly differs between high-income and low- and middle-income countries due to discrepancies in pain education, drug accessibility, culture, governmental policies and infrastructure [5]. Therefore, this paper analyzed differences in chronic pain management between Canada and the South Asian countries studied.

METHODOLOGY

Chronic pain management practices were researched in Canada and the following South Asian countries: India, Pakistan, Bangladesh and Sri Lanka, to analyze differences between these locations and the factors affecting pain practices. These factors included policies, sociocultural values, economies, and healthcare systems. Differences in chronic pain management were explored through a literature review of available research using Google Scholar, PubMed and Web of Science databases. Documents that were evaluated included review articles (34), primary research articles (20), reports (10), government documents (2), books (1), and textbooks (1) for a total of 68 documents.

RESULTS

Canada based its chronic pain management guidelines on the WHO's analgesic ladder [6–8]. These guidelines are provided by professional agencies including the Registered Nurses' Association of Ontario and the Canadian Pain Society (CPS) [7,8]. Recommendations emphasize pain assessments using diagnostic procedures and pain scales, and personalizing treatments based on assessment results and detailed medical histories [8]. The Canadian Chronic Pain Study II found that primary care physicians were regularly implementing standard pain assessments and followed the treatment guidelines as outlined by the CPS [9]. Additionally, Canada prescribes the second most opioids in the world [6]. A study in Ontario found that opioid prescriptions increased by 29% between 1991 and 2007 [10]. Furthermore, since the 1980s, opioid sales to pharmacies and hospitals has increased by 3000% [11]. The increase in opioid usage can lead to dependence and addiction [12]. This is a contributing factor of opioid misuse in Canada as evidenced by the 2861 opioid related deaths and approximately 16 people who were hospitalized daily for overdoses in 2016 [11].

The South Asian countries examined use the WHO's analgesic ladder as guidance on chronic pain management [13–16]. However, although professional agencies, such as the Indian Society for the Study of Pain, exist to recommend pain management based on international guidelines, implementing them is challenging [14,17,18]. In India, the Narcotic Drugs and Psychotropic Substances Act limits storage and distribution of opioids. Amendments in 2014 have still not increased opioid supply to medical establishments in many states [17]. Similarly, in Pakistan, there are also legislative constraints as there are no legal paths to obtaining fentanyl and methadone which are commonly used in cancer pain treatments [18]. In Bangladesh, due to the scarcity of recommended opioids, pethidine is still widely used for chronic pain treatments even though it was removed from the WHO's recommended list because of its toxicities [16].

The pain assessment process was not as regularly implemented in these South Asian countries [17,19]. In Pakistan, studies discovered that healthcare workers irregularly noted pain details and pain scales were seldom used [19]. The pain assessment process was found to be more sporadic compared to the standardization observed in high-income countries [19]. In India, inadequate pain assessment was found to be one of the most typical reasons for deficient pain management [17].

Patient beliefs in Canada and the South Asian countries studied can lead to reluctance in seeking and using opioids due to fears of addiction [9,17,20,21]. Furthermore, in South Asia, common cultures include Hinduism and Islam which can influence pain management [20,22]. Some beliefs in Hinduism include enduring pain and suffering without medication as a possible means for spiritual growth [23]. Islamic beliefs can prevent the consumption of opioids because of its sedative properties which can affect a patient's ability to recite prayers [20].

In both Canada and the South Asian countries examined, there was inadequate pain education in the medical curriculum. In Canada, veterinarian programs incorporated 87 hours of pain education relative to 16 hours which is provided in the medical curriculum [24]. Similarly, in India, a survey found that 60% of physicians had less than 10 hours of pain education within their curriculum [25].

Finally, South Asian countries have insufficient funding and healthcare infrastructure for adequate pain management as only a small percentage of their Gross Domestic Product (GDP) is spent on healthcare. In South Asian countries, approximately 3-4% of their GDP is spent on healthcare, in comparison to Canada where 11% is used [26,27]. This is one of the contributing factors to the inaccessibility of opioids in these countries [17].

DISCUSSION

Chronic pain management practices differ widely between Canada and the South Asian countries studied. In Canada, chronic pain management is more standardized through the regular use of pain assessments, opioid availability and tailored treatment plans when compared to South Asian countries. However, unhindered access to opioids can lead to the misuse and mortality that is observed in Canada. Conversely, restrictive laws, opioid supply issues and inexperience surrounding the prescription of opioids in the South Asian countries studied can foster the undertreatment of chronic pain [16–18]. Additionally, inadequate use of standard pain assessments can impede accurate diagnoses and suitable treatments. Therefore, when utilizing opioids for the management of chronic pain, there needs to be a balance between access to opioids and appropriate education for physicians and patients.

In Canada, changes to physician education can include increased time allocated to pain education in the medical curriculum. For example, having sufficient knowledge on optimal dosing strategies and other non-opioid or non-pharmacological treatments such as cognitive behavioral therapy and physical activity may assist in the reduction of unnecessary opioid prescriptions [6,8,17]. Additionally, improved patient education on the risks of opioid use can also help prevent misuse. In the South Asian countries studied, some changes that may enhance pain education for physicians can include promoting the use of standardized pain assessments, prioritizing pain management and the benefits of opioids for effective pain relief [17].

Furthermore, opioid distribution and supply policies need to be re-examined, so patients have sufficient access. Finally, funding should be allocated to healthcare infrastructure especially in rural areas so that patients have access to pain clinics and treatments.

CONCLUSION

South Asia and Canada face numerous challenges in their chronic pain management. Canada's approach is more standardized when compared to South Asia. However, both systems can stand to improve chronic pain management practices. Therefore, recommendations to help improve chronic pain alleviation include placing more emphasis on the field of pain management through education, funding, and legislative changes to inform physicians and patients about chronic pain and increasing accessibility to appropriate treatments. Chronic pain is a debilitating ailment, therefore it is important to provide optimal pain relief.

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OPINION EDITORIAL

Improving Retinoblastoma Care and Outcomes in Kenya

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INTRODUCTION

Cancer is a leading cause of childhood mortality, with approximately 300,000 new cases diagnosed each year worldwide, and recorded incidents increasing over time [1]. In high-income countries (HICs), medical surveillance has enabled earlier detection and treatment of cancer, leading to a survival rate of approximately 80%, representing the percentage of children who are alive five years or more after their diagnosis [2,3]. Despite the advancements in HICs, nearly 90% of children with cancer reside in low- and middle-income countries (LMICs) and are four times more likely to die of the disease than children in HICs [1,3]. Explanations for this discrepancy include delayed diagnoses, low-resource hospitals, and a lack of specialized training among healthcare professionals [2]. In 2018, the World Health Organization announced the 'Global Initiative for Childhood Cancer', aiming to reach a 60% survival rate by 2030 [1]. This article will demonstrate how a shift towards eHealth can advance cancer care and outcomes in LMICs, specifically using retinoblastoma in Kenya as a case study.

RETINOBLASTOMA AND THE GLOBAL DISEASE BURDEN

Retinoblastoma (RB) is a rare cancer that typically develops before the age of five in the light-sensitive tissue at the back of the eye called the retina [4]. RB accounts for about 4% of all cancers in children younger than 15 years [4,5]. As the eyes develop, progenitor cells called retinoblasts divide and fill the retina [5]. If a mutation occurs in the RB1 gene of the immature progenitor cells, the retinoblasts grow out of control and form an RB tumour. The most common presenting sign is a white pupil, or leukocoria, followed by misaligned eyes, or strabismus [6,7]. Several therapeutic options for RB include enucleation (removal of the affected eye), local or systemic chemotherapy, and focal treatments with laser and cryotherapy [6]. In HICs, these therapies have led to a >90% survival rate [7]. Even though RB treatment can be curative when diagnosed early, families in LMICs face the consequences of delayed presentation, including an aggressive invasion of the optic nerve and brain or secondary metastases in the body, which can be fatal [6].

Approximately 9,000 cases of RB are diagnosed annually worldwide [8]. Although the global incidence of RB is constant, at one in 15,000-20,000 live births, the condition has a significant burden on LMICs [6]. Data shows that 11% of children with RB live in HICs, while 89% live in LMICs [8]. Even though the prevalence of RB is evidently greater in LMICs, most treatment centers are in middle- and HICs, demonstrating a discrepancy in facility distribution [8]. Access to RB treatment is the greatest barrier to survival in most LMICs, where patient survival has historically been <30% [6]. Outcomes are worsened due to low public awareness and inadequate financial resources [6].

IMPROVING RB DIAGNOSES IN KENYA

The age of RB diagnosis is influenced by (1) the molecular basis, where heritable RB presents earlier than the non-heritable form and (2) the medico-social response, where contextual factors such as public awareness impact the recognition of signs [8]. In HICs, photoleukocoria (a white pupil in photographs) is commonly a feature that directs caregivers to seek readily available medical advice. Unfortunately, children in LMICs whose signs are missed continue to suffer through advanced disease forms like colour change of the iris, an enlarged cornea and eye, or non-infective orbital inflammation [8]. In fact, proptosis (protrusion of the eye from the socket due to the tumour's expansion) is a common presentation in Asia and Africa, demonstrating the deadly effect of delayed diagnoses in LMICs [8].

In Kenya, approximately 90 new cases of RB are documented annually [9]. As a result of Kenya's referral-based healthcare system, the cumulative three-year survival rate was historically very low, at 26.6%, mainly due to the delay between disease presentation and treatment [9,10]. Research that explored the knowledge, attitudes, and experiences of RB patient families showed that they expressed a desire to better understand their diagnosis and receive more comprehensive service delivery [11]. Diagnostic delays and mortality rates led to the formation of the Kenyan National Retinoblastoma Strategy (KNRbS) group, which has successfully implemented several efforts to improve survival such as publishing the KNRbS Best Practice Guidelines and creating a system of centralized pathology for RB [12]. With such fruitful changes, the age of children receiving bilateral and unilateral RB diagnoses has changed from 25.2 to 16.8 months and 35.9 to 24 months, respectively [13]. These figures are more akin to those of HICs and associated with a better prognosis [14]. It is currently necessary to implement and assess studies that test intervention efficacy for RB patient families, such as genetic testing and counselling using eHealth.

INCREASING ACCESSIBILITY WITH EHEALTH IN KENYA

Kenya is a modern hub for information and communication technologies (ICTs); thus, it is an appropriate location for assessing eHealth as a cancer service delivery mechanism [15]. eHealth-driven initiatives can respond to access-related issues by providing interventions from any setting, given that over 93% of Kenyan households own a mobile phone and mobile internet penetration is greater than 100% [15,16].

Some researchers suggest using 'WhatsApp' as a cost-effective and convenient eHealth tool for data collection, as shown in Lebanon (a LMIC), where the platform was used for qualitative surveying [17]. WhatsApp is a free multi-function messaging application used by 88.6% of Kenyans [16]. Further research showed that mobile-phone technology can be effective for delivering educational interventions to parents of children with sickle cell disease, another genetic disorder [18]. A third study used WhatsApp in a medical setting to increase medication adherence in hypertension and diabetes patients, showing that this mechanism of information transfer can be feasible in a healthcare environment [19]. In alignment with these studies, educational interventions for RB patient families could be mobile-phone-based, using WhatsApp to gather valuable data surrounding attitudes and knowledge about their experience with RB. eHealth can harness ICTs for improved healthcare delivery in the face of rising healthcare costs, higher demands for quality services, and a shortage of trained personnel [15].

In Guatemala, another LMIC, mobile phones were provided to community facilitators as an eHealth intervention to communicate with pregnant women [20]. This strategy enabled continuous training, medical consultations, and community health promotion, leading to a significant decrease in maternal and child mortality [20]. Evidently, eHealth can be successfully employed to increase healthcare accessibility and outcomes in an LMIC; however, this tool must be applied in a culturally sensitive manner. One study evaluated factors associated with knowledge gain in a sample of African American women diagnosed with early-onset breast cancer [21]. Researchers determined that culturally targeted material given through multiple modalities (e.g., phone call, visual aid, personalized letter) may improve relevance and acceptability of information as compared to traditional material [21]. To respond appropriately to the cultural variations and expressed needs unique to the Kenyan RB population, it is necessary to design, implement, and study several eHealth modalities that can educate families about RB as well as its genetic causes and consequences [9,11].

CONCLUSIONS

In LMICs, services for RB such as genetic testing and counselling are largely unavailable and/or inaccessible, meaning that RB patient families are not supported in undergoing surveillance, accessing timely care, and coping with their diagnoses. Although eHealth does not come without challenges, it is a potential solution to the gap in cancer care within LMICs, thus its efficacy must be assessed through further implementation studies.

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OPINION EDITORIAL

The Relationship between Climate Change and Mental Health

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INTRODUCTION

Since the beginning of the industrial era, human activities have caused an unprecedented increase in greenhouse gas (GHG) emissions. The atmospheric concentration of carbon dioxide, a major GHG, has risen by 40% since 1750 and the increase does not show signs of slowing [1]. It is well established that GHG emissions seriously destabilize our climate systems. Indeed, the three most recent decades represent the warmest on record [1]. In addition, the Antarctic ice sheet has continued to lose 159 gigatons of mass each year, contributing to rapid sea-level increase [2]. These climatic changes diminish aquatic resources, reduce crop yields, alter the geographic range of various species, and increase the frequency and severity of extreme weather events, ultimately affecting the health of humans and societies as a whole.

Climate change and its effects contribute to conflict, economic instability, food and water insecurity, human displacement, and by extension, morbidity and mortality. In 2009 The Lancet Commission on Managing the Health Effects of Climate Change identified climate change as “the biggest global health threat of the 21st century” [3]. While the physical health impacts of climate change are relatively well understood, considerably less is known about the impacts on mental health. This article will provide an overview of existing literature on the effects of climate change on mental health, summarizing its direct, indirect, and long-term impacts and will conclude by proposing several pathways through which we can strengthen mental health care systems in light of climate change.

DIRECT EFFECTS ON MENTAL HEALTH

Climate change directly affects mental health through psychological trauma associated with exposure to climate-related natural disasters [4]. In the literature, climate-related natural disasters are commonly subdivided into acute or short-term, and sub-acute or longer-term events. Acute disaster events, such as floods, storms, and wildfires, typically occur over a period of days. Post-traumatic stress disorder (PTSD) is one of the most well-researched mental health outcomes associated with acute disasters. One systematic review reported PTSD prevalence rates of up to 60% in the first one to two years after exposure to a natural disaster [5]. In addition to PTSD, acute weather events are also associated with stress, anxiety, depression, substance use disorders, and overall poor wellbeing [6,7,8].

Furthermore, sub-acute disaster events occur over months or years, such as long-duration heat waves and droughts also have an impact on mental health. Heatwaves are commonly associated with increased rates of suicide. For example, a South Korean analysis found that for every 1˚C increase in mean temperature, the risk of suicide increased by 1.4% [9]. With temperatures continuing to rise due to climate change, it is possible that within the coming decades the increase in heat-related suicides may negate many of the advancements made by suicide prevention programs [10].

INDIRECT EFFECTS ON MENTAL HEALTH

The indirect effects of climate change on mental health are driven by climate-induced pressures on the functional capacity and overall wellbeing of communities [4]. As mentioned, climate change reduces crop yields, alters weather patterns, and intensifies climate-related disasters, thereby contributing to negative outcomes such as food and water insecurity and massive population displacement. In 2019 alone, natural disasters caused the internal displacement of nearly 25 million people [11]. Internal displacement contributes to less-than-optimal living conditions and lack of access to adequate food and water, leaving individuals prone to negative mental health outcomes [12]. Similarly, economic disruptions brought about by reduced crop yields, for example, contribute to job loss and poverty [13]. One study found that the odds of major depression were more than five times higher among those who had lost their jobs in the past 7-12 months compared to those who had not [14]. Economic hardship may also result in problems such as family stress, decreased social support, and food insecurity, all of which have mental health implications.

LONG-TERM EFFECTS ON MENTAL HEALTH

Lastly, long-term effects involve a sense of worry and fear regarding the impending threat of climate change and its predicted impacts on future generations [4]. Unlike direct and indirect effects, long-term effects are not necessarily tied to a specific climate change-related process or event and instead manifest as negative feelings regarding the slow yet unrelenting progression of climate change over time. Due to the massive scale and complexity of climate change, many feel overwhelmed and hopeless in acting against it. For example, individuals may become distressed by the repeated lack of accountability from governments and industry regarding GHG emissions. While scientific evidence on the detrimental impacts of climate change is clear, little systems-level action has been taken thus far.

Children and youth are particularly affected by these feelings of worry and fear [15]. Interviews with fifth-grade children from the United States revealed that 82% expressed feelings of sadness, fear, and anger related to environmental problems, and 72% shared pessimistic feelings when asked what they thought Earth would look like in 100 years [16]. Compared to older generations, children and youth are generally more knowledgeable on and invested in the issue of climate change, offering hope beyond the immediate mental health challenges [15].

CLIMATE CHANGE AND POTENTIAL MENTAL HEALTH VULNERABILITIES

Climate change adversely affects our mental health in a multitude of ways through direct, indirect, and long-term processes. It is important to note that the mental health effects of climate change disproportionately burden populations who may already face health barriers. For instance, among Inuit in Canada, the rapidly changing climate in northern areas has resulted in a level of disconnection to the land, which is closely tied to cultural identity and mental health [17]. Globally, those living in low- and middle-income countries (LMICs) endure considerable climate change-related burdens, such as overpopulated coastal communities and damage from climate-related natural disasters, and these countries often lack strong health systems or adequate mental health supports. With this in mind, the mental health impacts of climate change should be addressed as a health equity issue.

WHERE DO WE GO FROM HERE?

Going forward, additional research is needed to fully ascertain the relationship between climate change and mental health, particularly among groups facing other health barriers. In addition, we must improve awareness of the mental health effects of climate change among the general public and policymakers alike. Further research and recognition of these issues will support the development of comprehensive mental health care policy and the inclusion of mental health in climate change adaptation planning. We must situate mental health within a broader understanding of climate change, working to advance frontline mental health care through improved access and funding for mental health services, increased mental health surveillance and monitoring, resilience planning within the mental health care system, and specialized mental health training for care providers and first responders [18]. Ultimately, an awareness of the relationship between climate change and mental health will help strengthen our care systems.

Reducing the mental health impacts of climate change will require collaboration and accountability on a global level. Countries must urgently prioritize GHG emission targets and other climate change adaptation initiatives, as well as promote transparency in political decision-making processes. Further, governments in high-income countries must promote equity in the development and implementation of mental health policy among those populations already facing health barriers, such as those living in LMICs. Due to the indiscriminate and sweeping nature of climate change, we must work together as a global community to reduce its burden on mental health and improve overall quality of life.

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Gender equality
is an essential component
of efforts to improve health
globally. Gender discrimination faced
by women affects access to health services,
physical and mental health outcomes, and the
right to realize their full human potential.
Women represent 70%* of the health and social
workforce globally but tend to occupy positions
of lower social
value, status, and pay.
Global commitment
to gender equality
is rising rapidly
and many organizations
involved in global
health work acknowledge
the impact of gender equality
in achieving their missions.
Yet, gender equality policies
at the workplace remain a rare
phenomenon. Women in leadership
roles are highly underrepresented.
Men continue to lead global health
organizations, holding 70%# of leadership positions.
The lack of female perspectives and knowledge depletes the
field of global health. Health systems function best when
women and men equally contribute to the design and delivery
of health care. Striving for gender equality is the responsibility
of both men and women. Let's make the world more red together.
*WHO. Gender, Equity and Leadership in the Global
and Social Workforce. Policy brief for consultation, 2020;
#Global Health 50/50. Gender Equality: Flying Blind in a Time
of Crisis, 2021.

- Maja Milkowska-Shibata, 1967 Smith Corona Cougar II

Artwork Courtesy of Maja Milkowska-Shibata

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Maternal and Child Health

GLOBAL CHALLENGES AND SOLUTIONS FOR ACCESS TO MATERNAL AND CHILD HEALTH CARE

Photo Courtesy of Hunster Yang

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OPINION EDITORIAL

Tanzania and Rwanda on Pace to Reach SDG Under-5 Mortality Target

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INTRODUCTION

The United Nations adopted Sustainable Development Goal (SDG) 3 to end preventable child deaths by 2030 [1]. Two thirds of under-5 deaths are considered to be preventable and a third are linked to malnutrition [2,3]. Under-five mortality has decreased globally by ~50% from 1990 to 2018[1], however; disparities exist in regions such as sub-Saharan Africa and Southern Asia which accounted for >80% of under-five deaths in 2018 [1]. Furthermore, under-five deaths are almost twice as likely in rural areas while children of educated mothers are three times more likely to survive, suggesting that accessibility and public health efforts are factors worth considering [4]. A 2019 modelling study identified Tanzania and Rwanda to be the only two countries in sub-Saharan Africa on pace to reach their SDG targets for under-five and neonatal mortality [5]. Based on the nature of most under-five deaths, successful strategies which target preventable child deaths should be discussed for wider adoption. In this article, the strategies implemented in Tanzania and Rwanda will be analyzed and common themes including institutional partnerships, capacity building, and increasing accessibility to healthcare will be discussed. Although strategies cannot be perfectly replicated, lessons learned can be considered for other nations to effectively reduce preventable under-five child mortality.

TANZANIA

Tanzania's success in reducing child mortality comes from political involvement, increased funding, and implementing effective interventions which target preventable deaths at the community and facility levels of the healthcare system [5]. Three key examples of this include the Maternal and Child Survival Program (MCSP) to scale up reproductive, maternal, newborn, and child health (RMNCH) services, pneumonia treatment by Results for Development (RD), and national strategies to decrease diarrhea-specific mortality.

The United States Agency for International Development's (USAID) MCSP was implemented in Tanzania from 2014 to 2019 [6]. The program increased accessibility of effective RMNCH services, along with the introduction and scale-up of high impact and sustainable interventions from hospitals to community-based care [6]. MCSP supported the integration of new vaccines into the national system, saving 35,000 children's lives between 2013-2018 [7].

The RD organization tackled childhood pneumonia alongside the government of Tanzania in 2015 [8]. RD obtained funds for six million courses of treatment, worked with national health authorities to accurately predict antibiotic demand to prevent stockouts and over-ordering, and brought in drug manufacturers to ensure adequate supply and drive down prices by competition [8]. They instructed the Medical Stores Department (government agency) on bidding for antibiotics and worked with the Ministry of Health to improve diagnostics and prescriptions for childhood pneumonia through mentorship programs [8].

Tanzania's decrease in diarrhea-specific mortality comes from a combination of strategies focusing on treatments and nutrition [9]. The National Control of Diarrheal Disease increased oral rehydration therapy (ORT) availability in health care facilities and instructed mothers on prevention and at-home care [9]. Diarrhea treatment corners were put in primary health care facilities for preparation and use of ORT. Village scouts trained mothers how to prepare ORT and community health workers (CHWs) prepared and administered ORT in the community [9].

These three examples highlight wide-spread strategies to increase accessibility of health care through implementation and scale-up of interventions to improve under-five health outcomes. Altogether, the initiatives scaled-up RMNCH services, increased treatments for childhood pneumonia, and reduced diarrhea specific mortality through several interventions within health centers and community level care.

RWANDA

Rwanda has achieved significant reduction in under-five mortality over the past decade [10]. Like Tanzania, many under-five deaths in Rwanda are both preventable and treatable. Three examples of high-impact interventions include the national vaccine rollouts, MCSP's efforts to improve diagnostics and treatment, and the Kuraneza project implementing early childhood development (ECD) centres.

From 2009 to 2013, the government of Rwanda released vaccines for pneumococcus, human papillomavirus, rotavirus, and measles and rubella, achieving over 90% coverage [11]. Rwanda's Health Management Information System (HMIS) identified pneumonia and rotavirus as the first and third leading causes of under-5 deaths in Rwanda, respectively [11]. The vaccine rollouts were supported by international partners and included training of healthcare workers [11]. Widespread acceptance of the vaccines was achieved through awareness amongst local authorities, community leaders, and local non-governmental organizations (NGOs). Additionally, vaccination sites were set up in remote areas with the use of motorcycles and cold boxes.

The United States Agency for International Development (USAID) MCSP – Rwanda (2015-2019) identified capacity gaps to scale up and deliver high-impact interventions [12]. Rwanda's three professional association partners considered essential in delivery of RMNCH services each received funding from the MCSP for organizational development and capacity building. The three organizations executed low-dose high-frequency mentorship programs, resulting in increased treatment of pneumonia and diarrhea cases [12]. The MCSP trained lab technicians, health providers, and CHWs to improve diagnostics and increase malaria prevention in the community.

Kuraneza was a four-year project in rural Rwanda by CARE international and financed by USAID [13]. Health facilities and CHWs promoted healthy feeding habits, home gardening, and small animal production for families to become self-sustaining [13]. The program created ECD centres for children of ages three to six, meeting with groups of mothers with children of ages one to three, and home visits for pregnant women and mothers of infants [14]. The ECD groups allowed mothers to work longer hours and contribute financially to their families [14]. Kuraneza educated caregivers on prevention and early treatment mechanisms of pneumonia and diarrhea, while CHWs provided counselling on household practices to prevent childhood illnesses [13].

The three initiatives in Rwanda targeted under-five survival through increasing preventative measures and increasing accessibility of healthcare services in rural parts of Rwanda. Together, the programs increased vaccine coverage, increased treatment availability, and established programs in rural communities to encourage healthy ECD.

DISCUSSION

The child survival strategies vary between Tanzania and Rwanda, yet common themes emerge (Table 1). Both national governments took steps towards improving child health outcomes through introduction and scale-up of interventions targeting preventable child deaths and forming partnerships

Table 1. Comparison of Tanzania and Rwanda's Strategies.

	Tanzania	**Rwanda**
Partnerships	-Government collaboration with USAID (MCSP) and Results for Development -Existing partnerships allowed manufacturers of antibiotics (pneumonia) to enter the Tanzanian market	-Government collaboration with GAVI, UNICEF, WHO for vaccine rollouts Collaboration between USAID, Ministry of Health and Rwanda Biomedical Center for MCSP
Training health care workers	-Training Medical Stores Department to purchase appropriate quantity of antibiotics in a timely manner -Training health providers to accurately diagnose pneumonia in children and prescribe antibiotics	-Health workers extensively trained for vaccine rollouts to maximize efficiency and safe use of resources -Low-dose high-frequency training resulted in increased detection, treatment, and documentation of pneumonia and diarrhea
Increasing accessibility	-MCSP focused on establishing funding for malaria treatment for pregnant mothers -Increased ORT services in health care facilities for diarrhea treatment	-Ministry of Health set up vaccination sites in remote areas with motorcycles and cold boxes -CHWs and community leaders made arrangements for emergency transportation to health facilities
Improving evaluation	-MCSP: Development of health information systems, including the vaccine information management system. -Improved existing quantification system to predict accurate demand of antibiotics for pneumonia	-Vaccine rollout from province to province allowed lessons learned from one province to be incorporated into the next province -MCSP implemented indicators into facility registers and HMIS to measure progress and monitor on dashboards for scale-up

with multilateral organizations such as USAID and Global Alliance for Vaccines and Immunization (GAVI).). These organizations are able to secure funding by investing long-term donor contributions into capital markets and bundling demand for critical commodities such as vaccines to bring down prices [15].

The two nations were able to decrease under-five deaths through nationwide training of healthcare providers and CHWs for treatments and improved diagnostics. For example, care givers in Rwanda received training for vaccine handling, storage, and transportation to ensure efficient resource use during vaccine rollouts [11]. Additionally, capacity building ensures that children receive appropriate diagnosis and treatment plans [12].

Mobilizing healthcare into marginalized communities increased usage and accessibility of healthcare. CHWs can provide basic services, educate mothers, and encourage regular access to healthcare to reduce preventable and treatable child illnesses. Additionally, vaccination sites in rural areas and transportation arrangements to health facilities can further target marginalized communities [11].

Projects in both countries placed emphasis on effective monitoring and evaluation mechanisms to measure progress, identify areas of concern, ensure efficient use of supplies, and predict health care needs. Evaluation mechanisms enable future strategy improvements and avoidance of unwanted circumstances [11]. Lastly, advanced planning and preparation of equipment and human resources can highly benefit introduction and scale-up of interventions [7].

CONCLUSION

Tanzania and Rwanda have successfully reduced their under-five mortality rates through the implementation of effective and low-cost interventions. Their initiatives, although different, made use of similar strategies which led to their success. Capacity building, multilateral organizations, CHWs, and evaluation mechanisms allowed the two nations to effectively target preventable and treatable child illnesses. It would be worthwhile for other regions in sub-Saharan Africa and Southern Asia to evaluate the projects implemented in Tanzania and Rwanda and determine the form in which they could be adopted in their own respective contexts. Strategic partnerships and well-planned initiatives targeting preventable under-five child deaths can enable other LMICs in reaching their targets and improving child health across the world.

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OPINION EDITORIAL

Granting Agency to Mothers in Decision Making Over Breastfeeding in Fragile Humanitarian Settings: A Call for an Emancipatory Feminist Approach

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BACKGROUND

In 1981, the World Health Assembly (WHA) adopted the World Health Organization's (WHO) International Code of Marketing of Breastmilk Substitutes (IC) to promote healthy infant and young child feeding (IYCF) practices through more stringent regulation of the marketing of breastmilk substitutes (BMS) [1]. This action was largely in response to prior allegations of ethical misconduct by corporations complicit in the scientifically inaccurate advertisement of BMS as nutritionally superior [2]. The 1981 WHA adoption of the IC was thus justifiably viewed as a laudable global health achievement for it marked a fundamental shift in how governments responded to aggressive lobbying by formula companies in the defence of public health [3].

Not surprisingly, the IC's adoption catalyzed an equally radical change in the global ethos surrounding breastfeeding. As major multilateral institutions, including the WHO, United Nations Children's Fund, and International Baby Foods Action Network, passed subsequent resolutions supportive of breastfeeding, the promotion of breastfeeding began appearing in the national public health strategy formulations of national governments. This resulted in rates of breastfeeding worldwide to rise sharply in response to public recognition of its nutritional superiority [3,4,5]. Unfortunately, when the IC was adopted, little consideration was given to the pragmatic realities faced by mothers in fragile humanitarian settings, leaving minimal allowance for operational divergence from best practices in contexts fraught with social, political, cultural, and physical barriers to breastfeeding.

CHALLENGES TO BREASTFEEDING IN FRAGILE HUMANITARIAN SETTINGS

Field workers and researchers operating in fragile humanitarian settings including, but not limited to, disaster relief shelters, refugee camps, and internally displaced persons (IDP) camps have commented widely upon the apparent and self-expressed challenges that mothers in these settings face in adhering to optimal breastfeeding practices. Mothers' inadequate nutrition in these settings can pose a restraint to sufficient breastmilk production [6]. Reduced nutrition can also impact individual's impression of self-efficacy in breastfeeding, as noted in Iraq where mothers perceived an inability to breastfeed on the basis of their own poor access to good nutrition [7]. Reduced lactation in such settings is also attributed to be a result of stress and trauma from recent or ongoing traumatic events [6]. In a study conducted on internally displaced persons in Eastern Ukraine, 45.7% of mothers who discontinued breast-feeding when their infants were aged less than six months listed stress related to the conflict as the primary reason [8]. Physical fractures and injuries due to trauma resulting from recent conflict or natural disasters have also been reported as a barrier to breastfeeding in that they can prevent mothers from physically holding and appropriately positioning their babies [6].

Finally, various sociocultural barriers to breastfeeding have been reported in fragile humanitarian settings. The most notable one is the lack of a safe and private environment, particularly where tent shelters result in tight clustering of family members and relatively open exposure to outside passersby [6,9]. In contexts where religious and cultural norms favour private breastfeeding and/or where there are strict prohibitions on outside men witnessing women engaging in breastfeeding, the risk of public exposure can be particularly distressing [6,9].

Considering the abundance of barriers present, it is not surprising that sub-optimal breastfeeding rates and practices have been reported in many refugee and IDP camps. In studies conducted on Saharawi and Palestinian refugees, rates of exclusive breastfeeding in children under the age of six months have been reported as low as 11.7% and 34% respectively. In a study conducted in IDP camps in Northern Syria, 41% of children surveyed could not be nourished by their own mother at the time of the study [10,11,12].

INFANT AND YOUNG CHILD FEEDING IN EMERGENCIES: CURRENT OPERATIONAL GUIDANCE

Recognizing the unique circumstances and pragmatic challenges associated with IYCF in fragile humanitarian settings, the Operational Guidance on Infant Feeding in Emergencies (OG-IFE) aims to provide concise, practical guidance in support of *“emergency preparedness, response and recovery worldwide to maximize child nutrition, health and development”* [13]. In practice, this means ensuring that the IC is adhered to in emergency settings where suboptimal breastfeeding conditions may provide a gateway for companies to unethically market and sell BMS.

Accordingly, the most recent iteration of the OG-IFE calls upon fieldworkers to *“protect, promote and support exclusive breastfeeding in infants less than six months of age and continued breastfeeding in children aged six months to two years or beyond”* and to *"support mothers to transition to exclusive breastfeeding in cases where mixed feeding is practiced”* [13].

These findings on suboptimal breastfeeding in fragile humanitarian settings are undoubtedly concerning, and indeed warrant international attention. However, the response of the international community to the realization of sub-optimal breastfeeding in fragile humanitarian settings has not been one of loosening stringent enforcement orders on exclusive breastfeeding in situationally unique contexts. Rather, there exists widespread consensus that where barriers to breastfeeding are present, an appropriate response should aim to mitigate such barriers by providing more support to breastfeeding mothers as opposed to introducing infant formula as an alternative [14-21]. In some cases, international actors have even cast doubt on the degree to which perceived barriers to breastfeeding in humanitarian crises constitute real threats or are simply myths that have become normalized under corporate influence [22-24]. In either case, the assumption underlying the advised action is that international stakeholders and humanitarian responders, rather than mothers themselves, are the most suitable actors to make decisions on best IYCF practices.

While in some cases additional supports for breastfeeding have helped mothers to effectively overcome barriers and adopt better breastfeeding practices [25,26], the challenges to achieving this are reflected in the still sub-optimal rates of breastfeeding in many refugee and IDP camps [10-12]. When breastfeeding ceases to occur and no alternative is made available, the nutritional health of infants is placed under grave threat.

A CALL FOR A NEW APPROACH

Recognizing the dignity, self-worth, and inherent right of mothers to exercise autonomy in decision making and to actively participate in the design of policies governing them, this article calls for a more emancipatory feminist approach to breastfeeding practice in fragile humanitarian settings. This call is derived from the following evidence-backed assumptions:

1. While breastfeeding can and should be encouraged where possible, it is not an option for all women, particularly for those living in socially, politically, and physically imperilling environments [27];
2. BMS, when designed in a nutritionally optimal manner and provided in a setting where safe and clean water is made accessible for infant feeding purposes, can fully meet the nutritional needs of infants and support adequate growth and development while not posing other health risks [28,29]; and
3. The provision of BMS to women who, despite full knowledge of the benefits of breastfeeding, make the autonomous decision to forgo the practice due to preference, physical, or emotional inability, can have a net positive impact on child nutrition in fragile humanitarian settings by ensuring the availability of an alternative option where breastfeeding otherwise would not occur [30].

By supporting rather than policing mothers' decision making over IYCF practice in exceptional circumstances, an approach which rids mothers of agency and generates unwarranted feelings of pressure and guilt can be re-envisioned as one which places the mother at the front and center of decision making on infant feeding while ensuring the provision of adequate nutrition for infants. This need not represent a reversal of progress made since the adoption of the IC; rather, it can represent a fundamental step in the quest to balance both empowering women and optimizing children's health in fragile humanitarian settings.

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OPINION EDITORIAL

Long-Acting Reversible Contraception: A Key Strategy to Prevent Unintended Pregnancy

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Unintended pregnancy remains a public health challenge worldwide. Between 2015 and 2019, there was an average of 121 million annual unintended pregnancies worldwide [1]. The incidence of unintended pregnancy is among the most essential indicators in reproductive health, as it is associated with increased maternal, neonatal and infant morbidity and mortality, as well as wider socioeconomic consequences.

When faced with unintended pregnancies, women are likely to seek abortions. Induced abortions raise particular concern in regions with restrictive legislation, where procedures are mostly unsafe. Despite efforts to achieve the Millennium Development Goals in past decades, the global percentage of maternal deaths due to unsafe abortion remains stable at 13%. Almost all of these deaths (99%) occur in developing countries [2, 3]. In pregnancies that are continued, there seems to be a higher risk of adverse outcomes including premature birth, low birthweight and postpartum depression [4-6], but it is unclear whether this effect is a reflection of demographic and socioeconomic characteristics [7]. Furthermore, unintended pregnancies entail wider impacts on both individual and societal levels, widening income and gender inequality gaps [8]. Not surprisingly, the burden of unintended pregnancy disproportionally affects marginalized women, reinforcing intergenerational cycles of early pregnancies, ill-health and poverty.

This scenario is unlikely to change unless women have access to effective contraceptive methods. Challenges with contraception are the primary cause of unintended pregnancies. Approximately half of cases result from nonuse of contraceptives, and the remainder are due to inconsistent or incorrect use [9]. Over 200 million women in developing countries have no access to modern methods of contraception [10]. It is estimated that if this unmet contraceptive need was satisfied, 54 million unintended pregnancies and three out of four induced abortions would be averted every year [11].

Even when using contraceptives, the choice of user dependent methods such as oral pills and condoms is vastly predominant, despite their well-established higher failure rates with typical use. Intrauterine devices (IUDs) and implants are the most effective options among reversible contraceptive methods, with failure rates as low as those achieved with sterilization (less than 1%) [12, 13]. These methods, known as long-acting reversible contraceptives (LARC), are associated with the highest user satisfaction and continuation rates, and have demonstrated to be cost-effective in the long-term [14,15]. Since they are independent of user behaviour for effectiveness and require no effort after insertion, LARC can be especially beneficial for teenagers and recent mothers, as these populations tend to have a higher risk for inconsistent use of methods that depend on daily compliance.

The most respected medical societies have issued statements recommending LARC as first-line contraceptive methods, as they have few contraindications and almost all women are eligible [16-19]. Despite the available evidence and expert recommendations, LARC remain largely underutilized in most regions of the world. Between

2006 and 2008, IUDs were used by only 5.5% of American contraceptive users [20]. Usage among adolescents is even lower, with data from 2002 showing that only 0.1% of women ages 15–19 years and 1.1% of women ages 20–24 years were IUD users [21].

The main gaps for uptake of LARC seem to reside in ensuring access and long-term compliance. Patient related factors include insufficient and often biased information, particularly in subgroups of low socioeconomic level and younger age [22]. Survey results with teenagers and young women presenting for family planning at a health clinic of the University of California San Francisco showed that over 50% had never heard of the IUD before their appointment [23]. Cultural and social factors also play an important role in feminine sexuality and contraceptive behaviors. A recent qualitative study conducted in Australia reported that the idea of having an external device inserted in the uterus was considered 'invasive' and 'extreme' by many interviewees, justifying their overall discomfort with the method [24]. The gendered hierarchy of decision making is also culturally reinforced in some societies, with men having significant control over contraceptive practices [25]. Other issues such as confidentiality concerns and fear of side effects have also been reported [23, 26].

Provider bias can pose an additional challenge to LARC uptake, since contraceptive decisions are largely dependent on the quality of counseling performed by care providers. Professionals with more evidence-based information and proper technical training are more likely to offer LARC to their patients, which is crucial to facilitate uptake. The gap of knowledge is especially pronounced among Family Medicine physicians and nurses, which are the professionals that will provide primary care for most women throughout their life span [27-29].

The financial organization of health care systems also plays a pivotal role in determining women's contraceptive choices. The higher upfront cost of LARC presents a significant barrier for use, and one that disproportionately affects low-income and young women. Nevertheless, there is consistent evidence showing that publicly funded provision of LARC is a cost-effective intervention [15]. Programs targeted at teenagers and low-income women entail special benefits, as these demographics are most likely to both face unintended pregnancies and to impose significantly higher social welfare costs [30].

Pilot strategies in the United Stated have successfully demonstrated that the removal of barriers to access LARC significantly increases their uptake and reduces rates of unintended pregnancy. In 2014, the state of Louisiana implemented a policy change that increased the reimbursement for LARC devices to the wholesale acquisition cost. As a result, there was a 2-fold increase in LARC uptake across all patient subgroups [31]. In the St. Louis region, the CHOICE Study has provided almost 10,000 women with free devices and targeted counselling focused on the safety and superior performance of LARC methods. Following the intervention, 75% of women in the cohort chose LARC, and 84% of them were satisfied with the method after one year [32]. Annual rates of teenage births (19.4 per 1000 adolescents) and abortions (9.7 per 1000) were substantially lower in the study's cohort, compared to U.S. national data (94 per 1000 and 41.5 per 1000, respectively) [33]. According to the authors, national policy changes applying the principles of the CHOICE Study could prevent up to 70% of annual abortions in the U.S. [34]. In Colorado, another initiative ensuring free access to LARC demonstrated a dramatic increase in use among teenagers, resulting in a 59% decrease in birth rates and 60% decrease in abortion rates among girls aged 15 to 19 years. The number of repeat births to Colorado teens declined 85% between 2009 and 2017 [35].

Empowering women to control their reproductive decisions is key to achieving the United Nations Sustainable Development Goals [36]. Effective family planning not only improves maternal and child health worldwide, but is also crucial in reducing gender inequalities and contributing to individual and societal development. Evidence consistently shows that promoting uptake of LARC methods is an effective approach to tackle unintended pregnancy and its associated consequences at the public health level. Nevertheless, translation into practice remains remarkably limited. Successful implementation of change requires coordinated efforts that act upon the multiple sources of constraints, both at the individual and at the systemic levels. Targeting women of young age and low-income levels is particularly beneficial, since these are the demographics that face greater challenges with contraception and are disproportionately affected by the burden of unintended pregnancy. Providing access to immediate, effective and free contraception is an essential component of sexual and reproductive health care. Prioritizing this issue is long overdue.

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OPINION EDITORIAL

Using Water, Sanitation, and Hygiene Interventions to Advance Maternal Health in South Sudan: A Feasibility Study

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INTRODUCTION

Investments in maternal health have become an international development priority as they are known to reduce poverty, advance gender equality, and build strong societies. Access to water, sanitation, and hygiene (WASH) – especially the adoption of effective hygiene behaviors such as washing hands with soap and water at all points of contact with expectant mothers – are amongst the primary interventions that are effective for reducing maternal morbidity and mortality [1]. Sustainable Development Goal (SDG) 6 of the 2030 Agenda strives to achieve the equitable provision of WASH and to "leave no one behind" by paying special attention to the needs of women and girls globally [2].

In conflict settings, poor access to WASH poses additional risks for expectant mothers. One such setting, South Sudan, continues to face significant challenges in meeting maternal and newborn healthcare needs. Ongoing conflict, damaged infrastructure, poor health coverage, and limited government efforts have resulted in disintegrated healthcare systems across the country [2]. The simple and life-saving act of washing hands with soap and water is complicated by insecurity and unending struggles to sustain peace. Given South Sudan's complex situation, it is clear that mainstream WASH interventions for improving maternal health may not be as effective. In this article, we share our perspectives on the possibilities of improving WASH and maternal health in South Sudan using a 3-phase feasibility study.

OVERVIEW OF WASH SITUATION IN SOUTH SUDAN

According to recent data, approximately 60% of the 13 million people in South Sudan depend on surface water supplies or must walk more than 30 minutes to reach an improved water source [3,4]. Furthermore, an estimated 5.2 million women and children in the country are in dire need of WASH services [3]. Hygiene awareness continues to be one of the world's poorest and sanitation access remains low, with only 15% of households owning a latrine and 4% sharing one [5]. In these conditions, women and girls face increased risks of sexual violence when accessing water or communal toilets. Most health facilities – particularly maternity wards – lack basic water and hygiene services, increasing facility-associated infection in both mothers and newborns [6].

WASH AS A MATERNAL HEALTH ISSUE

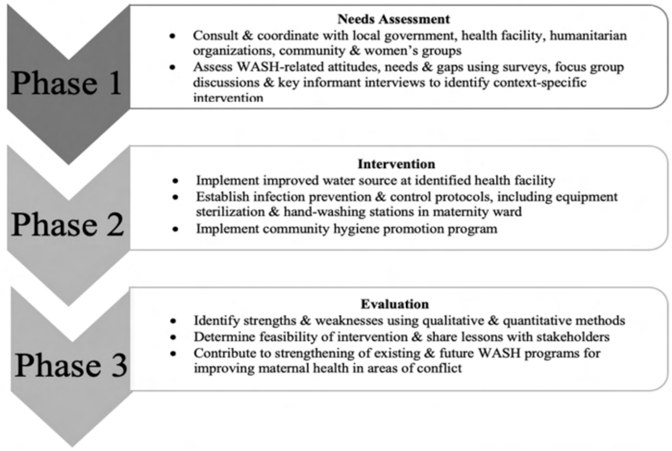
Limited access to WASH impacts maternal health outcomes multidimensionally in South Sudan. The country has one of the weakest maternal health indicators in the world, with approximately 1,150 women dying annually for every 100,000 live births, doubling the average for sub-Saharan Africa [7]. Sepsis – a bacterial infection linked to unclean water and inadequate sanitation during labor – is one of the most common causes of maternal illness and death in South Sudan [8,9]. Similarly, anemia contributes to poor maternal health, as it is associated with malnutrition and chronic diarrhea, with the latter usually occurring due to insufficient clean drinking water and sanitation [10].

Exposure to unsafe water during pregnancy can increase fecal-oral contamination and may lead to typhoid, dysentery, or malaria – all of which pose high risks to pregnant women [11,12]. The gendered burden of water collection can cause spinal injuries, hernia, and a heightened risk of spontaneous abortion [12]. Indeed, the consequences of inadequate WASH for maternal health can be destructive as many complications are caused by unsanitary conditions, poor hygiene, and water inaccessibility. The benefits of improving WASH amenities for women and children in emergency contexts can be lifesaving. The importance of WASH to health is well-documented, and the presence of birth attendant handwashing and clean surfaces can reduce the risk of sepsis infection and death for infants and mothers by 25% [12].

IMPROVING MATERNAL HEALTH USING A FEASIBILITY STUDY

South Sudanese women require safe water, sufficient sanitation facilities, and adequate supplies to enable good hygiene practices, particularly during childbirth. Despite efforts made by relief organizations and the government, South Sudan remains far from making serious contributions to the 2030 Agenda. Presently, high-quality data and evidence on how to best deliver WASH interventions in fragile and conflict-affected contexts are limited. Key challenges in providing WASH for improving maternal health outcomes in South Sudan include insecurity, poor access in rural areas, and lack of coordination between actors and beneficiaries [13]. This adds clarity to the ways in which WASH-related challenges are magnified by conflict and tend to be more difficult to tackle. These challenges, while multifaceted, cannot be left unaddressed and will require sustained engagement in order to make strides in improving maternal health outcomes.

To lessen the burden of preventable maternal disease and death in South Sudan, a small-scale feasibility study targeted at health facilities (Figure 1) may be beneficial. A feasibility study is an evidence-based analysis of a proposed intervention to determine whether it is feasible and should proceed [14]. To achieve the overarching objective of decreasing WASH-related maternal infections like sepsis, anemia, and diarrheal diseases, a 3-phase approach can be applied. The 1st phase focuses on collecting data to identify specific WASH-related gaps in the target community. Results from phase 1 will inform the intervention implemented in phase 2.



Needs Assessment

- Consult & coordinate with local government, health facility, humanitarian organizations, community & women's groups
- Assess WASH-related attitudes, needs & gaps using surveys, focus group discussions & key informant interviews to identify context-specific intervention

Intervention

- Implement improved water source at identified health facility
- Establish infection prevention & control protocols, including equipment sterilization & hand-washing stations in maternity ward
- Implement community hygiene promotion program

Evaluation

- Identify strengths & weaknesses using qualitative & quantitative methods
- Determine feasibility of intervention & share lessons with stakeholders
- Contribute to strengthening of existing & future WASH programs for improving maternal health in areas of conflict

Figure 1. Feasibility study design and activities.

Using the theory of change framework, phase 3 will evaluate the intervention to determine its feasibility, report findings, and share lessons learned with stakeholders [15].

The goal of the intervention in phase 2 is to establish a maternity ward that is capable of practicing infection prevention and control at all points of care. Evidence suggests that washing hands with soap under running water is one of the most effective approaches to preventing infection and improving quality of care [16]. The intervention will enhance WASH conditions in the participating health facility through the provision of consistent clean water, achieved by installing boreholes, wells, or filtration plants for surface water sources. To determine the exact and most suitable water source for the target health facility, the community's beliefs, practices, and norms (derived from phase 1) must be taken into consideration. A key aspect of the intervention is to increase WASH knowledge of community members to foster good hygiene practices beyond phase 2. We recognize that merely providing a water source will not guarantee its use or result in improved sanitation and hygiene. Therefore, the proposed intervention focuses on community consultation to promote local ownership and ensure sustainable improvements. Raising awareness that poor hygiene practices put everyone – and particularly pregnant women – at an increased risk of disease may trigger the community's desire for collective change. This may also propel individuals into action, foster mutual support, and lead to greater ownership and long-term sustainability.

The intervention will require financial, administrative, and human resources, including health workers and research assistants. It will also need strong collaborations with stakeholders, women's associations, local hospitals, government, and civil society organizations. The funds needed for implementing the feasibility study cannot fall on the government alone, as it will likely lead to financial gaps. Multi-sector engagement can help fill these gaps and leverage the government's efforts. Undeniably, this could prove to be a timely investment for South Sudan and, if successful, will create robust WASH policies and programs that curb maternal mortality in the country.

CONCLUSION

Investing in maternal health in conflict-affected contexts is one of the most effective, yet understudied and underutilized instruments for fostering social stability. When crises strike, women do not stop becoming pregnant or giving birth – reinforcing the need for a feasibility study tailored to maternal health in fragile settings. We acknowledge that the conflict-to-peace transition and the challenges of nation-building are slow processes that require deep and sustained commitment by the government and development partners. With current trends in maternal mortality, WASH inaccessibility, and the status of health systems, South Sudan is unlikely to achieve the SDGs by 2030. Nonetheless, high-level commitment and concentrated efforts to improve and strengthen local systems can go a long way. By incorporating WASH into previous and new approaches to improve maternal health, South Sudan might be able to create sustainable change for women and children to ensure that no one is left behind.

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OPINION EDITORIAL

Access to Maternal Care: Persisting Challenges in Colombia

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Despite improvements in maternal health in Colombia over the last 20 years, indicators such as maternal mortality ratio (MMR) lag behind other Latin American countries at similar levels of economic development [1] . Unique political, economic and social circumstances in Colombia may be contributing to the poor improvements in maternal health indicators relative to other countries in the region.

After over 50 years of armed conflict, a peace accord between the Revolutionary Armed Forces of Colombia (FARC) and the Colombian government was signed in 2016 [2]. Decades of armed conflict left millions, the majority of whom are women and children, affected by forced displacement and violence [3]. The complexities of accessing healthcare services in a post-conflict setting are compounded by social and economic inequalities. Although Colombia is an upper-middle-income country, it has one of the most unequal income distributions in the world, with about 35% of the country's population living in conditions of poverty or extreme poverty, compared to 20% in Peru [4–6].

In addition to conflict within Colombia, the political turmoil and socioeconomic crisis in the Bolivarian Republic of Venezuela has resulted in the departure of millions from the country. As of October 2020, over 1.7 million Venezuelan migrants were reported to be living in Colombia, although the actual number is likely higher [7]. The Venezuelan migrant crisis has raised important humanitarian concerns, including equitable access to required healthcare services for both regular migrants, who have legal migration status and documentation, and irregular migrants, who entered Colombia through unauthorized points and therefore lack documentation [8].

To achieve the Sustainable Development Goal (SDG) 3.1, to reduce the global MMR to less than 70 per 100,000 live births by 2030, the persisting political, economic and social barriers to accessing maternal healthcare must be acknowledged and addressed. This article will discuss how historical and ongoing violence, socioeconomic inequalities, and increased migration has impacted maternal health in Colombia.

MATERNAL CARE IN POST-CONFLICT AND CONFLICT SETTINGS

Though a peace accord has been reached, decades of historical violence continue to impact access to maternal healthcare. Municipalities with large numbers of women victims of violence, such as Vaupés, Chocó, Guainía, Nariño, Putumayo, Vichada and Huil, continue to have large gaps in access to antenatal care and skilled birth attendance [3].

The long-lasting effects of armed conflict in rural regions have prevented universal delivery of sexual education, family planning programs and antenatal care [9]. Seizures of medical supplies, scarcity of medications, limited health personnel, lack of hospital security, and mobility restrictions have caused disruptions in healthcare provision [9]. Consequently, municipalities historically more affected by armed conflict have higher MMRs [9].

Inequalities in access to care as a result of historical violence have been further compounded by a resurgence of armed conflict. In 2020, the United Nations documented nearly four hundred killings in Colombia, which included former combatants, human rights defenders and community leaders [10]. The ongoing threat of violence poses a risk to access of maternal healthcare services, particularly for women in rural regions.

Barriers to accessing healthcare specific to the post-conflict setting must be addressed to prevent a widening of maternal health disparities. Interventions could include additional training for community health professionals in rural regions, resource allocation to improve care for victims and ex-combatants, and interdisciplinary coordination between government agencies to ensure adequate healthcare infrastructure and supply chain management [9].

THE INTERSECTION OF POVERTY AND MATERNAL HEALTH

The Colombian healthcare system underwent structural reforms in 1993, although a comprehensive policy for maternal health was not enacted until 2003, and universal healthcare coverage was not achieved until 2011 [11]. The stagnant maternal health indicators, despite high levels of health coverage, point to potential issues in the access to quality maternal care.

Health insurance in Colombia is provided through two major schemes: the contributory regime, for formal workers or those with the capacity to pay, and the subsidized regime, for informal workers, those who are unemployed or living in poverty [12]. However, beneficiaries of the subsidized regime access fewer services and demonstrate worse health outcomes, including higher maternal morbidity and neonatal mortality, than those in the contributory regime [11,13,14]. Furthermore, about 30% of the population considered to need health services do not access the available services, largely due to perceived low-quality and the inability to pay for private services [15].

Wealth disparities explain a large degree of the inequities in access to maternal care in Colombia, including skilled birth attendance and antenatal and postnatal care [11]. Additional economic barriers to accessing care include the need to work, costs of transportation and childcare [16]. Consequently, women of higher-income households are more likely to complete the recommended four antenatal care visits, compared to those of lower-income households [17].

The economic gradient in access to healthcare services and health outcomes are of particular concern in the pursuit to improve maternal health indicators. To promote equitable access to care, the Colombian government could incentivize the provision of higher-quality services in poorer and underserved communities, and implement training for trusted community-based providers to deliver care and promote the use of maternal health services [18].

ADDITIONAL SERVICE NEEDS OF MIGRANTS

As of October 2020, over 1.7 million Venezuelan migrants were living in Colombia, but less than half have residency or regular stay permits required to access comprehensive health insurance through the subsidized scheme [7].

Concerns about access to care for migrants were partly addressed in a recent ruling by the Colombian Constitutional Court, enabling individuals with irregular status to receive free emergency care under the subsidized insurance regime. This could include services related to pregnancy, childbirth and postpartum care [8]. Though emergency services are covered, the out-of-pocket costs of primary care, laboratory tests, drugs and nutritional supplements often inhibit health-promoting or preventative behaviors among migrant women [8]. Consequently, nearly 40% of Venezuelan migrants surveyed in a study reported that they had not received prenatal care during their pregnancy [19].

Both uninsured and insured migrants struggle with the denial of services, particularly in public hospital networks, despite theoretical coverage [20]. The fear of discrimination often prevents individuals from accessing care, as the decision of what constitutes an ‘emergency’ is often left to the discretion of non-medical personnel, such as security guards [21]. Even when seeking covered services, such as prenatal care, migrants often face xenophobia within hospital settings [20].

Cumulatively, these barriers result in a higher risk of maternal morbidity and mortality for migrant women [8]. Increased primary care coverage for migrants is necessary to help detect and address preventable health complications [8]. Furthermore, multidisciplinary efforts from local governments, community leaders and private providers are required to reduce xenophobia and discrimination in healthcare settings [8].

CONCLUSION

The effects of conflict, poverty, and migration continue to threaten maternal health in Colombia. To achieve universal access to maternal healthcare, and meet the MMR target of SDG 3.1, a pro-equity approach is required to increase access to care for the most vulnerable communities of women in Colombia.

Barriers to accessing healthcare have been exaggerated by the recent COVID-19 pandemic, and likely extend to other areas of care beyond maternal health. It is essential that the intersecting vulnerabilities of marginalized women be considered first in the design of equitable and accessible healthcare programs [8,22,23].

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RESEARCH ARTICLE

Exclusive Breastfeeding in Infants of HIV-Positive Mothers: Do the Pros Outweigh the Cons? A Literature Review

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ABSTRACT

Current guidelines in many developed countries urge women who are HIV-positive to formula feed (FF) and neglect to consider the possibility of breastfeeding (BF). This paper emphasizes the benefits of exclusive breastfeeding (EBF) on infant and maternal health and well-being. Many studies emphasize the importance of EBF in reducing infant mortality compared to mixed-breastfeeding (MBF) or FF. Further studies concluded that when HIV-positive mothers are on antiretroviral therapies (ART), the chance of mother-to-child transmission (MTCT) is minimal (approximately 1%). This paper provides insight for policy-makers in developed countries to promote change in BF guidelines for all women, reduce MTCT of HIV, and allow women to choose their feeding preferences.

INTRODUCTION

HIV rates have been increasing in many underdeveloped countries, affecting the health of 37.9 million people globally [1]. Specifically, children exhibit a global prevalence of 1.8 million in 2019 [1], most commonly caused by MTCT, which occur during pregnancy, birth, or breastfeeding [2].

EBF refers to BF alone, where “no other liquids or solids are given–not even water–with the exception of oral rehydration solution, drops/syrups of vitamins, minerals or medicines” [3]. United Nations Children’s Fund (UNICEF) and World Health Organization (WHO) recommend that mothers living with well-controlled HIV through ART should EBF for the first six months of life [4]. Similarly, U.K. guidelines allow HIV-positive mothers with an undetectable viral load (VL) to choose to BF their infants [5]. However,both Canada and the United States strongly advise against BF in infants with HIV-positive mothers [6,7]. This discrepancy is partly attributed to contradicting evidence regarding MTCT through BF [6,7]. This study aims to review the literature regarding the safety and benefits of EBF in HIV-positive mothers while minimizing the change of MTCT to guide policy change for high-income countries, particularly Canada.

METHODOLOGY

A review was completed based on the following search terms: “exclusive breastfeeding”, “HIV transmission”, “pediatric HIV”, “antiretroviral therapy”, “breastmilk”, “formula feeding”, “viral load”. CINAHL, Pubmed, Global Health, NIH and BMC Medicine were used to gather research.

A total of 1025 studies were reviewed. Inclusion criteria for primary research articles were HIV positive mothers, compare infant breastfeeding versus FF/MBF for at least the first four months of the infant’s life, and written in English. The exclusion criteria consisted of commentaries, editorials, letters, conference abstracts, theses, and gray literature. The search process uncovered 20 peer-reviewed articles published between 1999 to 2015 and conducted in Zambia, Zimbabwe, Kenya, Uganda, Tanzania, South Africa, Philippines, Botswana, and the Republic of Malawi.

RESULTS

Of the 20 studies, 10 supported EBF for at least the first four months of the infant's life, which reduces the risk of HIV infection by 50% [8,9], reduces MTCT [10], and reduces infant mortality in both HIV-positive and HIV-negative mothers [11,12]. Infants who EBF were less likely to be infected compared to MBF infants (p=0.018) [13]. Monthly increase in EBF was found to reduce infant mortality by 49% in the first six months of the infant's life [14] and a 15% reduction in HIV transmission in the first five years of life. In comparison to MBF, EBF reduced post-natal transmission by 61% [9]. FF is associated with a six-time increase in risk of infant mortality [15], and MBF was associated with postnatal HIV transmission independent of maternal HIV plasma load [16]. In a study with 118 HIV-exposed infants, no MTCT was observed, and 93% were BF [17]. At three months of age, 24.1% of MBF infants were infected with HIV relative to 14.6% EBF infants [10].

Three studies evaluated the effects of Cluster of Differentiation 4 (CD4) + cell counts and VLs on HIV transmission. Women with CD4+ cell counts <200 cells per µL were five times more likely to transmit HIV compared to women with CD4 counts >500 cells per µL [9]. In fact, at 24 months: (1) HIV transmission rate was 4.3% higher in mothers with CD4+ count <500 cell/ml compared to those with CD4+ >500cell/ml [18], and (2) HIV transmission were 5.7% higher in infants whose mother's VL was >10,000 copies/ml [18,19].

One of three studies discussing ARTs concluded that 1% of women who received Highly Active Antiretroviral Therapy (HAART) had a detectable VL, while 30% of women who receive ART had an undetectable VL [19]. Maternal HAART provided protective factors against antenatal and postnatal HIV transmission [17]. In another study, prophylactic Zidovudine results were similar to 18 months HIV-free survival rates in both FF and EBF [20].

Two studies found women who did not EBF their infants had increased breast pathology (IBP), such as abscess, mastitis, and breast problems [21]. Non-EBF was found to significantly IBP [21]. In another study, elevated VL was found to be a significant risk factor for developing mastitis and transmitting the infection [16].

DISCUSSION

Exclusive Breastfeeding and MTCT of HIV

The literature review supports WHO's recommendation [1] that EBF reduces infant mortality and the risk of hospitalization for mothers. FF, MBF, or BF for less than six months was associated with an increased risk of infant mortality compared to EBF in HIV-positive mothers who received antiretroviral prophylaxis [13,15,17]. EBF was associated with reduced postnatal HIV MTCT, while MBF was associated with postnatal transmission of HIV [13,16]. EBF was shown to reduce chances of infants acquiring HIV through breast milk by 50%, with evidence indicating a four-fold increase in postnatal transmission of HIV when solid foods were introduced before three months [8,9].

Another study concluded that prolonged lactation beyond four months was not associated with increased mortality, further demonstrating that EBF does not significantly contribute to infant mortality [22]. Collectively, evidence from the literature suggests that EBF in well-controlled HIV+ mothers does not increase MTCT and offers significant protective factors against morbidity and mortality of the infant relative to MBF/FF [23]. One study found that all mothers who transmitted HIV to their infants post-partum had a plasma VL >1000 copies/ml and poor adherence to cART [24]. Maternal VL was found to be significant in the transmission of HIV; transmission is more likely in infants whose mother's VL was >10,000 copies/ml [18]. The study results validate the WHO's recommendation to EBF for the first six months of the infant's life regardless of HIV status [25].

Efficacy of ART

One study demonstrated that both FF and BF (with prophylactic Zidovudine) gave similar 18 months

HIV-free survival rates, indicating that not all ART prophylaxes were sufficient in preventing infection. Alternatively, there was strong evidence indicating that maternal HAART provided protective factors against antenatal and postnatal HIV transmission [17,19], specifically reducing MTCT to 1% [19] . Majority of the studies showed sufficient evidence for the use of ART, particularly HAART, in preventing MTCT of HIV, strongly suggesting that BF HIV-positive mothers should be receiving ARTs. Given that prophylactic measures are key to significantly reduce MTCT, it is imperative that HIV-positive mothers have low and well-controlled VL prior to BF [19].

Maternal Health

EBF was not associated with increased maternal mortality or morbidity and is likely protective against breast pathologies, such as mastitis [8,12,21]. Furthermore, the probability of death from acquiring HIV was highest among infants living in impoverished areas whose mothers discontinued breastfeeding early [25].

CONCLUSION

WHO and UNICEF recognize that EBF by HIV positive mothers with a well-controlled low VL is a low-costing, sustainable practice that should be conducted in developing countries because it has been demonstrated to lower the risk of HIV transmission and infant mortality rates [4,8]. However, guidelines of many higher-income countries, including the US and Canada, continue to strongly recommend against EBF in HIV positive mothers [6,7]. The high mortality rates noted in the non-EBF infants could be attributed to unclean water in developing countries. Although several studies confirmed the efficacy of ART in preventing MTCT of HIV, the long-term effects of ART remain unknown. Future studies should investigate the safety of EBF in HIV-positive mothers with a low VL in high-income countries to develop valid and reliable evidence-based guidelines.

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RESEARCH ARTICLE

Climate Change Implications on Maternal and Infant Health Outcomes in Japan and Southeast Asia: A Comparative Scoping Review

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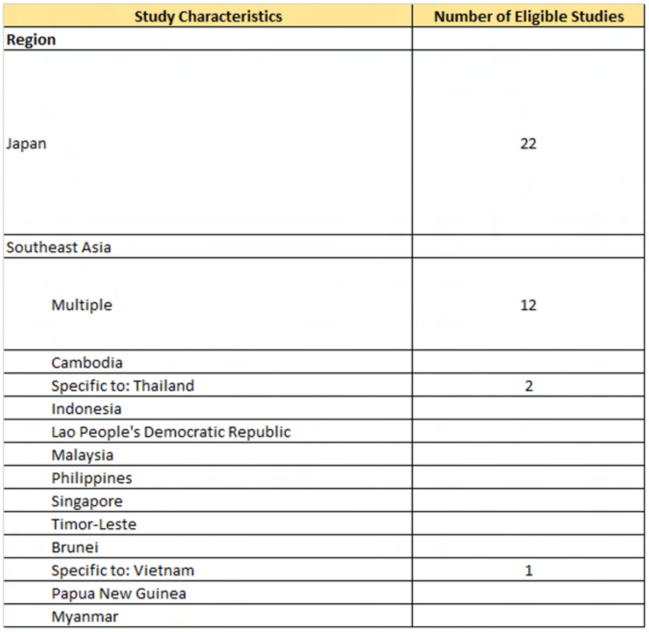
ABSTRACT

Climate change is noted as the biggest challenge of the 21st century, due to its complexity and widespread impacts on every aspect of human life. Climate predictions in Asia are particularly daunting as they have grave implications on public health, especially for pregnant women and infants. The following scoping review identifies climate-related challenges currently faced by this subgroup, along with future complications predicted through meteorological modelling. First, the impacts of climate change in Japan were examined, accompanied by a cross-comparison with Southeast (SE) Asia to understand how similar predictions could have varying implications on health outcomes.

Climate modelling across East and SE Asia has indicated a rise in extreme weather events, pollution, precipitation, heat, and disease transmission. These predictions will fuel health complications for pregnant women and infants, notably increasing morbidity and mortality rates. The brunt of these climate consequences will be felt by the countries of SE Asia, due to underdeveloped infrastructure, governance, and public health systems. Nevertheless, current research emphasizes that neither Japan nor SE Asia are prepared to protect this vulnerable subgroup. Existing emergency-response strategies and medical resource allocation is limited in scope, and widespread disaster contingency plans are yet to be developed. To address these gaps, scientists have recommended the necessity of multidimensional, whole-of-government climate-adaptation strategies

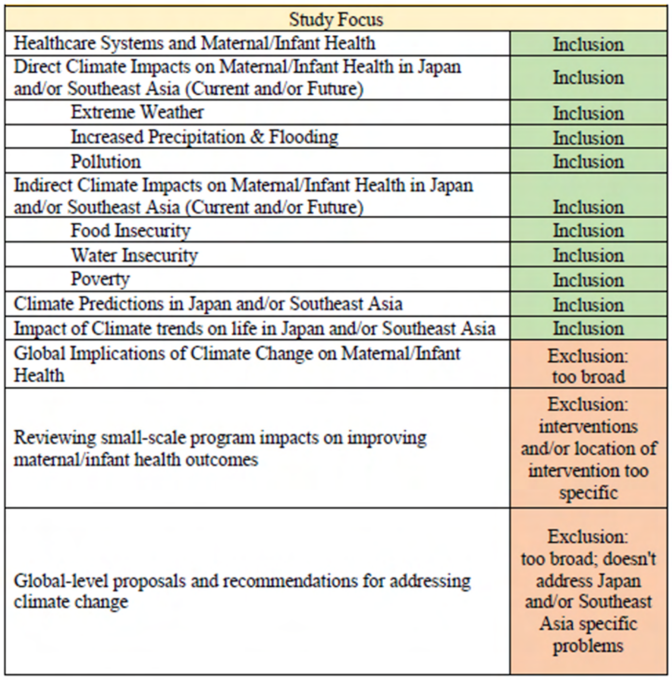
INTRODUCTION

While the impacts of climate change affect the entire world, certain populations are particularly vulnerable to its consequences due to geographical location, country-level development, poverty rates and other socioeconomic factors. Pregnant women and infants (ages 0-2) are susceptible to many climate-induced complications, such as spontaneous abortion, malnutrition, renal failure, and premature contractions [1]. Although this subgroup is extremely vulnerable to climate consequences, extensive research on this topic is limited. The above consequences also have grave implications on the overarching healthcare system and governments. Therefore, it is important to understand the breadth of impact on this subgroup to better prepare nations for upcoming challenges. This scoping review aims to explore the impacts of climate predictions within the context of Japan and SE Asia (Figure 1).



Study Characteristics	Number of Eligible Studies
Region	
Japan	22
Southeast Asia	
Multiple	12
Cambodia	
Specific to: Thailand	2
Indonesia	
Lao People's Democratic Republic	
Malaysia	
Philippines	
Singapore	
Timor-Leste	
Brunei	
Specific to: Vietnam	1
Papua New Guinea	
Myanmar	

Figure 1. List of countries reviewed.



Study Focus	
Healthcare Systems and Maternal/Infant Health	Inclusion
Direct Climate Impacts on Maternal/Infant Health in Japan and/or Southeast Asia (Current and/or Future)	Inclusion
Extreme Weather	Inclusion
Increased Precipitation & Flooding	Inclusion
Pollution	Inclusion
Indirect Climate Impacts on Maternal/Infant Health in Japan and/or Southeast Asia (Current and/or Future)	Inclusion
Food Insecurity	Inclusion
Water Insecurity	Inclusion
Poverty	Inclusion
Climate Predictions in Japan and/or Southeast Asia	Inclusion
Impact of Climate trends on life in Japan and/or Southeast Asia	Inclusion
Global Implications of Climate Change on Maternal/Infant Health	Exclusion: too broad
Reviewing small-scale program impacts on improving maternal/infant health outcomes	Exclusion: interventions and/or location of intervention too specific
Global-level proposals and recommendations for addressing climate change	Exclusion: too broad; doesn't address Japan and/or Southeast Asia specific problems

Figure 2. Eligibility criteria.

METHODOLOGY

The Arksey & O'Malley methodological framework for scoping reviews was implemented to review existing literature. The electronic databases JSTOR, Web of Science and PubMed, along with Intergovernmental Reports and United Nations Progress Reports were searched. A total of 30 studies were included based on the eligibility criteria (Figure 2). Studies that fit the inclusion criteria were filtered and charted according to the aim of the study, location, target population, methodology and important findings.

RESULTS

Climate change implications for Japan were noted to include rising water levels within the Sea of Japan, rising winter precipitation, land erosion, dust storms, rising sea and air surface temperatures and greater flooding [2]. In comparison, SE Asia faces a combination of reduced rainfall in some regions and longer monsoons in others. Apart from changing precipitation, SE Asia is experiencing prolonged droughts, greater frequency of tropical storms and greater surface air temperatures [2]. Tropical typhoons and cyclones have also grown in frequency and intensity due to the warming of sea water and changing wind patterns [3].

The increasing frequency of extreme weather events has caused massive destruction of homes, local infrastructure and livelihoods. Apart from immediate deaths and disabilities, many downstream effects are also observed, such as spikes in infectious diseases and mental disorders [2]. There are also rising cases of vector-borne diseases, especially dengue fever and malaria, with countries such as Malaysia and Singapore experiencing more than a 10-fold increase over the past few decades [4]. Vector-borne infections such as malaria during pregnancy can increase the risk of spontaneous abortions, premature delivery, stillbirth, and fetal underdevelopment [4]. Diarrheal disease outbreaks are also increasing across coastal East and SE Asia, where warmer coastal water temperatures are influencing waterborne pathogen toxicity [4]. Diarrhea is one of the leading causes of death for children under the age of 5 in SE Asia, as infant susceptibility to diarrheal outbreaks is greater due to compromised immune systems [4].

Water shortages are not only fueled by rising heat levels, but also changes in the water cycle, continuous hydropower construction and overconsumption of groundwater without allowing the water-table to replenish [3]. The lack of water significantly affects sanitation and hygiene practices and has increased the frequency of infectious disease outbreaks mentioned above. Changing weather patterns and water cycles also affect staple crop production such as rice and wheat, along with inland fish reproduction within the lakes and rivers of Eastern Asia [3]. Persistent water and food insecurity are affecting women and infants disproportionately by reducing family earnings, food intake and diet quality, which affects healthy pregnancies and infant growth [4]. Common nutritional deficiencies within this sub-population include low iron, Vitamin B-12 and protein. Iron deficiency anemia is a common cause for maternal mortality and birth complications within the region. Infants also face numerous complications due to malnutrition after weaning, such as being more susceptible to disease outbreaks, stunting and wasting [4].

Torrential rain and flash flooding events have also increased in frequency across this region, inducing PTSD and depressive symptoms in pregnant women, along with reduced birth weights of infants [5]. Alternately, growing urbanization and atmospheric factors that enable cross-border pollution continue to reduce air quality across East and SE Asia. Prolonged exposure to pollutants during pregnancy is affecting fetal neurodevelopment, causing preeclampsia and preterm birth. Rising levels of heavy metal pollution, particularly in SE Asia, have induced oxidative stress and neural cell death within pregnant women [6].

DISCUSSION

Although climate trends in Japan and SE Asia are similar, these trends are predicted to have graver implications on the SE Asian population due to limited infrastructure development, government capacity and resources to support growing population needs. While Japan is better prepared for climate consequences through government policies, safety standards and resource allocation, more interventions are required to provide well-rounded support for pregnant women and infants. Current emergency-response strategies and medical resources are limited to certain climate consequences, such as natural disasters. However, a wider range of consequences are expected to impact Japan in the coming years, including a rise in vector-borne diseases, flash flooding and varying temperature levels, for which plans of action are yet to be developed. To reduce disease burdens within both regions, many scientists have proposed climate-adaptability interventions that target healthcare infrastructure, industrial practices and emergency-preparedness plans.

Broader climate-adaptability interventions that are applicable to both SE Asia and Japan include early disaster detection and prevention, supporting breastfeeding practices, providing monetary support, educating pregnant women on coping with post-disaster stressors and providing post-disaster prenatal care, including both mental and physical health evaluations [2,5,7]. Reports from rural Japan and SE Asia have indicated the drawbacks of emergency obstetric services, which usually only cover basic physiological complications. Therefore, improvements in obstetric service delivery and resource allocation need to occur to reduce infant and maternal mortality rates following natural disasters [8]. Although climate-modelling indicates a rise in disaster incidences, more data collection on morbidity and mortality rates within this subgroup is necessary to understand problem-specific implications. Apart from governmental support, at-risk communities can be better prepared for climate calamities through development of evacuation procedures and engaging in small-scale mitigation practices, such as planting flood resistant crops, development of flood shelters and emergency food storage. If adaptation practices are multidimensional, they have the possibility of addressing physical, mental and socioeconomic vulnerabilities of the target population [2]. Multidimensional practices, such as climate-smart agriculture or livelihood diversification, should be combined with data from geographical information stems to identify town-specific vulnerabilities and better manage climate risks [2].

CONCLUSIONS

Climate modelling in East and SE Asia has revealed complications such as flooding, increased heat, precipitation, pollution, and extreme weather events, which will have downstream effects on maternal and infant health outcomes. Inequitable rates of infant and maternal mortality are expected across Asia compared to the rest of the world due to its population density, geographical location, and economic conditions [9]. Without proper resource allocation, infrastructural development, poverty reduction initiatives and governance systems in place, it is impossible to tackle rising maternal and infant health concerns associated with climate change [8]. Governments across SE Asia and Japan will need to work at the national level to develop targeted and inclusive plans of action. Collaborative efforts between Asian countries will also be required to improve adaptability of its populations and be better prepared for climate-calamities.

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Jukebox Filled with Songs of Tomorrow

and it was then that i found god in your telescope eyes
    and my god was it a beautifully blinding sight, how
in the syrup dark nothingness these fumbling prayers came
crumbling out from these cracked calloused hands, rising

like wild wide-winged paper cranes from the gaping wounds...

it was in that precise moment of what seemed like the arrival of
    armageddon, what seemed as the final sinking of the old battered boat
where i finally understood that heaven, or at least the idea of it,
was not a place that existed far beyond us or outside the brokenness of

our breath choir; holy is this stormy marbled house that has been right here all along

hidden in the acres of burning fallow and deep ache, in the fragile
    bending of the yellowing moon light, in the many arcs of this
shimmering black woman body with its unclean sleeves, in the audaciousness
of never ceasing hope: the springing of lonely and naked winter trees

and their unwavering belief that new leaves, always remembering where they came
from, will come again soon

in the moments we say thank you and i am sorry,
      and here is the mahogany altar i woodworked just for love oh so maroon,
in the moments we kiss fever slow - recognise how we erect kingdoms
between these parched lingering lips, ascending, awestruck,

braiding our hungering fingers into tender handholds

and casting them out to sea as makeshift life lines, as haloing lamp light,
      lighthouses searching for anyone in need of saving and grace making
i say look love, that blood moon, marvel at that pouring electric rain quenching
the desert thirst; surely we keep the faith in august, surely we continue show up

heart first, continue to show up softer, more gentle in the miracle of the milk dream
swirl,

weightless enough for the cascading summer winds to scatter our kinky afro coils
      like quiet dandelion songs dancing across the entire atlas pages,
blooming and homebound, this glowing globe continues to grieve, and to grow
and so do we...so we plant the grape seeds, set the table with good wine and bread
to

break, and we begin the work of healing again

starting the day's revolution by honouring the ocean veil and our own vastness
      because heaven, my darling, is in the moments we finally decide to just live
when we finally realise that living, that this being human thing,
with its fragmentations and all its stickiness,

with its constant unfolding of the extraordinary from simple every day ordinariness,

that that, that is a place full of unending remarkable wonderment...

Photograph and poem by Lulwama Kuto Mulalu

Photo Courtesy of Lua Samimi

Innovations and Empowerment

HIGHLIGHTING CREATIVE TOOLS TO ADVANCE HEALTH CARE DELIVERY AND ACCESS FOR VULNERABLE POPULATIONS

Photo Courtesy of Lua Samimi

REFLECTIVE NARRATIVE

Breaking Bread (Naan) Together

En Chi Chen

They will probably eat in the back room because you are new guests," Jessica, the director of Preemptive Love, explained to us as we took our seats in the front room, which also doubled as the playroom-bedroom-living-room-dining-room-and-only-room-with-a-fan in the humble home of Zido and Marwa located in Kanakawa, Kurdistan, Iraq. Jess elaborated, stating that out of respect for their foreign guests who were used to a different eating style, Zido, Marwa, and their children felt most comfortable eating in a separate space. I later found out that the very nature of their shared eating style, often having one common platter for the entire family, was indictive of so many aspects of their functional culture: everything was shared, even the act of *breaking bread*. Only after two months of consistently interacting with this family did some of the kids come and sit to eat with us. This was one of the most profound and meaningful moments of my time in Iraq.

The act of sharing food on a common platter is a stark contrast to what I am used to as a Canadian, having always been used to individual servings. I was deeply intrigued by the way that sharing food was but an extension of the shared responsibilities and livelihoods the family divided up each day. I saw older siblings take care of and help discipline their younger siblings. I saw the children preparing food with their mothers and helping their fathers with outdoor farming tasks. Extended families lived within a block of one another and shared everything from the cooking ingredients to the family farming and soap making business. After engaging with the families for two months, playing with and teaching the children English on a daily basis, learning their culture and vice versa, we were able to build a level of mutual trust. This trust led to the development of comfortability in allowing us into their family and communing with them as they would with their own.

This image, by my friend and colleague at Preemptive Love, Audrey White, was taken at a team outing where we often met at a local restaurant. At this particular restaurant, not only did we receive individual plates, but with each plate came individual condiment sections (jam, honey, walnuts, cream cheese...etc.). I distinctly remember reflecting on how *individualized* these platters were. Having spent so much time with Marwa, Zido, and their children, I was becoming more accustomed to shared plating. I wondered if this was the way it was served to everyone else ordering the same dish, or if it was a special circumstance because we were evidently foreigners. This was a contrast to Marwa and Zido's family of eight children, crowded around a large platter, older siblings scooping up dolma (a popular Kurdistan dish of rice wrapped in tea leaf) for the younger siblings because they couldn't reach the plate, everyone talking over one another, and enjoying the most communal experience of sharing a meal. I wonder if perhaps the individuality of the Western society has robbed us of the experience of truly communing with one another. We bring platters to share at potlucks, only to then divide it up into individual servings on our own plates, choosing the items we know we already love and enjoy. We use individual utensils and cups and, at a large gathering, often label our names on these items so to not mix them up. In the same way that the act of *breaking bread* reflects the shared nature of livelihood that exists in Kurdistan, and many parts of the Middle East, the individualistic nature of North Americans is reflected in the way we "commune" together: though we exist and commune in the same space, we still function through the individualist lens, focused on feeding our own needs, often without consideration of those around us. It was only when I let go of these customs and this individualistic perspective and embrace the communal and collective nature of the Kurdistan people, did I begin to appreciate so many other elements of the Kurdish culture—one that always returns to the act of *breaking bread* (or naan in many cases) *together*.

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REFLECTIVE NARRATIVE

How to Ethically Participate in International Development Work

Urvashi Rathod, Western University

We make decisions and take actions daily, but sometimes we find ourselves in situations where it is difficult to judge which path is morally correct. This is defined as being faced with an ethical dilemma. As a global health professional, I attend talks to learn about global engagement and what it entails prior to embarking on my own journeys abroad. For example, I participated in a workshop on "Critical and Ethical Global Engagement," by Bob Gough, Director of International Internships and Development at Western University. Following the workshop, I reflected on the examples of ethical dilemmas discussed – why they arise, how they can be prevented through self-reflexivity, and the role ethics play in global engagement.

At this same workshop, Bob Gough told the story of a guest speaker from the global South who was invited to attend a conference in Canada but could not attain a Visa, consequently missing the event. This situation was an example of mobility inequality, as not all people from the global South have the privilege to obtain a Visa to travel for professional purposes. This raises the question of why this divide exists between the global North and South in terms of opportunities.

In another example, after the completion of a project, members of the local community where it was taking place requested that volunteers from the global North provide them with more computers. The volunteers were hurt and disheartened by this request, as they had already provided a lot and felt their previous efforts were not valued. The volunteers demonstrated a shallow understanding of why these people asked for more despite all that they had done so far.

If the volunteers had put themselves in the shoes of the members of the local community, they would have realized that these people consider them as "angels" that can provide limitless assistance. This reflects the fact that we as the global North have established ourselves as saviours of the global South with infinite wealth and resources to offer. Therefore, people living in the global South are not at fault when making such a demand, given these stereotypes that already exist. This is called the 'saviour complex', in which the people being served are not actually being empowered but are rather becoming dependent on international aid. This phenomenon highlights another type of ethical dilemma.

If we ever feel that the local community is using us as the global North, the argument can be made that the global North partner is exploiting the global South in that relationship. There are several instances where this is more apparent, whereas in others it is hidden but still exists. A common example is unethical marketing and advertising to promote international experiential learning programs. For example, local communities are often portrayed in horrific ways through photographs to get more donations, such as showing flies around a malnourished kid; a White volunteer holding a Black infant supposedly representing them as an orphan; and a volunteer offering food to a child in Africa. All of these scenarios reinforce stereotypes and the crux of the politics of misrepresentation, especially when those viewing the pictures are unaware of the context. The community that is portrayed may feel embarrassed, yet foreigners continue to engage in such behaviours, highlighting their own ignorance.

There is a blog by Pippa Biddle entitled, "The Problem with Little White Girls (and Boys): Why I Stopped Being a Voluntourist," which describes a university student studying in the USA who was photographed while he was a child [1]. The photo was still being used by an international aid organization for donations several years after the picture was taken. The student filed a case stating it was disrespectful and embarrassing for himself and his family. Although this student was able to fight for his right, there are several others who are not privileged enough. Once again, this emphasizes the power and privilege of living in the global North.

I also began to ponder upon how easily we assume certain things are acceptable in the global South even though we would not tolerate the same behaviour in the global North. For example, providing volunteers from the global North access to patients' histories/charts in a developing country is a serious breach of privacy, and volunteers are often not even trained medical professionals. In the North this would not be permitted, so it is interesting how we do not question why it is acceptable in the South or prevent such behaviour. In another instance, kids from a community in the global South asked volunteers to take their photos and the volunteers willingly took it without thinking twice about the implications. If a similar situation were to happen in Canada, where a stranger would walk onto a school property and take pictures of students, it would be considered a serious offense and it wouldn't take long for the police to arrive. I am sure there are many comparable circumstances which further demonstrate why self-reflexivity is crucial, especially when working abroad.

While reflection occurs after the experience and is regarded as thinking about the learning outcomes, self-reflexivity occurs in the moment and involves being cognisant of one's actions and thinking about how those actions might be interpreted by others. It includes asking oneself the question, "Am I behaving in a manner consistent with the norms or am I being discourteous, offensive or stereotypical?" Self-reflexivity also involves reflecting about what one is thinking or feeling: paying attention to one's reactions and beliefs, acknowledging one's emotions and thoughts, and deciding whether they are justified given the situation. Furthermore, while reflection is interpreting only one's own experiences, self-reflexivity is comparing personal experiences with others' experiences and relationships. It is thinking about others' perspective and understanding their viewpoints. Hence, self-reflexivity is broad and, although it entails reflection, it is much more than that. As Bob Gough perfectly summarizes, "when you think you will do more harm than good when you go on a trip, you will be more self-reflexive." This is true because the more self-conscious we are about our attire, communication style, and behaviour, the more we will reflect about whether our actions are appropriate and ethical for the situation.

A specific strategy for critical and ethical global engagement that I gathered from the workshop was not enforcing personal values and beliefs on the community and others we interact with during our time abroad. There is a fine line between sharing information and imposing thoughts. So, to avoid an ethical dilemma, we should engage in conversations where everyone can contribute their ideas, ensuring the project is owned by the local community and not imposed by us - collaboration is the key! This will aid in empowering the community and fostering relationships based on trust. Additionally, we should be aware of shifting goals. We may have an interpretation of what our role entails for the project, goals we want to achieve and skills we want to develop. However, when we get on the ground, the community may require our skills to be applied to something else that we did not expect. In this case, we need to remain open-minded and look forward to the experience because, in the end, we will achieve something valuable from it. We should not refuse nor influence the members of a local community to accept our preconceived plans as this will only reproduce colonial relationships. Instead, we should approach global health experiences as learners and not the experts.

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OPINION EDITORIAL

The Rising Global Impact of Social Media on Women's Health and Empowerment

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INTRODUCTION

We often hear that social media is a negative space that can have detrimental impacts on one's mental well-being. Existing literature and our personal experiences have demonstrated how increased usage can poorly affect one's self esteem. What if we instead told you that social media can be a powerful tool to share knowledge and drive equitable opportunities across the world?

Globally, women hold just 24% of senior leadership positions [1]. While gender equity has been on the map for global organizations such as the United Nations (UN) and World Health Organization (WHO), COVID-19 has slowed progress on these efforts. The role of education and gender equality is a core tenant of the 17 Sustainable Development Goals (SDGs) that are currently set forward by the UN. However, SDG 4 (Quality Education) and SDG 5 (Gender Equality) are not promoted on the digital landscape for women striving to make change [2]. The lack of female representation among resources for activism and empowerment calls for a deeper look into the current landscape of digital communication.

As female social media users, we constantly see the highlight-reel of our role models' achievements. While their content is inspiring, we believe that promoting knowledge sharing and mentorship online would make our scrolling time more purposeful. This editorial will delve into the impact of digital technology on young women's health, a background on the health of young women within a global context and share an inspiring case study of digital technology being used to advance equitable opportunities worldwide.

BACKGROUND

The landscape of digital technology has revolutionized the way in which information is shared across large populations. Due to the wide-spread use and accessibility of online global platforms (e.g. Twitter, Instagram, and Facebook), social media has also been a key driver for advancing the agenda of various social causes, particularly the push for gender equity and women's empowerment.

However, our observation of the current landscape of content sharing via social media, particularly by women, reveals an increased focus on achievement-oriented posts, rather than knowledge sharing. That is, posts are more results-oriented than process-oriented. We believe that when women on social media emphasize purposeful knowledge sharing, a young female audience will be able to access a wealth of resources that can be used to reach their goals.

THE WHO'S GLOBAL STRATEGY ON DIGITAL HEALTH 2020-2025

The WHO's Digital Strategy for the next 5 years aims to promote digital technology solutions to improve health for all [3]. One of the strategic objectives is to use technology to advocate for people-centered health systems through addressing digital health literacy, gender equality and women's empowerment [3]. With the rate of technological advancement we are seeing today, this global digital strategy can be used to reframe our intentions as young social media users and promote evidence-based information on accessible platforms. If we work towards improving the conversation and resources available, we can transform the landscape of social media into an accessible educational tool that may be used globally.

SOCIAL MEDIA AND FEMALE ADOLESCENT HEALTH EDUCATION

Currently, there is a notable lack of positive female representation on social media as it pertains to women's advocacy and empowerment. Research in female health reveals that positive self-esteem is crucial to mental and social well-being, as it influences aspirations, personal goals, and interactions with others [4]. The presence of positive role models and mentors in one's life course is promotive to their self-esteem and perception. Self-esteem is not only a fundamental component of one's mental health, but also a protective factor that contributes to better health and positive social behavior through its role as a buffer against the impact of negative influences [4]. In our personal experiences, the outcome of poor self-esteem is such that women are less empowered to pursue opportunities and less likely to be proactive in taking care of their overall well-being. As more women choose to use social media as a platform to empower and educate others, we anticipate an emergence of female leaders in positions that have been previously dominated by males.

GLOBAL HEALTH AND WOMEN'S EMPOWERMENT

The empowerment of women is intrinsically tied to global health. Varkey et al. conducted a global assessment to explore the association between women empowerment and the health of the community [5]. The study found that due to the crucial role women play within the family dynamic, their empowerment was associated with improvements in health indicators, such as decreases in infant and under-5 mortality [5]. As a tool that has tremendous power to empower millions, social media may be used as a tool to empower women through improved health literacy and health outcomes across the globe.

CASE STUDY: THE STORY OF TWINS FROM PAKISTAN WHO HAVE HARNESSED DIGITAL TECHNOLOGY TO ADVANCE GENDER EQUITY

Let us take a look at Maryam and Vinaal Rehma, co-founders of The World with MNR and global activists for gender equality and female adolescent empowerment. Their mission is focused on purposeful knowledge sharing by providing tangible and accessible means of taking action. The twins launched "Feminae Carta", a revolutionary digital advocacy tool that brought together individuals from 23 countries and over 30 global universities together [6]. The World with MNR's 2020 impact report is a testament to the power of digital technology in bringing together youth separated by thousands of miles to create an inclusive and empowering space for women.

RECOMMENDATIONS

1. Increased research on the impact of social media use on women and girls. Despite evidence to support the benefits of empowering women, little has been done to synthesize this research and create tangible resources. Various observational studies indicate that girls face disproportionate negative consequences as a result of social media usage, including increased depressive symptoms and high rates of suicidality [7,8]. We propose increased research on the gender-based impact of digital communication technologies on women. A potential avenue for exploration is the patriarchal beliefs that continue to manifest in modern society, resulting in women feeling inferior to men. As the body of evidence on gender equity grows, there will be an increased need for tools that can help women and girls build their social media presence in a meaningful way and maximize their impact.

2. Increased mentorship opportunities and strategic training on digital communication technology for women and girls. Providing gender-specific training for girls will ensure that they continue to have equal access to new technologies and resources that may

be leveraged to empower them and take action.

3. Increased targeted investment in small businesses and organizations founded by women and girls. According to a 2013 report, women-led businesses receive less financial support than male-led businesses [9]. We propose increased investment in women-led enterprises in order to promote equitable representation and opportunities.

CONCLUSION

As the world becomes increasingly connected via social media, it is important to foster a purposeful environment that will help to empower and educate women and youth. The evidence that has been provided in this editorial supports the need for greater research and investment into gender equity in global health. When young women are provided with equal access to resources and opportunities, they will be empowered to pursue their goals. Social media should be a tool to support them in this fight.

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OPINION EDITORIAL

Sofosbuvir: The Creation of an [In]Valuable Medicine for Hepatitis C

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On a crisp December morning, Maria left Romania to travel to Egypt. Never having flown before, she knew that without this journey she might never be cured [1]. On a plane Tim also saw an advertisement for a tour that could save his life [2]. Neither ancient pyramids nor sunny beaches attracted Maria and Tim to Egypt, but '*Tour n' Cure*', a travel programme offering affordable sofosbuvir-based treatment for Hepatitis C virus (HCV) when their own countries' health systems could not [2]. In contrast to existing interferon therapies, which have low response rates and toxic side effects, sofosbuvir promised to be the first cure HCV [3–6]. Although Romania has Europe's highest HCV prevalence [7], sofosbuvir cost approximately €47,100 as of 2018 [1]. The UK's National Health Service rations sofosbuvir, which cost £38,980 in 2016 [8,9], and Tim would have had to pay out-of-pocket to access treatment [2]. Yet, because of '*Tour n' Cure*', both are now virus-free. Sofosbuvir-based HCV medications, initially seen as a medical breakthrough, are unaffordable for many patients and health systems alike [10,11]. According to Médecins Sans Frontières, sofosbuvir at its original price was 67 times more expensive than gold per gram [12]. In over half of the countries where data were available, initial cost of sofosbuvir exceeded Gross Domestic Product (GDP) per capita [13]. Between 2016-2018 the price in some low- and middle-income countries has dropped by 75% due to voluntary licenses by Gilead, the originator company, and World Health Organization (WHO)-prequalified generic production [14]. However, amongst higher income countries, a price inequality persists, where richer countries pay less than countries with a lower GDP [13]. This paper examines how sofosbuvir became '[in]valuable', by tracing the research and development (R&D) of this life-saving yet unaffordable cure. Contrasting its 'value' from commercial and public health perspectives, it examines how despite significant public investment in R&D, access barriers exist.

Originally from Egypt himself, Schinazi, one of the main researchers behind sofosbuvir, co-authored a breakthrough paper on a precursor molecule whilst employed by Emory University and the U.S. Veterans Affairs Medical Centre [3]. Yet, neither Emory nor the public institutions that funded its development owned sofosbuvir's intellectual property rights (IPR), but the private spin-off company Pharmasset, founded by Schinazi and colleagues whilst working at the university [15]. The university laboratory from which Pharmasset emerged relied on public investments from the U.S. Veterans Administration and the National Institutes of Health (NIH) [16]. The NIH also conducted the phase II clinical trials of sofosbuvir and provided an additional grant of more than $2 million to Pharmasset [16]. In 2012, Pharmasset and IPR for sofosbuvir were sold to Gilead Sciences, a California based pharmaceutical company, for $11 billion. Schinazi personally received $440 million, of which he re-invests $4 million annually into his laboratories at Emory [10,17,18]. Gilead invested <$300 million into sofosbuvir's R&D [16], but by acquiring Pharmasset Gilead could determine sofosbuvir's price, setting it at $84,000 for a 12-week-course instead of $36,000 considered by Pharmasset [5]. By 2016's first quarter, Gilead had earned $35 billion from sofosbuvir-based medicines, forty times more than the total R&D costs of Gilead and Pharmasset combined [10]. An investigation by the Senate Finance Committee [2015] into the pricing and marketing of sofosbuvir-based medicines concluded that Gilead's "*primary focus was outmanoeuvring potential competitors to ensure its drugs had the greatest share of the market, for the highest price, for the longest period of time.*"[19].

Considering Gilead's 2015 revenue on HCV drugs of $19 billion, equalling approximately two-thirds of the NIH annual budget, royalties from sofosbuvir would have been considerable. However, sofosbuvir's profits failed to feed back into public funds to support further R&D. Furthermore, the Bayh-Dole Act [1980] allows the NIH to intervene if federally funded innovations are not made accessible to the public, but the NIH failed to exercise this right for sofosbuvir [15,20]. Provisions tied to public funding should have demanded an appropriate share of the profits from any final compounds and that such products would be accessible to the public at an affordable price [15]. According to the latest WHO report, only 7% of HCV patients have received direct-acting antivirals to date, with pricing remaining one of the access barriers [14].

Selling Pharmasset to Gilead allowed for the extortionately pricing of sofosbuvir, making the treatment unaffordable for millions of HCV patients including Maria and Tim. However, Schinazi was personally involved in negotiations lowering sofosbuvir's price to $11 per pill in Egypt [17]. Egyptians can access HCV treatment at 1% of the price for American patients [21]. While the use of unsterilised needles in governmental schistosomiasis campaigns in the 1970 left Egypt with the world's highest HCV prevalence, the country has the highest cure rates of the disease globally because of this access deal [21,22]. An agreement between the Egyptian government, Gilead, and local generic manufacturers pushed down the price further to $80 for a three-month-course, available in state clinics [23,24]. In access agreements like these, stringent measures are taken to prevent cheaper, generic drugs from being exported to high-income countries where prices are higher. Yet, the Egyptian ministries of Health, Tourism, and Aviation united forces to bring HCV patients from wealthy countries to Egypt instead [25]. *Tour n' Cure* offers packages at $5000, which include sofosbuvir treatment, a five-star hotel, and a sightseeing tour of Egypt [23,25]. Using the hashtag 'Stop The Wait', *Tour n' Cure* hired the footballer Messi for a promotional video, which has >5.6 million views on YouTube [26]. Long-time sufferers of HCV like Maria and Tim now travel from high-income countries, where the treatment is prohibitively expensive, to Egypt for treatment.

Sofosbuvir shows how local decisions on the commercializtion of biomedical innovations have global impacts. In a world ruled by market forces, new medicines are judged by their commercial success and return to shareholders [15,27]. From this perspective, sofosbuvir is a successful and valuable medicine that generated an extraordinary profit. Using the term 'value-based pricing', pharmaceutical companies argue that high prices reflect advances in public health and economic value compared to prior standards of care [15]. Next to commercial value, sofosbuvir also held significant public health value, as it was one of the first direct-acting antivirals for HCV, changing the prognosis of HCV patients. However, because of the prices asked to reflect this advancement in 'value', 71 million people suffering from HCV across the world were struggling to pay the initial $1000 per pill [16,28], and health systems could not finance its procurement. Sofosbuvir's minimum production price is <$50 per 12-week course, which means that four months of Gilead's revenue from HCV medications could treat every individual suffering from HCV worldwide [4].

This case study shows how 'value' has contradictory meanings from commercial and public health perspectives.Commercial and health interests are often in opposition with one another, which is why innovation that has the potential to save lives should be driven by public health needs rather than market incentives [8,15,29]. Due to the way this invention was commercialized, sofosbuvir could not fulfil its public health value. Instead of bringing benefit to the global community, the creation of this 'valuable' medicine perpetuated existing health inequalities that became embodied in the experiences of people like Maria and Tim.

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RESEARCH ARTICLE

Podcasting as a Tool for Health Communication? The Public Health Insight Podcast and Emergent Opportunities

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ABSTRACT

Health communication plays a critical role in supporting public health and global health practice. Podcasts are increasingly being used as a medium to disseminate health-related information in education, clinical, and non-academic settings. Through this paper, we examine the Public Health Insight Podcast, its potential role as a health communication tool, and opportunities that emerged as a result of its dissemination.

INTRODUCTION

Health communication serves a wide range of purposes, from supporting health promotion to knowledge translation in communities for public health and global health practice. The United States Department of Health and Human Services defines health communication as “the art and technique of informing, influencing, and motivating individual, institutional, and public audiences about important health issues” [1]. The ability to communicate complex health information through a variety of media is crucial in the domain of public health and global health, where challenging or evolving situations demand the need for clear, effective, and concise messaging.

Podcasts are digital audio files available on the internet for downloading or streaming to a computer or mobile device. Podcasting has been gaining popularity for its potential to disseminate health-related information and research for educational purposes [2]. In educational and clinical settings, podcasts have been used as additional learning material to supplement required readings, which provides exposure to diverse perspectives, improves the quality of student feedback, and promotes classroom engagement [3]. People who consume podcasts tend to prefer this medium over books, articles, and other written content [4]. A United States (U.S.) survey indicated that podcast consumption has seen steady growth since 2008, with 37% of adults in 2020 reporting listening to a podcast in the last month [5]. In a similar survey of Canadian adults, 20% of the participants indicated they listened to a podcast in the last month [6]. In 2019, there were an estimated 88 million podcast listeners in the U.S., and this number is projected to increase to 164 million by 2024 [7].

In this paper, we will discuss the role of Public Health Insight Podcast (PHIP) as a possible health communication tool for people interested in public health or global health, and some opportunities that emerged during the first twelve months of podcasting.

METHODOLOGY

The PHIP provides information on a variety of population health issues, focusing on the social determinants of health and the Sustainable Development Goals. The PHIP episodes cover a wide range of topics such as mental health, refugee health, climate change, anti-Black racism, and harm reduction. Published episodes have also featured guests who have provided subject matter expertise on various public health and global health topics. The PHIP is currently co-hosted by a team of public health professionals - all holding Master of Public Health (MPH) degrees.

The PHIP was listed under the Education and News/Politics categories in 19 podcast directories including Apple Podcast and Spotify® [8,9]. Social media platforms such as Instagram, Facebook, LinkedIn, and Twitter were used to promote episode releases and build a community to foster listener engagement.

Through the Buzzsprout and Podbean podcast hosting platforms, data was analyzed for the number of downloads, apps used to access the podcast, devices used to access the podcast, and geographical locations where the episodes were downloaded or streamed.

RESULTS

From March 2020 to March 2021, a total of 61 episodes were published. The total number of downloads during this period was 17, 845. All episodes were recorded in English, ranging from 1:27 - 57:37 minutes long, with the average episode length of 31:44 minutes. The podcast was accessed on apps such as Spotify (42%), Apple Podcasts (21%), and web browsers (6%) through devices such as Apple iPhones (55%), Android phones (24%), Windows computers (7%), and Apple Computers (6%). Mobile devices were used the most to access the podcasts (82%) followed by computers (14%). The PHIP was downloaded or streamed in 1,552 cities across 100 countries and territories, and in all continents with the exception of Antarctica (Figure 1). The top countries included Canada (33%), the United States (31%), the United Kingdom (12%), Australia (5%), and Germany (2%).

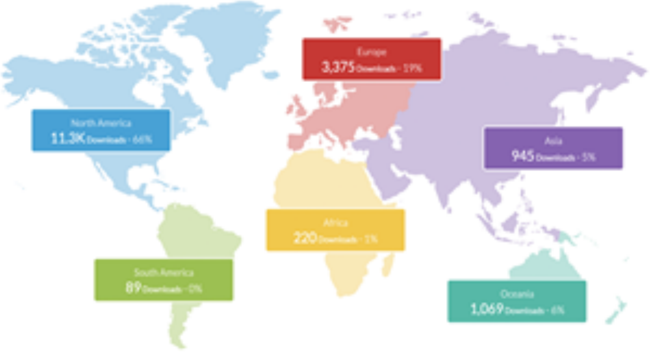

Figure 1. Distribution of podcast downloads across continents from the Buzzsprout podcast hosting platform (with the exception of Antarctica).

DISCUSSION

The podcast is currently available only in the English language and was primarily accessed by English-speaking countries in North America and Western Europe, consistent with other health-related podcasts [10]. The numerical analysis indicated that the majority of the audience accessed the podcast through a mobile device (82%), also consistent with other findings (64%) demonstrating a preference over computer access [11]. Moreover, a study on Canadian adult podcast habits showed that smartphones accounted for 82% of devices in the Fall of 2019 and 68% of devices in the Spring of 2020, which is comparable to the cumulative smartphone percentages (79%) seen in our study [12].

EMERGENT OPPORTUNITIES WITH THE PHIP

The dissemination of the PHIP provided opportunities for partnerships and collaborations. One opportunity included in-kind sponsorships using PHIP's platform for two student-organized public and global health conferences. Another opportunity resulted in the creation of a report and related podcast, in collaboration with ETIO Public

Health Consultants, to address anti-Black racism in Ontario, Canada [13].

A professor from the Colorado School of Public Health contacted the PHIP to utilize our harm reduction podcast episodes as part of an MPH classroom assignment. The PHIP co-hosts were later invited to deliver a guest lecture using an innovative case-based pedagogy on harm reduction to a class of 47 MPH students. Following the lecture, an anonymous online feedback survey was distributed to the students, 16 of the 17 (94%) respondents indicated that they 'agreed' or 'strongly agreed' that the lecture accomplished the three learning objectives outlined in the class outline and lesson plan (Figure 2).

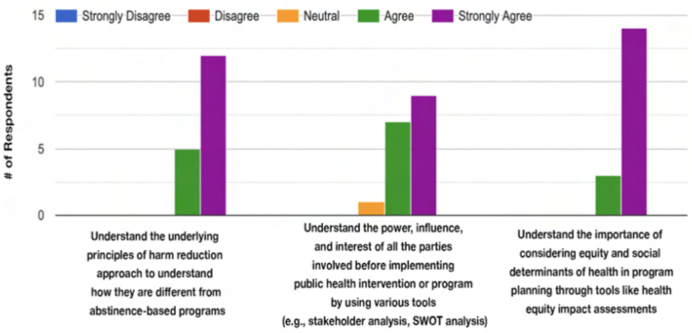

Figure 2. Students were asked to indicate the extent to which they agreed or disagreed with the three statements following the conclusion of the case-based lecture and class activities (n = 17).

Lastly, two experts from the Canadian Network for Neglected Tropical Diseases (CNNTD) were invited on the PHIP to highlight World NTD Day and to raise awareness about these diseases and disease groups that affect over 1.7 billion people worldwide.

LIMITATIONS

Although there is a lack of robust evidence of the perceived utility of the information consumed by podcast listeners, positive engagement through social media, email correspondence, and downloads, may support the idea of its perceived utility. Future studies need to assess knowledge, attitudes, and beliefs regarding health information shared through podcasting. PHIP has adopted standard quality indicators that have been established for health professionals using blogs and podcasts for educational purposes [14].

The global burden of disease is concentrated in low and middle-income countries (LMIC) and access to smartphones and internet connectivity remains a barrier. Although there is limited data characterizing the use of podcasting in LMICs, a study examining medical podcasting highlighted that podcasts covering content more relevant to LMICs are more readily consumed by learners [15]. As such, PHIP intends to place greater emphasis on featuring voices from LMIC communities through podcasting, and by expanding communications to include live webinars, email newsletters, blogs, and providing episode transcripts that can be more easily translated to different languages.

CONCLUSION

Though further research is required, preliminary data indicates that using podcasts as a health communication tool may expand the reach of population health-related information, facilitate opportunities for collaboration, and introduce public health information to new audiences.

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Bicycles of Bangkok

Photo Courtesy of Maja Milkowska-Shibata

Photo Courtesy of Maja Milkowska-Shibata

COVID-19

A LOOK INTO THE GLOBAL IMPACTS OF THE COVID-19 PANDEMIC

Photo Courtesy of Zoey England

REFLECTIVE NARRATIVE

The Meaning of Global Health

Nicole Rakowski, McMaster University

I drifted in and out of consciousness as men from Iceland, Canada, the United States and Germany took turns carrying me on their backs. I was a dead weight—struggling to stay alive as my body went into shock and my heart entered into a state of tachycardia. I was stranded in the foreign mountains of Iceland after having endured second and third degree burns on my legs. Stranded in an area with no cellphone reception to call emergency services, being carried through the challenging mountainous terrain was the only way I could stand a chance at survival.

Strangers from different parts of the world teamed up to carry me through the challenging terrain that is known for its volcanic quaking, and geothermal activity of mud pools and stream vents that boil right before your eyes. I was a victim that quickly succumbed to the acidic, boiling water that ripped the flesh right off of my feet and legs. The pools can reach temperatures of up to 220 degrees Fahrenheit—temperatures that tore through my skin and muscle.

The dramatic rescue was what saved my life—the power of individuals from all over the world working together regardless of linguistic or cultural barriers was beyond incredible. None of them knew me, but what they did know is that I wouldn't have survived had they not all helped.

Although the team made slow progress taking turns carrying me over the mountainous terrain, we were eventually met by the rescue team that used ATVs and a specialized basket to get me to an ambulance at the bottom of the trail. The picture below says it all (Figure 1).

Figure 1. Half way down the mountainous terrain in Reykjadalur Valley (south Iceland), the rescue team uses specialized equipment to bring me to safety. Other hikers are seen in the photo providing additional support—including a firefighter from California who is using the fireman's carry, while another is holding the IV bag.

Strangers had teamed up to save me—strangers who were not seeking a reward by engaging in this rescue mission. They simply wanted to help because they could. It was at this exact moment in time that I realized global health took on a completely new meaning for me. It was not just about achieving equity, prioritizing sustainability outcomes, or creating universal policies—I realized it was beyond that. It was about the heroic efforts of those from around the world that stepped up and worked together, regardless of cultural, linguistic and political barriers. These individuals were unconsciously able to put their differences aside and contributed to the heroic effort without asking for anything in return. This single incident can be paralleled by the power countries can share when they join their efforts to overcome global challenges.

As I look back on this incident that took place nearly four years ago, I can't help but compare it to the biggest challenge we are currently faced with on a global scale—COVID-19. We all hold the same hope as we fight to achieve a single outcome—a single outcome of creating a robust international health framework that will serve to protect future generations and those more vulnerable. There is no single country, government agency, private company or individual that can address the pandemic alone. This can only be achieved through a partnership approach. The question isn't if these global partnerships can take place—the question is when. This pandemic has been a blunt and agonizing reminder that we cannot be safe individually until we are safe collectively.

COVID-19 has capitalized on our global weaknesses, which heightens the need to come together now more than ever. We must act globally and use this as an opportunity to create a unified plan that extends far beyond the pandemic we currently face. It is important to remember that we are all fighting to achieve the same outcome—yet why are so many working independently to achieve separate political agendas? Organizations, corporations and government sectors have to dedicate their efforts to increase collective efficiency and must leave their independent and bureaucratic agendas at the door.

How is it that this single virus has caused such devastation and pain in all parts of the world? Every household around the world has somehow been impacted by this tiny molecule that is no more than 10 nanometers in length [1]. This virus has kept us locked up in our homes, has prevented us from seeing the people we love and has taken away the joys that were once prevalent in our daily activities. It has forced us to adapt to new ways of living—new means of communicating, completing work, and understanding what our future might entail. As isolated as we all may be, we all share something in common: none of us know what the future of the pandemic will truly look like. Is this enough to unify us? That common thought of knowing we are alone together? We can only be as strong as the weakest part in the world—and we must protect those who are unable to do so, and only then can we really protect ourselves.

The virus has no continental boundaries—it has shown us its powers by quantifying the number of people infected and deceased. Building health partnership is the only way we can cope with the precipitous increase of those infected. We must help those who cannot survive socioeconomically on their own—we will only burden ourselves if we do not take immediate action through bold policy. Our economies and societies depend on it more than ever. Our children and grandchildren depend on it. We must acknowledge how far we've come and deliver on our global promise to not leave anyone behind.

If those strangers that came together four years ago regardless of barriers could save my life, then it is possible that we can come together globally to protect future generations and minimize the detrimental impacts in the event future catastrophes unfold.

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OPINION EDITORIAL

A Co-operative Way Forward: Co-Ops as a Response to COVID-19

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COVID-19 IN LATIN AMERICA

The COVID-19 pandemic has disrupted economies around the world, as governments heed the advice of epidemiologists and impose lockdowns and mandate the closure of 'non-essential' businesses. Although important to curb the spread of COVID-19 and save lives, the negative health, social, and economic impacts of these measures will be felt for years to come. Early data from the Cooperatives Europe Report suggests that cooperatives (co-ops) of all sizes have been negatively affected by the current economic recession [1]. In terms of health and social impacts, social distancing increased the extent and severity of addictive disorders [2]; stay-at-home orders increased reported incidence of child abuse and domestic violence [3]; and lockdowns in India led to extreme poverty for migrant workers [4]. These negative health, social, and economic impacts are particularly detrimental in regions such as Latin America and the Caribbean (LAC) where decades of austerity have gutted social supports and public health systems [5]. Throughout the 1980s and 1990s, in exchange for loans from the World Bank and International Monetary Fund, governments across LAC agreed to privatize social services, open their economies to foreign trade, and decentralize health care services [6–8].The objective of these neoliberal reforms was to stimulate economic growth by limiting government spending, expanding economies to new global markets, and offsetting expenditures to regional health units. In countries across LAC, though, growth stagnated, unemployment rates rose, and poverty and inequality increased [6–8]. The destabilizing effects of these structural adjustment programs continue to this day and are exacerbated by COVID-19. High rates of poverty and informal employment [5] mean workers cannot afford to take time off; densely populated urban centres and substandard living conditions lead to more rapid disease transmission; and weakened health systems hamper the effectiveness of COVID-19 containment measures [5]. As a result, the socioeconomic impact of COVID-19 has been greater in LAC than any other region in the world [9]. The disproportionate burden of COVID-19 borne by LAC countries and exacerbated by decades of austerity make it a propitious setting to explore the role of co-ops as alternatives to profit-driven workplaces.

CO-OPS RESPONDING TO CRISES

Building on a longer history dating back to the late 19th century, there has been a resurgence of co-ops in LAC over the past 30 years as part of broader collective struggles against globalization, neoliberalism, and structural adjustment programs. Co-ops are businesses which are owned, operated, and governed by workers, and driven by values of equality, solidarity, and democracy [10]. Workers vote on decisions affecting the co-op [11], enabling remarkable worker control over job conditions. Co-op movements are often also connected to labour movements, as well as peasant, feminist, and Indigenous social movements [12–15]. Worldwide, co-ops have demonstrated that democratic forms of workplace ownership and governance may contribute to economic stability and wellbeing [16].During economic downturns, greater worker control within co-ops has allowed them to preserve jobs through measures such as pay cuts, and save a portion of profits in case of a recession [17]. In the wake of the 2002 financial crisis in Argentina, for example, failing businesses were recuperated by workers and converted to self-managed co-ops, saving more than 13,000 jobs [18]. Similarly, unemployment rates in Spain during the 2008 global financial crisis were lowest in the Mondragón region, where the world's largest co-op network is located [19]. This is pertinent because in addition to providing economic stability, employment is also an important contributor to health and wellbeing [20]. Little is known, however, about how co-ops are responding to the combined economic and health dimensions of COVID-19.

A CO-OPERATIVE WAY FORWARD

Co-op movements first emerged in the United Kingdom in the early 19th century, gaining traction across Europe during the Industrial Revolution in response to rising poverty rates, food insecurity, and deteriorating working conditions [11]. Co-ops, therefore, emerged as a response to the rising inequality and exploitative labour relations accompanying the spread of capitalism. Renowned philosopher Karl Marx argued that capitalism is inherently contradictory, since those who own the means of production will always seek to maximize profits by cutting labour costs, while labourers will continuously seek higher wages [15]. Marx suggested that capitalism's contradictory nature leads to a sense of 'alienation' among workers due to their powerlessness over their workplace and separation from the products of their labour [21]. In contrast, in co-ops, workers own the means of production, and decisions are made on a one-member-one-vote basis, granting remarkable autonomy over workplace decisions.

Now, early reports suggest that democratic governance structures are allowing co-ops to respond to COVID-19 in innovative ways to meet the needs of members and communities [22]. In the Philippines, credit unions donated food to volunteers; garment makers produced and donated make-shift masks, and financial co-ops donated four million pesos (approximately $83,000 USD) to support community relief [23]. In Costa Rica, the Coopecaja credit union offered 100 million colones (approximately $160,000 USD) in subsidies for members to purchase computers for their children transitioning to online learning amid the pandemic [24]. In India, the Indian Farmers Fertilizer Cooperative donated personal protective equipment including masks, sanitizers, and soaps, as well as food rations [25].By granting workers greater authority over workplace decisions and prioritizing people over profit, co-ops are responding to COVID-19 in meaningful ways.

CONCLUSION

The COVID-19 pandemic, and the economic shocks accompanying the spread of the virus, present yet another crisis of capitalism. Austerity measures implemented across LAC as part of structural adjustment programs have increased inequality and left health systems underfunded. As a result, the COVID-19 pandemic has hit LAC harder than any other region in the world. As social movements mobilize evermore against corporate greed, alternative workplace governance merits further exploration. The flexibility and adaptability of co-ops have allowed them to meet the changing needs of members, as evidenced during the 2002 financial crisis in Argentina, and the global financial crisis in Mondragón. Now, the health, social, and economic impacts of COVID-19 present a unique opportunity to explore the innovative ways in which co-ops are adapting to meet the needs of members and communities. The role of co-ops during the pandemic merits further investigation, and their role as alternatives to profit-driven workplaces should be further explored.

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OPINION EDITORIAL

Improving Canada's Health Care Financing for Long-Term Care Homes during the COVID-19 Pandemic

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INTRODUCTION

The 2019 Coronavirus (COVID-19) pandemic has exposed the weaknesses existing in the management and financing of Canadian long-term care (LTC) homes. Health Canada defines LTC homes as living accommodations for people requiring onsite delivery of 24 hours, seven days a week of supervised care, including professional health services, personal care, and services (e.g., meals, laundry, housekeeping) [1]. According to the World Health Organization, healthcare financing (HCF), one of the six building blocks of health systems, is concerned with the sourcing, allocation, and mobilization of funding within a health system. HCF ensures individual and collective needs are met, and access to personal and public healthcare is available to all citizens [2]. When the pandemic was declared a Public Health Emergency of International Concern in January 2020, Canada's financing mechanisms and resource allocation immediately prioritized hospitals and acute care [3]. Despite such investments, LTC homes remained the epicentre of Canada's COVID-19 battle. Public health expenditure is a facilitator of pandemic preparedness, and Canada's shortcomings indicate the need for a systemic change in how LTC homes are financed [4]. Therefore, this paper discusses Canada's HCF approach for LTC homes before and during the COVID-19 pandemic response.

DISCUSSION

Financing of LTC in Canada: As of January 2021, over 14,000 (73%) of COVID-19 deaths in Canada occurred in LTC homes [5]. This public health crisis occurred for a multitude of reasons, including lack of infectious disease preparedness, patient vulnerability due to increasing age, different age-specific comorbidities, and overall deficiency of human and healthcare resources [3]. With mostly part-time employees, the staff at LTC homes were also faced with increased pressure as many needed time-off for either sick leave or to care for their own families. Many COVID-19 deaths that took place in LTC homes in Canada were preventable, and increased federal funding prior to the pandemic may have helped to prevent infectious disease outbreaks or alleviate the burden on both staff and patients [3]. Through the Safe Restart Agreement signed in late 2020, the federal government dedicated $740 million Canadian Dollars (CAD) out of the $19.9 billion CAD budget to address the gaps in care for all vulnerable populations, including LTC, home care, and palliative care [3,6].

Furthermore, there are over 2,000 LTC homes in Canada, with 46% publicly owned and 54% privately owned [7]. The healthcare and social services provided by LTC homes are considered extended healthcare services, which are not insured under the Canada Health Act (CHA) [8]. LTC homes are also within provincial jurisdiction, so the delivery of LTC services varies throughout the country [8]. In 2018, 13% of the total healthcare budget was spent on LTC homes, of which $24 billion CAD was publicly financed and $9 billion CAD was privately funded [9]. The federal government also supported LTC homes by providing provinces and territories with $11 billion CAD of funding over a period of ten years beginning in 2017 [9]. However, despite this funding, Canada spends less than 2% of its gross domestic product on LTC, comparatively less than other countries, such as the United Kingdom and France [10].

The cost of Canada's aging reality: As the Canadian population continues to age, the rising cost of LTC will exacerbate the existing gaps in funding. If government support in terms of LTC funding and programming remain consistent with current contributions, Canada can expect to see a significant financial deficit in the coming decades [7]. The costs needed to sustain the increasing demand for care are expected to cause a liability of approximately $1.2 trillion CAD between 2012 and 2046 [7].

Additionally, due to long waitlists, individuals are entering LTC homes at older ages with more complex needs and multiple comorbidities, requiring more intensive and frequent care [11]. The median number of days waited for LTC placement following referral from an Ontario hospital or community was 147 days from 2012 to 2020 [11]. This created an overflow of hospital capacity and increased the burden on healthcare providers working in hospitals [12]. The cost of providing care in hospitals prior to LTC admission results in excessive healthcare expenses. In addition, prior to the pandemic, 63% of Ontario LTC residents shared rooms in order to maximize capacity, which increased the likelihood of contracting the disease [11].

Staff welfare: Staff in LTC homes, specifically personal support workers (PSWs), are underpaid and have trouble securing full-time positions, resulting in many employees working between multiple homes [13]. Staff moving between different care homes also increased the risk of exposure to the vulnerable LTC residents [13].

POLICY RECOMMENDATIONS

Exploring bundle payment options: According to a Commonwealth Fund's survey, Canada ranked 8 out of 11 nations in healthcare coordination [14]. Other countries with universal healthcare, such as the Netherlands, have utilized bundled payment structures to deliver more coordinated and efficient patient care [15]. Bundled payments involve healthcare providers receiving and independently allocating lump-sum funding at their discretion [15]. There are indications that the use of bundled payments in the Netherlands increased coordination of care among healthcare providers, improved chronic care protocol adherence, and enhanced collaboration regarding patient care [15]. The Canadian healthcare system can adopt a bundled payment method to encourage healthcare providers to deliver better-integrated care for patients between acute and LTC homes. With bundled payments, providers are responsible for excess costs above the predetermined funding amount, but retain any efficiency surpluses.

Incentivizing human resources: Next, provincial and territorial governments should increase the number and re-numeration of PSWs with full-time employment. Increasing full-time employment for these staff members not only increases pandemic preparedness, but also decreases the spread of infectious diseases when PSWs are confined to one LTC home.

Furthermore, differences in funding and staffing may explain why cases and deaths in British Columbia's LTC homes have been much lower than in Ontario's LTC homes [16]. More funding for each resident in British Columbia implies more money to pay staff. Higher staffing levels have been attributed to lower COVID-19 infections in LTC homes [16]. Current temporary wage increases for PSWs during COVID-19 acknowledge their vital role in our healthcare system, and this should be made permanent going forward [17].

Amending the Canada Health Act: In addition, the federal government should amend the CHA or draft new legislation, such that health transfers to provinces and territories are conditional upon upholding national standards for LTC homes. Although healthcare is delivered by provincial and territorial systems, the federal government can use its spending power to incentivize change, as it did in 1957 and 1966 to establish universal hospital and medical care [18].

After witnessing the effects of COVID-19 in LTC homes, 86% of Canadians were in favour of amending the CHA to include national, universal long-term care [19]. In addition to pandemic preparedness, Canada's aging population will benefit from investing in LTC services now.

CONCLUSION

HCF is a critical building block for health systems. The ability of a government to modify funding allocation and ensure proper prioritization of finances to pandemic epicentres is key to a successful response. The current COVID-19 pandemic uncovered pre-existing gaps in financing for LTC homes in Canada, which led to poor quality of care and increased mortality rates in LTC homes during Canada's first and second waves. As Canada's population ages, it is essential to increase spending in LTC staffing, funding, and safety. Implementing a bundled payment method, increasing full-time employment for PSWs, and amending the CHA will create upstream solutions that ensure consistent and equitable care.

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RESEARCH ARTICLE

Testing the Foundations: A Glimpse into Health Service Delivery in China during the Ongoing COVID-19 Pandemic

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ABSTRACT

Pandemics can severely impact the capability of a healthcare system, especially the availability of health service delivery. This paper analyzes China's response to the COVID-19 pandemic by assessing its provision of health service delivery. The objectives of this review are to identify themes in health service delivery models from the Chinese response and suggest recommendations for strengthening future Chinese pandemic responses. Major themes were identified in the types of healthcare service delivery models that guided the Chinese COVID-19 response. These models include the increasing use of telemedicine, 'internet hospitals', and the use of Fangcang hospitals during the peak of the pandemic. Exploration of these themes has led to recommendations of creating a national registry to monitor healthcare services while leveraging telemedicine platforms to continue access to routine medical services for the public.

INTRODUCTION

Between December 2019 and January 29, 2021, China has reported 100,641 cases of COVID-19 and 4,820 deaths [1,2]. During the pandemic's early days, China faced challenges related to insufficient medical supplies, logistics, and health services [3]. This paper presents how China's health service delivery adaptations to these challenges impacted their COVID-19 morbidity and mortality trends and suggests recommendations to improve future pandemic health service delivery responses.

METHODOLOGY

A primary component of health care systems is health service delivery [4]. This paper defines health service delivery as all components providing healthcare within a geographical region [5]. A literature review was conducted using MEDLINE (Ovid) and PubMed databases. Appendix A provides further details on the selection strategy used [6]. Articles were limited to those written in English and published between 2019 and 2021. Gray and scholarly literature were eligible for this review. The search strategy applied to each database consisted of relevant subject headings and keywords, including "health service delivery," "COVID-19", and "China" (see Appendix B). Additionally, COVID-19 transmission and mortality data was obtained from the Oxford University database Our World in Data (OWID), which has been cited in scientific journals such as Nature and The Royal Society [7,8], and the WHO COVID-19 dashboard. Transmission and mortality trends were examined beginning on January 22, 2020, as this was the first data available in OWID datasets for COVID-19 in China [1,9] to December 18, 2020 (present-day of writing).

DISCUSSION

In China, between late January and early March of 2020, there was an exponential growth of positive cases of COVID-19, followed by significant increases in deaths caused by the disease. Despite the rapid growth in COVID-19 morbidity and mortality, China's measures rapidly decreased new incidences and outbreaks of COVID-19 by late March. This was demonstrated by a nearly tenfold decrease in disease incidence between its peak on February 14, 2020 and March 1, 2020 according to the database Our World in Data [9]).

The COVID-19 pandemic negatively affected health services availability and utilization in China. For example, fear of contracting COVID-19 disease and stringent quarantine policies resulted in decreased national and regional health services usage by 37.8% and 40.8%, respectively [10]. Several approaches were utilized to improve access to Chinese healthcare service delivery during the COVID-19 pandemic. One main theme identified was the use of telemedicine, defined by the WHO as "healing at a distance" [11]. For example, following the peak of COVID-19 cases, several Chinese hospitals offered internet-based healthcare services. Additionally, telemedicine was extensively used to provide mental health services during the pandemic [11]. One study evaluated the ability of a video-conferencing platform to carry out consultation interventions targeting older adults with neurocognitive disorders [12]. Another study concluded that using an amalgamation of virtual care such as video conferences with telemedicine or telemedicine alone improved the health and well-being of mental health patients and their caregivers [13].

Another theme identified was the implementation of China's 'internet hospitals', an outpatient care approach using internet technologies to provide health services that was pivotal in alleviating overburdened health systems during stringent quarantine policies [14]. A total of 146 of these 'internet hospitals' were constructed between January and April 2020 [15]. An example of a service provided through these facilities was online medical service delivery for high-risk cancer patients, which was used to ensure individuals received high-quality care while simultaneously reducing their risk of COVID-19 infection. Hospitals integrated online medical counselling, medication delivery programmes, and web chats for critical care patients to communicate with oncologists [16]. Approximately 32,676 patients participated in non-COVID-related virtual consultations via these facilities from February to April 2020 [17]. The nationwide application of internet hospitals and telemedicine were thus key drivers in sustaining China's resilience against the COVID-19 pandemic.

Additionally, in applying lessons learned from the successful response to the 2003 SARS outbreak, the Chinese government responded by constructing 16 Fangcang shelter hospitals over three weeks to increase access to healthcare services [18]. By converting large venues to makeshift hospitals, 13,000 additional beds were provided [19]. These reduced the number of patients with infectious COVID-19 that needed to be isolated at home, lowering the risk of household and community transmission [20,21]. While with the initial lack of hospital beds there was an increase in transmission between family members, modelling has suggested that a one-day delay in opening Fangcang hospitals (February 6th instead of 5th) would have dramatically increased COVID-19 morbidity and mortality, resulting in 7,413,798 cases (compared to 50,844 positively-identified cases) and 1,396,017 deaths (compared to 5,003 confirmed deaths) [11,22]. The efficiency with which temporary health facilities and inpatient beds were established thus contributed to the prevention of more COVID-19 cases and fatalities.

RECOMMENDATIONS

Although China's pandemic response was widely commended for its speed and effectiveness [20], the following recommendations have the potential to improve the preparedness of the Chinese healthcare system for similar situations in the future:

Harmonize and increase accessibility to medical resources across the nation: A national registry can be used to monitor allocation of equipment, personnel, and resources to regions that do not have access to ICUs and adequate medical staff and resources [23]. The harmonization of medical resources will facilitate rapid deployment of said resources, crisis response teams, and future Fangcang hospitals to underserved regions. For example, a similar strategy called Hospital Real-Time Location Systems (HRTLS), implemented in Iran, has been used to track medical personnel and equipment for ready deployment during public emergencies [24].

Moreover, an increased number of temporary healthcare facilities and beds would align with recommended indicators made by the WHO to improve health service delivery within geographical regions [25]. It is evident that improvements in these health service delivery indicators were associated with lower COVID-19 mortality [22].

Develop and maintain telemedicine services for routine healthcare and create surge capacity to maintain preventative and curative health service delivery: The establishment of a permanent telemedicine system could benefit China in future pandemics as well as non-crises. Some studies identified a decline in the use of routine healthcare services in China during the peak of the COVID-19 pandemic due to heightened fear of being at risk for hospital-acquired COVID-19 infection [10]. Telemedicine has the potential to increase the use of essential health services such as mental health care. The rapid deployment of telemedicine during the early months of the pandemic was crucial for maintaining teleconsultations, mental health interventions, and delivery of physical services such as prescriptions. Given the success of telemedicine initiatives not only in maintaining treatment during the pandemic but in improving health service delivery overall, it is therefore pertinent that this practice is sustained and further developed [26]. Worth considering is that, although the permanent establishment of telemedicine may introduce novel health care delivery models that are resilient to ‘pandemic shocks,’ economic feasibility will also have to be considered. Contingency preparedness plans should be tailored for the outpatient delivery of treatments, such as TB medication and chemotherapy, and these outpatient delivery systems should be maintained so routine care is not interrupted [27].

CONCLUSION

The outbreak response by China demonstrated success in decreasing COVID-19 mortality and morbidity rates by expanding health service delivery through the provision of additional inpatient hospital beds, telemedicine, and ‘internet hospitals’. By integrating the proposed recommendations, China can enhance their readiness for future pandemics.

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OPINION EDITORIAL

An Evaluation of Ontario's Response to COVID-19 in Long-Term Care Facilities and Recommendations to Improve Health Policies

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INTRODUCTION

The global pandemic caused by the novel coronavirus, SARS-CoV-2, and its associated disease, COVID-19, has crippled the public health systems and economies of countries around the world [1]. COVID-19 is a potentially life-threatening disease that primarily affects the respiratory tract, with the most common symptoms including dry cough, fever, fatigue, and difficulty breathing [2]. Given the recentness of the outbreak, a comprehensive epidemiological overview of the performance of implemented health policies aimed at curbing the spread of COVID-19 throughout affected countries cannot be provided. However, considering the significant cumulative case and death totals globally, it can be reasoned that current interventions have largely failed to contain the spread of COVID-19 [3]. This, in part, has to do with the higher transmission rate of COVID-19 relative to similar diseases such as SARS [3] and a delayed response by many countries to reduce the spread in their general populations, be it due to a lack of resources and/or a sense of complacency.

In Canada, it is hypothesized that the country's passive approach, compared to other nations, resulted in poorer outcomes for its health care system including higher case totals and COVID-19 related deaths, as well as lower testing rates [1]. The purpose of this paper is to assess Ontario's response to controlling the spread of COVID-19 in long-term facilities, identifying factors that may have and may continue to contribute to further outbreaks, and providing recommendations for mitigating these underlying factors. Primary care operations will be discussed briefly to emphasize the disparity in the preparedness and response to the pandemic as well as provide a basis for potential recommendations.

PRIMARY CARE OPERATIONS

A retrospective population-based analysis by Glazier et al. (2021) assessing the changes in total visit volume and visit type in primary care of all residents in Ontario identified a 28% decrease in total primary care visits over the first four months (March to July 2020) of the COVID-19 pandemic [4]. Primary care plays an integral role in providing more accessible care to treat symptoms of COVID-19, serving as a credible source for the latest public health directives, and reporting new and probable COVID cases in a timely manner [5]. By acting as intermediaries between their patients and public health administrators, they represent key sources for communicating vital data regarding underlying trends in community transmission.

LONG-TERM CARE OPERATIONS AND RECOMMENDATIONS

On the other hand, long-term care (LTC) institutions have had the complete opposite fate regarding pandemic preparedness and response. Statistics from the Ontario Ministry of Health and Long-Term Care reported that, as of June 1, 2020, the 1652 deaths in LTC residents accounted for approximately 72% of the deaths in the province [7].

Previous studies list underlying co-morbidities and persistent systemic issues resulting from under-funding as some of the factors increasing the risk of morbidity and mortality during disease outbreaks in LTC homes [8, 9, 10]. The epidemiology of COVID-19 seems to indicate that individuals over the age of 65 and/or with certain co-morbidities have been linked with higher rates of hospitalizations, ICU admissions, and death [11]. In addition, systemic failings in long-term care, understaffing, and underfunding have contributed to poorer health outcomes for residents, most notably from neglect [12]. While the mainstay to ameliorating the state of LTC institutions throughout Canada is comprehensive funding, another factor, particularly inconsistent communication between LTC operators and their facilities, has proven to be a significant contributor to the state of long-term as it currently stands.

A study by Siu et al. (2020), conducting a three-month cross-sectional survey of clinicians from Ontario Long-Term Care Clinicians (OLTCC) and Nurse-Led Outreach Teams (NLOTs), cited the disparity in the communication of public health guidelines between LTC operators (i.e., private corporations that own and run a chain of LTC homes) and local public health authorities as a contributing factor to each LTC home's response [12]. Out of all the examined variables in the study, medical director status was found to result in statistically different responses according to respondents [12]. Medical directors deliver regular public health recommendations between the LTC home leadership and frontline staff [12]. Inconsistent communication between LTC operators and frontline staff (i.e., clinicians, support workers) hinders the delivery of vital public health recommendations to frontline staff, thereby negatively impacting the implementation of measures to protect the lives of their residents [12].

Stall et al. (2020) reported an intriguing intervention by a nursing home in Toronto that partnered with a nearby hospital to control a new outbreak that resulted in 12 deaths, 89 infected residents, and 49 infected staff members [13]. The hospital created a designated four-phase plan that stabilized the outbreak over 10 days. This plan included (1) engagement, relationship, and trust-building; (2) environmental scan, team building, and immediate response; (3) early-phase response; and (4) stabilization and transition period. [13]. The feasibility of this strategy is contingent on the availability of hospital staff, the majority of which is normally dedicated to in-hospital patients, to coordinate a response plan with the associated LTC facilities. This strategy can be effective if primary care physicians in LTC facilities take a more active role in the reporting of new and probable COVID-19 cases. As a patient's first point of contact, primary care physicians are responsible for identifying and reporting communicable diseases of importance to public health authorities [5]. In addition, with the majority of COVID-19 patients experiencing mild to moderate symptoms [5], increasing the concentration of community-based primary care facilities to triage, diagnose, and treat the disease will reduce the burden on hospitals, thereby allowing their staff to participate in developing strategies for LTC facilities to a greater capacity.

Another recommendation that can be implemented to enhance the response of LTC operators to the pandemic is to improve communication by inviting and engaging LTC staff and physicians early in the process of any future planning for coordinated community response [14]. This entails working directly alongside the province's science advisory table to assess modeling for future caseloads and designing measures to effectively isolate vulnerable residents and control the rate of infection.

CONCLUSION

For the foreseeable future, the COVID-19 pandemic will continue to pose a significant threat to public health in Ontario, particularly with the rise of more transmissible variants of the SARS-CoV-2 virus [15, 16]. At the time of writing, the Health Canada approvals of the BioNTech-Pfizer and Moderna COVID-19 vaccines [17] provided a monumental step in the right direction for offering widespread and longer protection of vulnerable populations from severe disease. An ethical framework for the distribution of COVID-19 vaccines should be based on reducing mortality rates to the greatest extent with a limited supply. The populations with the highest risk of mortality based on current epidemiological data, which includes residents of long-term care facilities, would ideally be placed on the shortlist for vaccines [12]. Ultimately, the province moved forward with an epidemiologic approach to vaccination by prioritizing those at the highest risk of contracting the virus.

Ontario's poor management of long-term care homes during the first wave of the COVID-19 pandemic was a result of several factors. To begin, the underfunding of staff and facilities led to a severe shortage of PPE and other medical resources necessary for the safety of both staff and residents. Inconsistent communication between LTC operators and their facilities induced a delay in the timely implementation of measures to reduce the spread of infection among residents and staff. Establishing a clear chain of communication between public health authorities, LTC operators, and frontline staff can ensure rapid responses to new information regarding the status of the pandemic. Furthermore, integrating the advice of healthcare professionals in contingency plans has been documented to reduce morbidity and mortality rates in LTC homes.

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OPINION EDITORIAL

Social Protections during the COVID-19 Pandemic in Canada: An Analysis of Strategies Around the World

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INTRODUCTION

The COVID-19 pandemic has presented a significant public health challenge that will have social and economic repercussions for years to come. Labour markets around the world have experienced historically unprecedented levels of disruption. In 2020, 8.8% of global working hours were lost, equivalent to 225 million full-time jobs [1]. The pandemic has led to a significant increase in global poverty, effectively erasing a decade of poverty reduction [2]. Governments have thus faced the challenge of containing the health impact of the pandemic while responding to its social and economic impacts. It has become clear that strengthening social protection measures is an essential part of a coordinated policy response, which involves expanding access to quality healthcare and enhancing income security.

While the number of workers in flexible forms of employment, and the informal economy, increased during this pandemic, their lack of protection has become more evident. Precarious groups such as these increasingly experience a disproportionate lack of protections in many countries.

Although embedded in the United Nations' Sustainable Development Goals, social protections have largely been absent in the international human rights agenda. This pandemic has presented a 'wake-up call' for countries to strengthen their social protection measures, to avert or mitigate the crisis, and to better address ensuing challenges [3].

CANADA'S RESPONSE

The COVID-19 pandemic has tested the existing infrastructure and social supports available both in developing and developed countries. Thanks to strong political institutions, pre-existing policy legacies, and sound social protection mechanisms, Canada has been able to accommodate the threat of COVID-19 in a unique way.

As Canada relies extensively on universal benefits and services, financial and social protections such as Employment Insurance are purely under federal jurisdiction. This is not always the case, as in the United States, for example, Unemployment Insurance (UI) is decentralized [4].

In response to COVID-19, one notable mechanism exercised by the Canadian government was the creation of the Canada Emergency Response Benefit (CERB). CERB provided '$500 a week for up to 16 weeks' in taxable benefits to eligible workers who lost their income due to the COVID-19 crisis [5]. Adopted on March 25, 2020, CERB was expanded a few weeks later to cover contract, part-time, and seasonal workers who had initially been excluded from the program [4]. This has since renewed interest in Employment Insurance and social assistance reforms, such as the possibility of creating a universal basic income across the nation.

Canada also exercised the use of several social protection mechanisms, such as the introduction of lockdown and social distancing measures. Social assistance policies illustrated through financial assistance and income transfers hoped to target certain sub-populations especially marginalized by the pandemic [4].

GLOBAL SOCIAL PROTECTIONS

With the spread of COVID-19, disease prevention measures have become more prevalent. As a result, multiple countries have implemented social protections to mitigate the effects of the pandemic on the poor and vulnerable members of their community and to strengthen their economic setbacks. Case studies of other nations highlight the strengths and weaknesses of Canada's measures.

Family leave and care policy: Lockdowns during the COVID-19 pandemic resulted in the closure of schools, universities, and child-care centers in over 100 countries, impacting over 800 million children and youth [2]. Subsequently, family leave policies have become critical, especially for those who cannot telework, while their usual employment is closed. Countries such as France and Italy have introduced parental leave entitlements for the purpose of child-care during the period of school closures, prepayment of social security benefits, and suspension of taxation [2,6].

Access to Healthcare: Financial protection against healthcare expenditure has to be expanded to all, including those who would not be included in other universal healthcare protection schemes. For instance, Thailand guaranteed treatment for COVID-19 for foreign residents in the country [2]. The pandemic also brought upon improved coordination in the healthcare system, including institutional and staff capacity. Countries such as Spain and the United Kingdom complemented existing systems using private service providers under public regulation [2].^ Australia, notably put into place a number of protections to manage the impact of the pandemic in Long-Term Care Facilities (LTCFs), such as priority access to personal protective equipment COVID-19 support funding for facilities, and worker retention bonuses [7].

Protection Infrastructure: Eastern countries such as India and the Philippines implemented the National Social Assistance program and the Social Amelioration Program, respectively, to provide one-off payments to individuals under a certain threshold of poverty and/or vulnerable members of society [8,9,10] However, these payments were insufficient, as they only provided limited relief for two months and were hindered due to a lack of technological developments for payment delivery [8].

Income security: Income security can alleviate financial stressors during a crisis if planned meticulously with existing policies in place. This is best exemplified in Denmark, where a portion of employee salaries were covered while paying fixed-costs for companies to prevent layoffs [11,12,13]. Denmark was able to put forth effective, unified, and time-sensitive social protections because their government, private sector, and unions worked collaboratively [9,10,11]. In contrast, the United States' social protections were limited and implemented at a slower pace due to the decentralized UI which lacked administrative support, resulting in inconsistent benefits and timelines across states [4].

POLICY SUGGESTIONS

Social protections are needed to ensure that individuals need not compromise between their health and their livelihoods. While Canada's plan has fared better than others, they can learn from countries such as Denmark and introspectively from their own shortcomings.

While schemes such as CERB saved millions of Canadians from immediate poverty, they were maladapted to the realities of people experiencing precarious employment, or living in poverty. Moreover, as CERB only covered individuals that did not voluntarily quit their jobs, people were less likely to leave unsafe employment conditions as they would not receive benefits [5]. Canada should work towards providing more comprehensive social schemes to ensure that all demographics in need of protections during a future pandemic are supported. Additionally, Canada should work on integrating the various government levels, public, and the private sector to provide unified income protections similar to Denmark's, which would result in increased funding and broad social protections. Canada should expand family and sick-leave policies, similar to that of France and Italy, to support working parents affected by the closure of schools and child-care facilities.

Vulnerable populations such as those in LTCFs should be integrated into existing healthcare structures. In addition to increased funding to and system integration of LTCFs, standards for long-term care should include a rights-based framework that includes sustainable financing and social protections [7].

Inequities hinder developing nations such as India and the Philippines, which cannot sufficiently fund their social protections' infrastructure; Canada should pool their surplus resources and contribute to their preparedness in responding to crises.

CONCLUSION

The COVID-19 pandemic has presented a policy window, for social protection programs which have largely been absent from the international policy agenda. These programs have to include expanding access to quality healthcare, income security, leave programs and building the required infrastructure.

Findings from current research should guide proactive and permanent social protection schemes not only in Canada but also globally to ensure that the consequences to the economy and health are dampened in case of a future pandemic. To prepare for the future, social protection measures should be seen not as an emergency response to a crisis, but rather as a set of permanent entitlements, protected by law to individual rights-holders.

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OPINION EDITORIAL

Post-COVID-19: The Revival of Ontario

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INTRODUCTION

COVID-19 has exacerbated systemic public health issues that existed in Canada prior to the pandemic. The urgent crises of mental health, geriatric care, and household food insecurity do not exist in isolation as they are deeply intertwined within the healthcare system. This paper explores the burdens experienced by Ontario during the first year of the COVID-19 pandemic, to illustrate how transformative policies must be implemented to improve the health and future for Ontarians.

MENTAL HEALTH

Mental health has been an ongoing public health issue for many decades. In Ontario, the burden of mental illness is greater than "1.5 times that of all cancers, and greater than seven times that of all infectious diseases" [1]. Ontarians living with mental illness have experienced both the impact of psychological disorders, and the lack of healthcare targeted towards mental health prevention and treatment. COVID-19 has intensified the consequences of mental illness experienced by Ontarians due to social distancing, quarantine, lockdown restrictions, economic recession, and coping with bereavement [2]. A survey concluded that seven out of 10 Ontarians believe that a severe mental health crisis will result from the pandemic [3]. High uncertainty around COVID-19 has drastically increased the prevalence of depression, anxiety, post-traumatic stress disorder (PTSD), alcohol and substance abuse, and sleep disorders [4]. The Ontario government has recognized the increased prevalence of individuals struggling with their mental health and has allocated $147 million towards the provincial mental health and addictions system [5].

Recommendations

Ontarians have seen many health services transform through the use of online platforms within weeks as a response to COVID-19. A virtually integrated province-wide health system that offers professional mental health services would overcome many physical and geographical barriers. The online platform would also help reduce mental health stigma and fears of in-person clinical interactions. Therefore, new policies should extend the existing coverage of the Ontario Health Insurance Plan (OHIP) to include in-person and virtual sessions with mental health professionals. In considering this recommendation, the first step is the formal integration of psychologists, other registered mental health providers, and the technology sector [6]. Current policies direct individuals with mental health concerns to the primary care system. This ignores the fact that family physicians do not have the expertise, time, or resources required to provide assistance for treating mental health concerns. In order for mental health professionals to continue delivering high-quality patient-centered care, technical training should be mandatory as virtual delivery of services can lead to a one-size-fits-all approach [6].

GERIATRIC CARE

Canada's failures in long-term care (LTC) homes and geriatric care are long-standing. Despite Canada's increasing aging population, only 14 percent of the health budget is invested in LTC homes [7]. As a result of the lack of preparedness around pandemic and the pre-existing issues within geriatric care, Ontario has failed to protect the lives of the most vulnerable. Prior to the pandemic, 63% of Ontario LTC patients lived in shared rooms which increases the spread of infectious diseases [8]. Ontario also adapted a risk-based framework in which LTC home inspections occurred only in response to specific situations and complaints. This resulted in nine out of 626 (1.4%) LTC homes in Ontario receiving an inspection by the Ministry of LTC in 2018 [8]. COVID-19 has also exacerbated other challenges faced by the LTC sector including a shortage of personal protective equipment, staff burn out, and an unrealistic ratio of workers to residents. In comparison, British Columbia has shown better coordination between LTC and public health, providing greater funding, fewer shared rooms between patients, and increased inspections [8]. Comparisons between these two provinces suggest responding proactively.

Recommendations

The most fundamental change within the sector of geriatric care is to prioritize LTC homes and provide more funding. New policies should mandate comprehensive plans for preventing and managing infectious disease outbreaks in every LTC home in Ontario [8]. Implementing health teams specialized in infection prevention and outbreak control could mitigate the high rates of transmission within LTC. Public health units across the province should conduct unannounced inspections to ensure that LTC homes are abiding by standardized rules and regulations. Adequate funding towards LTC homes should be guaranteed to ensure that staffing and quality of care are not compromised. Single rooms must also be part of the solution, acting as a preventive measure against outbreaks. A transformation of the LTC system in Ontario is critical for the health of LTC workers and residents. The public has finally witnessed the traumatizing effects of poorly equipped LTC homes during this pandemic and demanding new policies to protect the most vulnerable is required.

HOUSEHOLD FOOD INSECURITY

In 2014, Ontario was home to more than 595, 000 food insecure households [9]. In addition to the lack of food access, these individuals also lack access to adequate housing, food literacy, and sufficient income [9]. Having a nutritious diet is an essential protective factor from acquiring chronic illnesses and health complications in the future. COVID-19 has further intensified the impact of food insecurity due to changes in financial stability of Ontarians, lock-down restrictions and some individuals purchasing mass amounts of foods due to panic buying [10]. Current efforts from the Government of Ontario include collaborating with stakeholders to implement various healthy eating programs and food banks to the public. However, evidence proves that these programs and food banks are merely band-aid solutions to the real problem at hand [11].

Recommendations

In late March of 2020, the government announced a $200 million investment into social services including the funding of food banks [12]. Despite these efforts, it is insufficient in tackling household food insecurity. Governments must consider an upstream approach to reallocate the funds intended for food banks to social assistance programs for low-income households. Research from other provinces has shown that improving social assistance benefits can reduce food insecurity by almost half [13]. Although this is a difficult transition and poses many questions elsewhere, food insecurity is a cause of many complex chronic health outcomes. Therefore, policies that confront the food insecurity issue will create a systemic change.

CONCLUSION

In the months and years post- COVID, the prevalence of mental illness is expected to increase [4]. It is essential that policies include psychologists and other registered mental health providers to implement a virtual mental health service platform that will be available to all Ontarians. It is evident that the crisis of poor geriatric care within long-term care homes will not be an easy fix. This issue has caused too many deaths resulting from long-standing negligence at the hands of the provincial government and healthcare system. New policies must enact infectious disease prevention plans tailored to LTC homes, regular unannounced public health inspections, single rooms, and ultimately provide more funding into the geriatric care system of Ontario. Lastly, in response to the issue of household food insecurity, upstream actions must be taken to actively reduce the number of Ontarians being food insecure. This requires the funding intended for short-term solutions such as food banks, to be reallocated to improve social assistance benefits instead. An evidence-based upstream approach that targets the social determinants of health must be utilized by policymakers and other stakeholders for effective change to occur. The consequences of this pandemic and the chronic issues experienced by individuals and communities have illustrated the pressing urgency for new innovative policy changes to transform the lives of Ontarians.

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OPINION EDITORIAL

How Can Global Health Law Change After COVID-19?

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INTRODUCTION

COVID-19 triggered an urgent and massively impactful global health crisis placing unprecedented strain on health care systems, damaging the livelihoods of many, and forcing economies into recession. Above all, COVID-19 elucidated the significant flaws in international, federal and provincial laws and policies that govern emergency response preparedness against communicable diseases. As SARS-CoV-2 will not be the sole highly transmissible and novel communicable disease to affect the human population, the time is ripe to reimagine legal frameworks such that they are adequate in protecting population health, upholding human rights, and ensuring economic stability. The current global situation provides a meaningful opportunity to examine issues with the only international rules governing global health security, the International Health Regulations (IHR), to determine potential solutions.

WHAT ARE THE INTERNATIONAL HEALTH REGULATIONS?

Administered by the World Health Organization (WHO), the IHR are legally binding framework to 196 member states, including Canada, which provides the overarching legal framework that defines countries' rights and obligations in handling public health emergencies [1]. Although the IHR have existed since 1969, the current version entered into force on June 15, 2007. In this update, the range of notifiable diseases was broadened (only cholera, plague, and yellow fever were previously included) and an internationally coordinated detection, assessment, notification, and response system was formalized [1]. While this IHR update asserted the WHO's position as the central institution for international surveillance, risk assessment, and communication of health-related events, the WHO still struggles to be the world's pre-eminent public health authority. This struggle is largely due to its desire to achieve both technical and political objectives, without foraying into global politics [2]. As expressed by Hoffman and Røttingen, the WHO "walk[s] uncomfortably along many fine lines: advising but never directing; guiding but never governing; leading but never advocating; evaluating but never judging" [2]. This tension between the WHO's goal to be the global authority and its institutional design is exacerbated by the WHO's lack of financial support; three-quarters of its $5 billion USD operating budget for 2020-2021 is dependent on voluntary contributions [3,4]. In turn, these difficulties have affected global compliance with the IHR, which has been largely neglected during the COVID-19 pandemic [5].

The 2007 IHR update specifically called for Member States to implement laws that balanced human rights, the global economy, and health security, thereby increasing the global capacity to respond to disease threats. However, unlike other multilateral treaties, the IHR do not include an enforcement mechanism for states which fail to comply with its provisions. Instead, the IHR rely on Member States to complete the Self-Assessment Annual Reporting Tool (SPAR), submission of which is required to the World Health Assembly (WHA) every year. The SPAR consists of indicators that measure implementation of IHR capacities and results in a cumulative score that represents the overall capacity attained in relation to the legal requirements in the IHR. Noting that 171 out of 196 Member States submitted their required report in 2019, the SPAR serves more of a record keeping role than an opportunity for Member States to implement the measures it assesses [6]. Separately from the SPAR, Member States can volunteer to have a Joint External Evaluation (JEE) completed, which assesses national progress in meeting capacities, gaps in implementation, and best practices among Member States by a group of independent experts. The advantage of the JEE process is that it is individualized, but it suffers from the obvious disadvantage in that it is voluntary.

Both the SPAR and JEE have not been effective in motivating State Parties into obtaining acceptable compliance with the IHR; the global average compliance score was merely 63% in 2019 [6]. In other words, the world must improve its capacity to respond to disease threats by 37% in order to fulfill the legal requirements detailed in the 2007 version of the IHR. In contrast, Canada, which has voluntarily completed a JEE, has implemented most of the IHR recommendations, achieving a compliance score of 99% in 2019 [6].

THE IHR AFTER COVID-19

COVID-19 has spurred many discussions among states, organizations, and scholars about a revision of the IHR following COVID-19. At the WHA in May 2020, more than 130 State Parties acknowledged, by consensus, the inadequacies in the IHR and called for a “comprehensive evaluation … to review experience gained and lessons learned from the WHO-coordinated international health response to COVID-19 – including… the functioning of the International Health Regulations” [7]. The Independent Panel for Pandemic Preparedness and Response (IPPPR) has been tasked with this evaluation and will present their report at the next WHA in 2021. Crucially, the IPPPR will need to determine whether the IHR should be fundamentally revised or if a new international legal instrument for global health governance should be developed [8]. Regardless of their decision, the international legal instrument will ideally contain measures to improve compliance and protect global health security. First, surveillance could be bolstered by allowing information from non-state actors, such as civil society, or collection of such information by WHO staff [9]. Second, compliance could improve with the addition of a stronger reporting mechanism to monitor state implementation of required capacities [5]. Third, state decisions that do not comply with the legal instrument, such as travel bans, could be quickly monitored and reviewed against international economic, trade, and human rights law potentially by the creation of an independent legal body [8]. Fourth, increased funding could be directed to the WHO to support the development of Member States’ capacity to prevent, detect, and respond to outbreaks [10]. This measure is especially important to eliminate the current inequities in pandemic responses observed across developing, emerging, and developed countries [6].

The WHA in 2021 will hopefully serve as a significant cornerstone in global health law and help to spur international action to creating laws that protect population health, uphold human rights, and ensure economic stability. COVID-19 has changed the world, and we must use this opportunity to improve emergency-preparedness in the future.

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OPINION EDITORIAL

Canada's Commitment to Equitable Global Distribution of SARS-COV-2 Vaccines

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INTRODUCTION

As of January 22, 2021, Canada has purchased 362 million doses of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccines, enough to vaccinate its population five times over [1]. High-income countries including Canada have used their purchasing power to secure 4.2 billion doses – 59% of total confirmed global purchases [1]. The World Health Organization (WHO) Director General now warns of a “catastrophic moral failure,” in which the world’s richest countries will be vaccinating young adults before the poorest countries have vaccinated their medical staff and most vulnerable [2].

Canada has contributed $865 million to the Access to COVID-19 Tools (ACT) Accelerator, which was launched by the WHO and partners to address diagnostics, treatment, vaccines, and health system strengthening around the world [3]. The ACT Accelerator’s vaccine pillar, COVAX, is a global vaccine procurement mechanism to ensure fair and equitable distribution between the Global North and South. Despite being the second largest financial contributor to the COVAX Advance Market Commitment [3], Canada will not donate vaccines to LMICs at this time, claiming that the surplus it has ordered is not guaranteed due to unreliable foreign production [4]. Although Canada has committed to donating extra doses, there is no current commitment to donate SARS-CoV-2 vaccines to COVAX prior to Canada reaching herd immunity. Therefore, as Canada aims to have vaccinated its entire population by the end of 2021 [5], many countries will still be waiting to vaccinate their highest-risk groups.

ETHICAL CONSIDERATIONS

Canada administered nearly 1 million doses of SARS-CoV-2 vaccines by the end of January, placing the country 26th in doses administered per capita [6]. Provincial and territorial governments have been responsible for the distribution of vaccines secured by the federal government. Vaccination rollout plans have prioritized frontline health workers, the elderly, and indigenous communities – all vulnerable groups identified by the National Advisory Committee on Immunization [7]. The rationale behind this distribution plan was to prioritize those most at risk for exposure to the virus, at highest risk for severe illness or death if infected, and those with limited access to healthcare.

Canadians have expressed strong disapproval of those jumping the vaccination queue. In one example, a couple flew to Yukon and took advantage of mobile vaccinations in remote areas [8]. This incident prompted jurisdictions to create additional measures to confirm residential status. Another example was in Ontario, where some hospital executives and research staff were vaccinated before frontline healthcare workers [9]. Opportunities for jumping the queue occur because mass immunization efforts are difficult. Most hospitals do not have a priority list, and the Pfizer and Moderna vaccines must be used within the day after thawing. While no vaccines should go to waste, it is morally reprehensible for people in low-risk groups, many of whom are not patient-facing, to abuse the honour system in these ways.

The same moral outrage should be directed at the current global predicament. The Canadian sentiment to vaccinate based on risk and need only applies to people within its borders. Vaccine nationalism, a desire by countries to secure vaccines and prioritize their own citizens above the global public good, will prolong this pandemic. The European Union demonstrated this desire at the end of January 2021 when it imposed the requirement for export authorization before vaccines could be sent to other high-income countries [10]. In an effort to reach herd immunity and reopen their own economies as quickly as possible, the Global North will contribute to an increase in the number of global SARS-CoV-2 deaths. During the 2009 influenza A (H1N1) pandemic, high-income countries similarly placed advanced orders to secure vaccines, only to provide donations to LMICs after vaccines for their own populations were guaranteed [11]. Consequently, of the 284,500 deaths associated with the H1N1 pandemic, 51% occurred in Africa and Southeast Asia [12]. Given existing disparities in quality and access to healthcare, it is the Global North's moral duty to avoid the trap of vaccine nationalism and implement a pandemic approach driven by global solidarity.

CANADA'S ROLE MOVING FORWARD

Achieving herd immunity within Canadian borders is a necessary step in reopening the economy without putting the most vulnerable at risk. However, underestimating the impacts of global inequities in the SARS-CoV-2 response is to our detriment. The globalized and interconnected nature of our world makes providing equitable care for all of its stakeholders – not solely those with wealth and means – the right path forward. The existence and spread of variants (i.e., SARS-CoV-2 B.1.1.7) with higher rates of transmissibility and mortality highlight precisely how important it is to address the 'global' in 'global pandemic'. The continued spread of this virus brings with it an increased risk for the emergence of deadlier variants, threatening global recovery. Canada's commitment to the ACT Accelerator is one concrete step in a series of necessary actions. Bill C-13, which amended Canada's Patent Act in March 2020 to authorize the government to "construct, use, and sell a patented invention to the extent necessary" to respond to the pandemic was another positive measure [13]. However, the country has not gone so far as to support a waiver put forth by South Africa and India to the World Trade Organization (WTO) that would allow countries to temporarily waive IP (Intellectual Property) rights until global herd immunity is achieved [14].

If high-income countries join this waiver, monopolization and profiteering by private companies could be prevented since governments wield the power to not enforce IP rights. This waiver reiterates a growing issue of public debate: whether there is a need to treat life-saving medications, vaccines, and products as global public goodsin times of crisis. Although this proposal has garnered support from over 99 countries, Canada is one of several high-income countries withholding support [14]. In a recent memo, Canada asked for further clarification on how the waiver would operate in practice and improve the conditions for LMICs [15], prolonging its avoidance in backing the proposal. Although arguments have been made for and against the waiver, it is clear that amidst the debate, one sobering reality remains clear: it is highly possible that the entirety of the Canadian population will be vaccinated by the end of 2021, while other countries will struggle to immunize their own most high-risk populations. Moving forward, transparency, prevention of pandemic profiteering, and a global framework for equitable distribution should be emphasized.

CONCLUSION

Canada has a duty to bridge the gap between foreign policy rhetoric and tangible action in response to the SARS-CoV-2 pandemic and future pandemics [16]. Healthcare aid has been a growing part of Canada's foreign policy since the mid-1990s, but aid has been influenced by the concept of securitization – the coupling of domestic security and health interests that leads to a desire to prevent infectious outbreaks at their source before they become local problems [17]. At this stage of the pandemic, Canadian interests should similarly lie internationally or it will risk undermining its efforts to protect domestic health security.

For economic and health reasons, it is essential that vaccines are distributed fairly and equitably. The economic fallout from the pandemic may devastate the countries still facing challenges with SARS-CoV-2, and recurring outbreaks will pose risks to everyone. The interconnectedness of the world necessitates that SARS-CoV-2 is under control in every country. Our collective strength and morality as a global community depends on how we treat our most vulnerable populations – no one is safe until everyone is.

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RESEARCH ARTICLE

Case Report: Telehealth Initiative Project in Koibarak Community, Markawet West Subcounty, and Elgeyo Markawet County in Rural Kenya

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ABSTRACT

COVID-19 has worsened existing and exposed new healthcare challenges, especially in the weakest healthcare systems. Telehealth has been used to overcome some of these challenges, especially in African economies such as Kenya. World Vision Canada’s Enhancing Nutrition Services to Improve Maternal and Child Health in Africa and Asia (ENRICH) project has implemented the Telehealth Initiative to improve the well-being and reduction of life-threatening effects of COVID-19 on children and their families within targeted areas of rural Koibarak Community, the Marakwet West Subcounty and Elgeyo Markawet County in Kenya by June 2021. The Telehealth Initiative intervention has leveraged technology to spread preventative measures against COVID-19, distributing personal protective equipment (PPE) and facilitating Psychological First Aid services to all households. Overall, these efforts have resulted in a proactive COVID-19 response and improved access to healthcare services, as there were less cases of COVID-19 in these areas (cumulative 322) compared to the national average. Challenges arose, however, such as limited resources for COVID-19 testing, reporting and logistics. Other challenges include the rising COVID-19 case count that will continue to constrain the healthcare system, inadequate behaviour change, and the lack of COVID-19 resources available for school reopening. Future directions to address these challenges include health system strengthening, possibilities of upscaling the Telehealth Initiative, increasing local production of PPE, ensuring a functional vaccine rollout, and improvements to in-school precautions.

INTRODUCTION

COVID-19 has exacerbated existing problems in healthcare as the world adapts to the virus, especially in rural Africa [1,2]. Indeed, the world is only as strong as the weakest healthcare system [3]. New challenges surface, such as inconsistent funding directed towards COVID-19 supplies, underreporting, reallocating the delivery of healthcare services (testing, screening, and vaccinations), and ignoring COVID-19 precautions because of limited awareness and education [3]. Telehealth is a strategic approach to overcoming healthcare challenges such as lack of access and resources and reduces direct transmission of infectious agents [4,5]. Telehealth is a method of health provision that uses computers, webcams, video conferencing, television, tablets and mobile phone [4-7]. Digitalization and technology use has been progressing in African economies such as Kenya since before the pandemic [8].

The Enhancing Nutrition Services to Improve Child and Maternal Health in Africa and Asia (ENRICH) project utilizes telehealth to prevent COVID-19 cases in rural Kenyan counties. As of the quarterly report in September 2020, 38,379 COVID-19 cases were confirmed in Kenya [9,10]. The goal of this project was to improve well-being and reduce life-threatening effects of COVID-19 on children and their families within targeted areas of rural Koibarak Community, the Marakwet West Subcounty and Elgeyo Markawet County by June 2021. This case report will explore results, challenges, and future directions of the Telehealth Initiative.

METHODOLOGY

An intervention was completed within World Vision Canada (WVC)'s ENRICH project. The information used was provided by the WVC update reports and a virtual conversation with the Kenyan project lead.

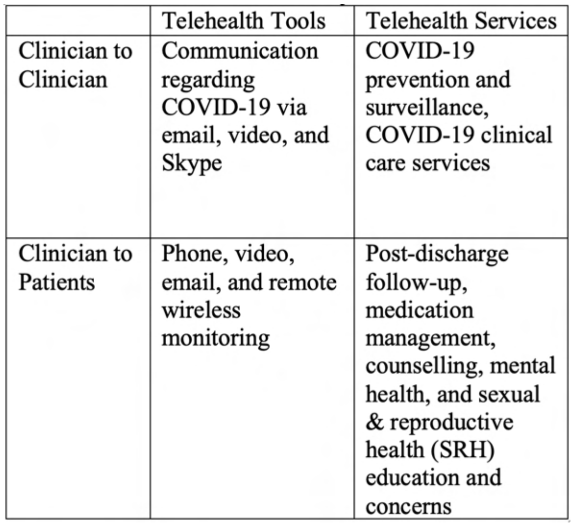
Case Presentation

This project worked rurally, targeting women, men, and children. Personal protective equipment (PPE), digital technology and Psychological First Aid (PFA) services were provided to the community. The project outputs included:

1.1 - Community health workers (CHWs), community health volunteers (CHVs) and farmers spread accurate information about COVID-19 by sending mass texts to mobile phones in the community twice per month. Participants were provided with mobile phone airtime and telehealth center phone numbers. Phone appointments were set up between healthcare providers and their clients, and Zoom calls between healthcare providers and the project management team in Nairobi were conducted to obtain expert advice (Table 1).

1.2 - CHWs and CHVs distributed PPE (masks, aprons, goggles, face shields, and gloves), handwashing facilities, sanitizers, disinfectants, and disposal bins in the community. Capacity-building sessions were provided for health care providers to learn about the COVID-19 national guidelines [11]. These sessions communicated a deeper understanding of COVID-19, Infection Prevention and Control (IPAC), and revised protocols for home-based care, isolation, reproductive maternal, and child health, and nutrition services.

Table 1. Tools and Services Used in Output 1.1 of the Telehealth Initiative Project.



	Telehealth Tools	Telehealth Services
Clinician to Clinician	Communication regarding COVID-19 via email, video, and Skype	COVID-19 prevention and surveillance, COVID-19 clinical care services
Clinician to Patients	Phone, video, email, and remote wireless monitoring	Post-discharge follow-up, medication management, counselling, mental health, and sexual & reproductive health (SRH) education and concerns

1.3 - Healthcare workers were equipped with skills on PFA and were assigned to target communities. The most vulnerable families (determining factors included family income, children living with disability, and malnourishment) were given cash transfers for economic support. CHVs, lead farmers, and care group members were sensitized on stigma, referral, monitoring, and risk communication related to COVID-19.

RESULTS

Telehealth expansion improved delivery of healthcare services in the counties included in this study. Telehealth appointments offered a means for remote communication between community and healthcare providers when access to healthcare facilities was difficult, and helped to prevent COVID-19 transmission. PPE distribution increased local availability and access. Health system workforce and service capacity, including health facility-based IPAC, were improved by conducting interviews with facility heads, distributing PPE, training CHWs, and engaging the communities involved. Households were given the support they needed to cope with the psychosocial and economic impact of the

COVID-19 pandemic. Additionally, a significant reduction in cases of child defilement and teenage pregnancies has been observed in the Koibarak Community.

Overall, this project contributed to an increase in knowledge of and access to preventive measures against COVID-19 amongst community members in the target villages. The intensified prevention initiatives and behaviours have been shown to lead to less COVID-19 positivity rates compared to national averages. As of March 31, 2021, there have been 322 cumulative COVID-19 cases in project areas in comparison to the 132,646 cumulative national cases in Kenya.

DISCUSSION

The ENRICH telehealth project outputs showed similarities to other initiatives put forth in the global response to COVID-19. Other projects such as those in Bangladesh also utilized CHWs and farmers to distribute COVID-19 information [3]. Telehealth has also been used effectively for contact tracing in South Africa, Ethiopia, and Kenya [5,12]. Gaining expert advice through interactions between county health management teams and doctors has also shown to be effective in a Canadian rural setting [13]. The ENRICH project output 1.2 aligns with the global response for securing PPE to prevent the spread of COVID-19 [3]. Furthermore, PFA and other essential services such as education about SRH, gender-based violence (GBV), HIV/AIDS, nutrition and pre-existing illnesses (i.e. malaria, cholera and hypertension)have been provided to the community [3,14-17].

Challenges

Challenges faced throughout the project included limited resources for mass testing which led to inaccurate reporting of COVID-19. Particularly, there was a late arrival of the case numbers in Africa due to inadequate reporting [18]. Additionally, some people in Kenya were resistant to COVID-19 testing due to fears of quarantining and the self-incurred cost [2]. This could in part explain the low reported positivity rate of COVID-19. Other challenges included difficulty scheduling phone consultations among rural physicians and specialists.

Major challenges that have arisen since the September 2020 quarterly report have included the rising number of COVID-19 cases that have constrained the Kenyan healthcare system in regards to limited PPE, funding, personnel and the rising prevalence of pre-existing illnesses [15-17]. Inadequate health service provision and PPE supply have compromised the safety of health providers and patients, thus increasing the risk of transmission among these groups [17]. The negative impact of COVID-19 is likely to be worse as community transmission rises, especially in the hard-to-reach, highly populated, and poverty-stricken regions of Elgeyo Marakwet and Koibarak Community [19]. Furthermore, with limited project funding, there is uncertainty of cash transfer replenishments for the vulnerable families.

Other challenges to consider moving forward include the possibility of inadequate behavior change with low compliance and the functionality of the vaccine roll-out plan. Resistance to attending healthcare facilities when necessary due to fear of travelling and lack of transportation, the potential lack of SRH services, and the scarcity of family planning commodities are other challenges. Finally, the lack of COVID-19 training for teachers, lack of internet connection, and suboptimal water conditions present when reopening schools poses additional threats to the success of this intervention.

CONCLUSION

Future Directions

Future directions to address the challenges mentioned include health system strengthening through directing funding towards effective public health surveillance, increasing SRH services, upscaling the Telehealth Initiative to reach more beneficiaries, increasing local production of PPEs, ensuring proper distribution with the vaccine roll-out, and improving in-school preventative procedures.

To further elaborate, upscaling the Telehealth Initiative through engaging government, private sector and civil society organizations to reach even more beneficiaries inside these and other counties would be an effective response. We anticipate that attaining resources in advance through this collaboration with stakeholders will allow focused supply delivery in the local community, and partnerships in implementation sites [3]. For example, training local university students to create PPE and ventilators provides innovation in these counties [14,18]. A well-planned COVID-19 vaccine distribution is needed to ensure everyone has access, starting with healthcare workers and the most vulnerable [20]. Furthermore, ensuring continued education and awareness of COVID-19 will lower stigma. Finally, partnering with stakeholders to allocate resources and reopen schools will ensure support for water, PPE coverage, and proper training of COVID-19 precautions for teachers [21].

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RESEARCH ARTICLE

Strategies to Address the Mental Health Burden of Nurses during the COVID-19 Pandemic in South Africa

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ABSTRACT

The COVID-19 pandemic has placed a burden on healthcare systems in South Africa. This has added huge pressure on frontline healthcare workers, especially nurses, who maintain workplace safety and oversee the efficient use of resources. Prior to the pandemic, South Africa had a healthcare worker density above the WHO recommendations but faced a labour shortage due to healthcare worker emigration, with nearly 20% of public sector nurses leaving the country. In addition to this severe shortage of staff, insufficient personal protective equipment and declining wages led to increased infections, mental health distress, and poor employee morale among nurses during the pandemic. However, by following a modified response strategy similar to Peru's, which aims to isolate COVID-19 epicenters and utilize task shifting through community health workers, South Africa can alleviate the current nursing overburden by reducing mental health distress – overall improving the country's Human Resources for Health.

INTRODUCTION

As of December 17, 2020, South Africa (SA) had reported 883,687 COVID-19 cases, 23,827 deaths, and accounted for over 60% of new cases in sub-Saharan Africa (SSA) [1]. The country declared an early and stringent lockdown after the first 400 incidences of COVID-19 but this proved ineffective, as it failed to consider the dependence of socioeconomic status on access to healthcare [2]. Deep-rooted inequities resulted in increased transmission among impoverished individuals, thereby overwhelming public hospitals [3]. SA's pandemic testing capacity was also insufficient compared to other countries, with a testing turnaround time of up to 14 days, a period that can potentially challenge an effective COVID-19 response [4,5].

A core indicator that the WHO recommends for measuring the effectiveness of human resources for health (HRH) is the number of health workers per 10,000 population [6]. This indicator represents health worker density (HWD). It is an essential metric to compare the size of the current workforce against a given threshold density of skilled healthcare workers (HCWs) required for the delivery of essential health services [7].

The COVID-19 pandemic has exposed a deep-rooted HWD challenge pertaining to retention amongst nurses in SA, which could impede SA's current and future COVID-19 response as well as its response to future epidemics. Therefore, this paper will explore different strategies and propose policies that SA can adopt to improve their HWD against subsequent waves of COVID-19.

METHODOLOGY

An extensive literature search was conducted in five major databases: OVID MEDLINE, EMBASE, PubMed, Scopus, and AMED. The following terms were used to search each database: “South Africa", “COVID-19 or Coronavirus”, and “Delivery of Health Care or Health Policy or Health Workforce or Human Resources for Health.” The search was then refined to only display English articles from the last five years. After combining these articles with supplemental records from literature, grey literature, news articles, etc., records were filtered for duplicates, assessed using titles and abstracts, and then screened with a full-text review. This review’s exclusion criteria included: not relevant to HRH, not specific to SA, or not relevant to COVID-19 (Figure 1).

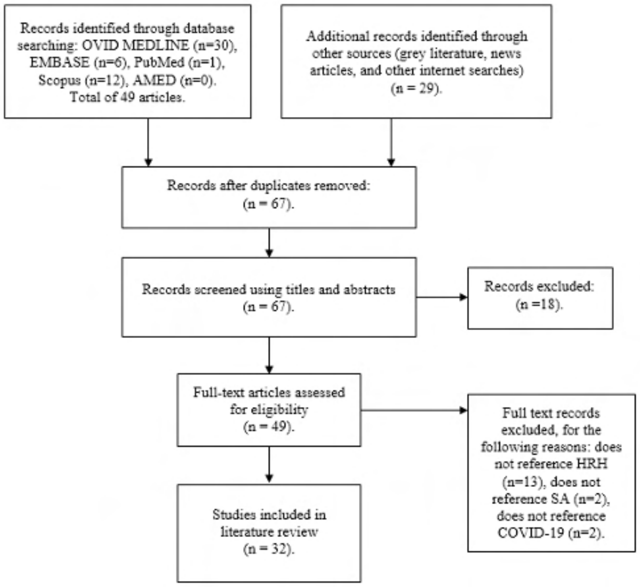

Figure 1. PRISMA Flow Diagram.

RESULTS

As of 2020, SA’s HWD of approximately 59 per 10,000 individuals was above the recommended number of 23 per 10,000 needed to attain an essential health coverage of 80% [8,9]. As nurses make up roughly 87% of HCWs and encounter 86% of primary care patients, maintaining essential health coverage is dependent on the actions of the SA government and their retention of nurses [8,10,11] Despite meeting this global minimum criterion for HCWs, SA’s HWD is not sufficient for local needs; with nearly 20% of public sector nurses emigrating prior to the pandemic in pursuit of higher salaries and reduced occupational stress, SA faces a labour shortage [12,13]. A related factor — excessive workload, possibly related to poor mental health — has also contributed to this departure [13]. Negligence towards HCWs’ safety by the South African government during the COVID-19 pandemic may have increased departure rates by heightening nurses’ perceptions of COVID-19 infection risk and overburdening them with a high volume of COVID-19 patients [14]. Indeed, the collective effect of insufficient provision of personal protective equipment and a severe shortage of staff during the pandemic has led to poor employee morale, mental health distress, and backlash from the medical field [15,16]. Although the public health sector serves 84% of SA’s population, it has an astounding nurse vacancy rate of 28% caused by poor recruitment management processes. These issues have persisted during the COVID-19 pandemic [6,17,18].

As of May 6, 2020, 511 HCWs had already contracted COVID-19 [19]. This comprised 7% of all cases within SA, of which 53% were contracted by nurses [19]. As of July 2020, over 50% of infected African HCWs were located in SA [20]. These statistics demonstrate the unsafe working conditions within the country, which place a physical and mental burden on nurses. A recent study assessing the mental health effects of COVID-19 on SA’s HCWs determined that approximately 25% experienced poor health and well-being, with the proportion of nurses (19.4%) facing psychosocial distress being significantly higher than other HCWs [21]. The burdensome mental health effects that South African nurses have experienced throughout the COVID-19 pandemic may further intensify nurses’ emigration, rendering the healthcare system incapable of managing the pandemic and jeopardizing SA’s sustained achievement of HWD prior to the pandemic.

DISCUSSION

Due to the disproportionately high risk they face during the COVID-19 pandemic, easing the burden on nurses is essential for improving HCW density in SA. A study on Peru's approach to the COVID-19 pandemic response highlights the overwhelming strain that HCWs experience by applying an evidence-based approach to screen for anxiety and distress [22]. The researchers pinpointed epicenters in Peru with the highest COVID-19 cases and discovered that anxiety levels decrease with distance from epicenters [22]. As such, the first step in a multistage solution to decrease the COVID-19 burden on nurses would involve identifying epicenters within SA to determine priority locations to execute strategies that improve well-being and retention. The Nelson Mandela Bay Municipality is an example of an epicenter within SA where case counts were steadily rising. Implementing this recommendation in this municipality and other epicenters may drastically alleviate the mental health burden on HCWs associated with the pandemic [23].

Task shifting to less specialized health workers like community health workers (CHWs) has also proved to be a successful strategy to tackle HCW shortages in the current COVID-19 pandemic and past health epidemics. This approach can be adapted to address region-specific nursing gaps. For instance, CHWs have already assisted COVID-19 responses in certain regions of SA [24].

In Cape Town, another COVID-19 epicenter, CHWs were mobilized to test and screen individuals from households surrounding known cases in order to reduce the strain on healthcare facilities [24]. In addition to testing those in close proximity to known cases, they opportunistically screened individuals with chronic health conditions after delivering medication to their homes; within the first month, CHWs helped screen 123,251 people [25]. Since perceived risk of infection and heavy caseloads are significant risk factors for mental health distress among frontline HCWs, this strategy could reduce the testing demands on nurses in healthcare facilities and improve overall well-being. In terms of staffing shortages, the use of CHWs relieves nurses of their screening and health promotion duties, allowing them to focus on primary and intensive care. This would be a prudent method for improving retention rates, having been proven effective in past pandemics such as the 2014 Ebola outbreak in Guinea, Sierra Leone, and Liberia [26]. During the outbreak, CHWs relieved HCW burden by performing activities outside healthcare facilities more effectively than HCWs, who were less accustomed to community-based outreach work [27].

The clear benefits of task-shifting to CHWs, a familiar approach in SA, is applicable to nursing issues in the context of COVID-19 and has the potential to improve upon their HRH.

CONCLUSION

Although SA's initial response to COVID-19 was swift and stringent, the nation failed to provide safe working conditions for nurses and overlooked its staffing needs. This contributed to poor mental health, burnout, and attrition among nurses, thus jeopardizing short- and long-term HWD. However, by creating innovative policies that identify COVID-19 epicenters and utilizing task shifting within them to alleviate nursing caseloads, the downstream mental health effects experienced by nurses may be alleviated.

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My Face Mask

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