Double Jeopardy: The Inaccessibility of Gladue

Bonnie Marwood
Master's student
College of Law
bonnie.marwood@gmail.com

My research on Saskatchewan's dangerous offenders sentenced over the last five years demonstrates the Criminal Justice System is failing Indigenous men. Specifically, Indigenous men with cognitive deficits. Failure to ensure Gladue reports are provided as a 'matter of right' for any dangerous offender hearing is unjust. The harshest penalty Canada has to offer, life imprisonment, must be reserved for offenders that are indeed 'dangerous' and not just broken. Canadian statistics hold that only 2 percent of dangerous offenders are released back into the community. The failure of the Courts to provide Gladue reports in Saskatchewan is further evidence that the TRC recommendations remain unheard. My research examines the obstacles to Gladue and calls on all parties to unite.

Supporting the Building and Sharing of Food Preservation Knowledge within Localized Food Systems

Majing Oloko
Doctoral student
School of Environment and Sustainability
majing.oloko@usask.ca

Food insecurity has been reported in some remote regions in Canada, including in the Clayoquot Sound UNESCO Biosphere Region (CSUBR) on the west coast of Vancouver Island. The loss of food knowledge and a decline in the practice of knowledge transfer from adults to youth has also been reported in the region. These, combined with the prohibitive price of healthy food through grocery stores, youth poverty, and transportation barriers, all add up to exacerbate food insecurity among residents, including youth. To address these issues, the Clayoquot Biosphere Trust developed a community food preservation program to support residents, including youth, to build food preservation knowledge and become trainers in their various communities. The rationale being that when residents acquire food preservation knowledge, they can access affordable seasonal, healthy food and preserve them for later use. This can potentially support their food security. My research examined the efficacy of the food preservation program in supporting residents to build and share knowledge. I also extended the initiative to youth in the region by collaborating with trainers to run food preservation workshops with students in the Ucluelet Secondary School. Results show evidence of knowledge building and sharing among trainers. Students who participated in the study also reported gaining various food knowledge that will potentially help them access healthy food locally in support of their food security. Participants also shared some of the challenges they face and how they would like to be supported.

The Pedagogical Practices of an Immigrant Parent: Maintaining Heritage Language in the Home Context

Emma Chen
Doctoral student
College of Education
emma.chen@usask.ca

The maintenance of heritage language is essential to immigrant children's linguistic, cultural, and social development. While there is a large body of literature on heritage language, how heritage language is practiced at home remains largely unknown. Engaging in an autobiographical narrative inquiry, I tell and retell stories of our pedagogical practices in the home context. I seek to bridge the research gap with new understandings of the "parent knowledge" immigrant parents bring to bear in heritage language education. I invite you into my home and immigrant family's language journey to witness the efforts, challenges, and rewards of learning a heritage language.

What Role Do Plant-based Diets Play in Supporting the Optimal Health and Wellbeing of Canadians?

Zoe Bye
Master's student
School of Public Health
ary977@mail.usask.ca

Introduction: In Canada, unhealthy diets are associated with several chronic conditions, such as type 2 diabetes, cardiovascular disease, and obesity; and thus, negatively impacts the health and wellbeing of Canadians. Consequently, unhealthy diets are associated with increased risk of morbidity and mortality in Canada. Recently, plant-based diets have gained in popularity due to their ability to provide a diet that is nutritionally adequate and health-conscious. The wide-spread adoption of plant-based diets may address the substantial need to improve the health and wellbeing of Canadians, while also having a positive global impact.

Objective: The aim of this scoping review was to determine the nutritional adequacy of plant-based diets and their relationship with chronic conditions to support improved health and wellbeing for Canadians.

Methods: Canadian peer-reviewed literature on diet, nutritional quality, and chronic conditions published between the years 2010 and 2020 were systematically examined. Sixteen articles met the inclusion criteria, with the majority pertaining to the relationship between animal- or plant-based nutrition and cancer.

Results: Epidemiological studies support the practice of plant-based diets, in comparison to omnivore diets, as a strategy to improve nutritional adequacy and reduce the development of some chronic conditions such as obesity, type 2 diabetes, cardiovascular diseases, osteoporosis, and select cancers. Overall, plant-based diets offer an opportunity to improve the health and wellbeing of Canadians, while simultaneously working to counteract climate change that may have a global reach.

Interinstitutional and International Collaborative Research on Nutritional Health in Guatemala During COVID-19 Lockdown, Lessons Learnt

Michele Monroy-Valle
Doctoral student
School of Public Health
m.monroyvalle@usask.ca

Introduction: Almost half of the Guatemalan population (44%) is Indigenous, of whom 75% live in poverty and 58% of children are stunted. In 2017, the University of Saskatchewan conducted a research trip to explore options, which resulted in collaboration with the Mayan Elders in Chichicastenango and Universidad de San Carlos to develop the cross-sectional research project "Stunting, dietary behaviour, and bone health among Mayan mothers and their children". Data collection started in February 2020, six weeks before the COVID-19 lockdown in Guatemala. The objective is to identify community approaches to gather baseline data during COVID-19 lockdown to prepare and adapt Zero Hunger interventions.

Methods: The research project consisted of four stages: 1) identify existing nutrition public policy interventions where the research project could be embedded; 2) identify stakeholders: community, government, and religious leaders; 3) prepare, translate, or illustrate study information and data collection tools; and 4) meet with stakeholders and community health workers to explain the research activities and understand their requirements.

Results: We recruited 150 children between February and October 2020. Data collection was suspended in April to prepare data collection protocols that met biosecurity, university, government, and community leaders' requirements. Community leaders assisted with participant recruitment and preparing data collection sites that met COVID-19 biosecurity requirements. A nutritionist was integrated into the team to diagnose and treat acutely malnourished children.

Conclusions: Embedding a research project into a public policy intervention leads to sustainable solutions for collaboration between academia, communities, and the public sector to address malnutrition.

Treatment of lentil flour as a processing step for plant-based protein towards the Sustainable Development Goals

Tahereh Najib
Doctoral student
Dept. of Chemical and Biological Engineering, College of Engineering
tan052@usask.ca

The growing world's population, food consumption, and consistently high demand for nutrition resources have caused global challenges related to environmental sustainability. The current food consumption patterns are resulting in climate change through nitrogen and carbon emissions. To be aligned with the Sustainable Development Goals (SDGs) set by United Nations, all researchers and industries are trying to suggest solutions and pursue global actions. As a sustainable option in the food industry, the shift from animal-based proteins to plant-based proteins is trending because of their nutritional and environmental benefits. Among all the plant productions, pulses/lentils are an excellent source of essential amino acids/protein, dietary fiber, vitamins, and minerals. This research is comparing the effect of different thermal processes on functional properties of germinated lentil flours. The 1-, 2-, and 3-day germinated seeds were processed through microwave-infrared drying, roasting, and convection drying. The water holding capacity (WHC), oil holding capacity (OHC), color, thermal properties by DSC, and protein/starch structures by FTIR were analyzed. The results showed the most increase in WHC is related to high power of microwave-infrared drying, followed by high temperature of roasting, however convection drying has no significant effect on WHC. While the changes in OHC have almost the comparable range for all methods. The FTIR results demonstrated the structural changes in starch from crystalline to amorphous states and protein from α-helix and β-sheet to aggregate. The findings from this study prove effectiveness of combined germination with microwave-infrared drying/roasting to develop lentil flours as a promoting nutritionally beneficial food ingredient.

The voices of mothers of twice-exceptional children: a narrative inquiry

Elyse Proulx-Cullen
Master's student
College of Medicine
elp246@usask.ca

Twice-exceptional (2e) children manifest both giftedness and disabilities and are defined as high-potential, talented individuals with neurological disorders (ADHD, learning disabilities, Autism). As a result of the paucity of expert resources and societal stigmas related to the condition, 2e children are often diagnosed too late, misdiagnosed or even undiagnosed. As research has shown, this results in potentially devastating consequences to their well-being from increased risk of mental illness and education failure to self-medication and addiction. In our society, mothers experience the atypical behaviours of their 2e child first-hand. However, little is known about how mothers become aware of their child's exceptionalities, an experience mostly dismissed and marginalized in the traditional health care system. Considering the mounting evidence about the importance of early screening in contributing to a healthy development and productive life for 2e children, this original research aims to engage seven of the 17 Sustainable Development Goals (#3-4-5-8-9-10-17) by eliciting the experiences of mothers of 2e children and developing a model of sustainable engagement whereby the dyad child-mother would become a key partner and decision-maker as well as a bridge between the education sector and the health care system. Families face long waitlist to health care providers and school resources are no longer readily available to assist 2e children. Compounded with the austerity economy, pandemic and mental health and addiction crises, there is critical need to advance how to engage all levels of learning and knowledge, 2e innovative and trouble-shooting thinking, and move beyond gendered roles and discrimination.

"Leave No One Behind": The SDGs and Sex Work in the Developing World

Nikaela Lange
Undergraduate Student
International Studies 402, Dept. of Political Studies, College of Arts and Science
nikaela.lange@usask.ca

Introduction: The 2020 Agenda for Sustainable Development goals was adopted by all United Nations Member States in 2015 as a "blueprint for peace and prosperity for people and the planet, now and into the future". The Agenda consists of 17 Sustainable Development Goals (SDGs) which are a call to action for all member states to pledge to "leave no one behind". The SDGs bind states, NGOs, INGOs, and other development actors to a "right-based vision of development", which includes labour rights, health rights, and women's rights- all of which are expressly tied to sex work. However, sex workers in the developing world have been not only excluded from, but criminalized by, the SDGs.

Methods: The literature review that informs this paper was performed by the author in completion of the course requirements for International Studies 402. The review covered scholarly, tertiary, and grey literature such as United Nations policy, human rights activism reports, and academic research.

Results and discussion: Sex work functions as both a force of oppression and independence in the developing world, often at the whim of oppressive state policies and criminalization efforts which marginalize sex workers to the fringes of society and ultimately outside the reach of the SDGs. For the SDGs to be truly inclusive, the voices and experiences of sex workers need to be prioritized in terms of health and wellbeing, gender equality, the labour force, and beyond.

Advancing Telerobotic Technology to Remotely Provide Diagnostic Ultrasound Imaging during the COVID-19 Pandemic

Dr. Scott J. Adams (MD)
Resident Physician
Dept. of Medical Imaging, College of Medicine
scott.adams@usask.ca

Introduction: Obstetrical ultrasound imaging is a critical component of healthcare services. However, there is a lack of locally available ultrasound services in many rural, remote, and Indigenous communities, and these disparities have been exacerbated by COVID-19. This study aimed to (1) validate a telerobotic approach to remotely perform obstetrical ultrasound exams and (2) rapidly develop, implement, and evaluate a telerobotic ultrasound clinic to provide obstetrical ultrasound services in a community isolated during a COVID-19 outbreak.

Methods: In phase 1, patients underwent a focused exam (n=20) or second-trimester detailed exam (n=10) using a conventional ultrasound system, followed by an equivalent exam using a telerobotic ultrasound system which allowed sonographers to remotely manipulate the ultrasound probe. In phase 2, a telerobotic ultrasound clinic was rapidly developed in La Loche, Saskatchewan during a COVID-19 outbreak. Telerobotic focused exams (n=11) and second-trimester detailed exams (n=10) were performed 605 km away.

Results: Intraclass correlations demonstrated excellent agreement (>0.90) between telerobotic and conventional measurements of all biometric parameters. Among exams at the telerobotic clinic in La Loche, radiologists indicated images were diagnostic in 9 (81%) focused exams and 5 (50%) detailed exams. Themes of patients' experiences included increased patient safety, reduced travel, and reduced wait times.

Conclusion: Telerobotic ultrasound can be successfully used to answer focused clinical questions to promote maternal and fetal health, though has some limitations for performing detailed exams. This technology may improve healthcare access and reduce health inequalities for patients in rural, remote, and Indigenous communities during the COVID-19 pandemic and beyond.

Nurse-Patient Communication and Patients' Rights in the Healthcare Setting: A Rights-Based Approach to Achieving Universal Health Coverage

Abukari Kwame
Doctoral student
Interdisciplinary Studies, College of Graduate and Postdoctoral Studies
abukarikwames@yahoo.com

The United Nations Sustainable Development Goals (SDGs), adopted by world leaders on September 25, 2015, aimed to end poverty and hunger, promote gender equity and empower women and girls, and ensure human dignity and equality by all human beings in a healthy environment. These SDGs were premised on international human rights norms and institutions in the preamble, thereby acknowledging the relevance of human rights in achieving each goal. In particular, SDG3, whose objective is to achieve universal health coverage (UHC), enhancing healthy lives and promoting well-being for all, implicitly recognizes the right to health as crucial. Our aim in this paper is to discuss how promoting patients' rights and enhancing effective nurse-patient communication in the healthcare setting is a significant and necessary way to achieve this goal. Drawing on empirical research evidence, we will demonstrate that enhancing patients' rights and effect nurse-patient communication will promote people-centered care, improve patients' satisfaction of care outcomes, increase utilization of care services, and empower individuals and families to self-advocate for their health. These steps directly impact primary healthcare strategies and the social determinants of health as core components to achieving UHC. In conclusion, we argue that without paying attention to the human rights dimensions or employing human rights strategies in the SDG3, implementing the other efforts will be inadequate and unsustainable in protecting the poorest and most vulnerable populations in the achievement of SDG3.

Preparation of Exhausted Coffee Residue Derived Porous Carbon-Based Sorbents for Breakthrough Carbon Dioxide Adsorption Study: Effect of Surface Chemistry and Porous Structure at Different Temperatures

Alivia Mukherjee
Doctoral student
Dept. of Chemical and Biological Engineering, College of Engineering
alm566@mail.usask.ca

The increased worldwide demand for energy intensifies the combustion of fossil-based fuels with escalated greenhouse gases concentration in the atmosphere. To alleviate the catastrophic environmental scenarios, a quick mitigation effort is required. CO2 capture and sequestration technology are becoming a very active research area motivated by governments and scientific institutes due to the increasing awareness of global warming. The exhausted coffee residue is readily available in large quantities and it allows the production of biochar via slow pyrolysis. In Canada, coffee accounts for almost three-fourth of the hot drinks market. For each kg of soluble coffee, almost 0.91 kg of spent coffee grounds are generated, then for a million tons of green coffee bean, the amount of coffee grounds produced is devastating. Thus, this work intended to demonstrate the complete utilization of ECR to reduce this solid waste and transform it by valorization technique to a value-added product to trap recalcitrant CO2. This work aims to fundamentally investigate the impact of pyrolysis temperature on the corresponding biochar considered representative for the post-combustion CO2 capture scenario. Throughout this work, the biochar ECR which was proposed to be a separation medium for CO2 capture is evaluated in terms of physio-chemical characteristics, CO2 breakthrough time and equilibrium adsorption capacity. The investigation on the enhancement in aromaticity, basicity and surface area of the biochar was confirmed by the FT-IR spectroscopy, Raman spectroscopy, XPS, NEXAFS analysis and BET measurement, which is expected to confer with critical information related to the dynamic CO2 capture performance.

Changing Patterns of Gender Inequities in Childhood Mortalities during the Sustainable Development Goals Era in Nigeria: Findings from an Artificial Neural Network Analysis

Dr. Adeyinka Daniel Adeday (PhD)
Postdoctoral Fellow
Dept. of Community Health and Epidemiology, College of Medicine
daa929@usask.ca

Objectives: In line with the child survival and gender equality targets of Sustainable Development Goals (SDG) 3 and 5, we aimed to: (1) estimate the age- and sex-specific mortality trends in child-related SDG indicators (i.e., neonatal and under-five mortality rates) over the 1960s-2017 period, and (2) estimate the expected annual reduction rates needed to achieve the SDG-3 targets by projecting rates from 2018 to 2030.

Methods: This study used an artificial intelligence time-series (GMDH-type ANN) to forecast age-specific childhood mortality rates (neonatal and under-five), and sex-specific under-five mortality rates (U5MR) from 2018 to 2030. The datasets were the yearly historical mortality rates between 1960s and 2017, obtained from the World Bank website. Two scenarios of mortality trajectories were simulated: (1) status quo scenarios—assuming the current trend continues; and (2) acceleration scenarios—consistent with the SDG targets.

Results: At the projected rates of decline of 2.0% for neonatal mortality rates (NMR) and 1.2% for U5MR, Nigeria will not achieve the child survival SDG targets by 2030. Unexpectedly, U5MR will begin to increase by 2028. To put Nigeria back on track, annual reduction rates of 7.8% for NMR and 10.7% for U5MR are required. Also, female U5MR is decreasing more slowly than male U5MR.

Conclusion: Nigeria is not likely to achieve SDG targets for child survival and gender equities because female disadvantages will worsen. A plausible reason for the projected increase in female mortality is societal discrimination and victimization faced by girl-child. Addressing gender inequities in childhood mortality in Nigeria would require community mobilization against gender-based discrimination towards girl-child.

Evidence of health inequity in child survival: spatial and Bayesian network analyses of stillbirth rates in 194 countries

Dr. Adeyinka Daniel Adeday (PhD)
Postdoctoral Fellow
Dept. of Community Health and Epidemiology, College of Medicine
daa929@usask.ca

Introduction: Estimated at 2.6 million annually, stillbirths worldwide have stayed alarmingly high, in contrast to neonatal and under-five mortality rates. It is a neglected public health challenge globally, with less attention to its social determinants. We examined spatial patterns and probabilistic relationship between country-level stillbirth rates and social determinants of health.

Methods: Using country-level aggregated data from the United Nations databases, it employed ecological spatial analysis, and artificial intelligence modeling based on Bayesian network among 194 World Health Organization member countries.

Results: The average stillbirth rate was 12.8 (standard deviation: 9.5) per 1000 total births. From the spatial analysis, thirty-seven countries (6.7%) formed a cluster of high values (hot-spots) for stillbirth and 13 countries (4.6%) formed a cluster of low values (cold-spots). Gender inequality and anaemia in pregnancy were significantly associated with spatial patterns of higher stillbirth rates, while higher antenatal care (ANC) coverage and skilled birth attendants during delivery were associated with clusters of lower stillbirth rates. The probability of low stillbirth rate increased from 56% to 100% when the percentage of countries with high skilled birth attendants during delivery increased from 70% to 88%, high ANC coverage increased from 55% to 70%, high prevalence of anaemia in pregnancy decreased from 27% to 11% and high gender inequality index decreased from 43% to 21%.

Conclusion: Multi-pronged strategies should be designed to promote gender equality and strengthen the reproductive and maternal health services in Africa, Eastern Mediterranean, South Eastern Asia, and other countries with disproportionately high stillbirth rates.

Transforming Secondary School Communities through Comprehensive School Mental Health Programs in Northcentral Nigeria: A Collaborative International Project

Udoka Okpalauwaekwe
Doctoral student
College of Medicine
udokaokpala.uo@usask.ca

Background: A toxic learning environment laden on top of traumatic experiences, stigma, increasing rates of substance use, combined with abysmally low levels of mental health literacy, runs rife among youth between the ages of 10 to 20 years in Nigerian schools. These have resulted in poor mental health associated dropouts among over 30-40% of secondary school youth in Northcentral, Nigeria.

Methodology and methods: This project was informed by an integrated framework of primary health care and community-based participatory research. Following discussions with secondary school teachers and healthcare representatives from communities in Jos, Nigeria, identified that the creation and incorporation of school mental health programs into schools' teaching curricula would enhance mental health literacy, which will address youth-related mental health issues. A community research advisory committee (CRAC) was created to drive the research process. The CRAC proposed to provide practical and culturally relevant strategies that facilitated mental health support in identifying and serving at-risk youth while promoting mental health literacy and resilience in secondary schools. An web/app-based program which will have trainings on mental health and addiction and real-life experiences and struggles with mental health issues was proposed to be co-created by and with secondary school youth.

Expected outcomes: Youth in Northcentral Nigeria have access to online media, especially smart mobile phones. Employing persuasive technology with shared life experiences narrated in relatable vignettes, co-designed by and with youth, will empower youth to take actionable steps to mitigate mental health and stigmatization in Northern Nigeria.

A Model of International Collaboration to Address Low and Medium-Income Countries' Suicide-Related Difficulties: University of Saskatchewan, Canada and University of Jos, Nigeria

Udoka Okpalauwaekwe
Doctoral student
College of Medicine
udokaokpala.uo@usask.ca

Background: Rates of suicide has increased tenfold over the last sixty years in Nigeria. A group of experts representing fields of study associated with suicide intervention collaborated on strategies and approaches to understand this re-emergence in a bid to stem the tide. Their collaboration experience produced many lessons.

Methodology and methods: Initial discussions between delegations from both countries generated ideas for completing a needs assessment and establishing a research structure along the six geopolitical zones in Nigeria. We identified one academic center from where the research on suicide will be undertaken for each zone. We engaged community partners working in suicide prevention, identification, and intervention in each zone to provide a community-based context that would facilitate the collaboration. A systematic review of the literature on suicide in West Africa and Nigeria exploring media reporting of suicide was initiated by the research partners. Lessons learned: Some challenges encountered include; overcoming the multiple national and institutional red tapes, establishing a memorandum of agreement, and seeking ways to acknowledge, supervise and certify researchers. However, we found ease of communicating across borders rather favorable owing to the pandemic, as meetings were facilitated virtually albeit with the challenges of managing time zones.

Expected outcomes: We expect to identify evidence-informed recommendations that influence policy, mitigate sensationalized media reporting on suicides that encourage copycat from this collaboration. We hope we can establish a suicide registry across each zones to monitor the suicide rate that could inform other strategies that address mental health and literacy.

Adolescent Girls' Sexual and Reproductive Health and Nutrition in Uganda: Understanding the Factors that Influence Health Seeking Choices

Sarah Crawford
Master's student
College of Pharmacy and Nutrition
s.crawford@usask.ca

Globally the number of adolescents is growing, promoting recognition of their unique health needs, which are poorly implemented in program development (WHO, 2017). As individuals transition from childhood through adolescence to adulthood, they must be prepared early with the knowledge and skills needed to seek out opportunities and address the challenges they will encounter in adulthood (WHO, 2018). In Uganda close to thirty-five percent of the 34.6 million population are adolescents (UNFPA 2017). These adolescents make reproductive health and nutrition decisions and choices based on their knowledge, understanding, and availability of such choices. These sexual and reproductive health and rights and nutrition (SRHRN) decisions and choices can either negatively or positively affect their lives. This study therefore will explore adolescents' SRHRN knowledge and choices, and factors that affect these choices. Qualitative data, including a snapshot of the current situation will be main data collection tools used. Quantitative data collection, using a cultural consensus survey and information social network analysis will also be conducted. It is hypothesized that adolescents when questioned on knowledge, attitudes, and practices of SRHR and nutrition will have an adequate cultural norm or "truth" understanding of both topics but will have conflicting attitudes and practices. Current adolescent practices and attitudes will not answer to the cultural norms or "truths" created in generations past as more factors influence their choices than ever before.

Assessing Gross Motor Development in Guatemalan Children: A Pilot Project

Se'era Anstruther
Doctoral student
College of Pharmacy and Nutrition
seera.anstruther@usask.ca

Background: In Guatemala, approximately 46.5% of children under the age of 5 are stunted. This high rate of stunting, indicative of malnourishment, has the potential to delay motor development. There is extremely limited information on gross motor skills in preschool aged children in Guatemala. The purpose of this study was to pilot a gross motor skill measurement tool- the Test of Gross Motor Develoment-2 (TGMD-2) and to describe gross motor skill development in children aged 3-5 years old living in Chimaltenango, Guatemala.

Methods: The children who participated in this pilot project were recruited from a Centros de Atención y Desarrollo Infantil (CADI) in the department of Chimaltenango. The SESAN research team administered the TGMD-2. Participant's height and weight were measured, and BMI was calculated. An adjusted Percent of Maximum Points (POMP) score was calculated and compared to scores of children in the United States and Brazil.

Results: Adjusted POMP scores for object control skills in males (47.4%) was significantly higher than females (29.3%) ($p<0.05$). The skills in our cohort have similar or slightly lower POMP scores than the U.S. reference norms and are also similar to the POMP scores from the sample of Brazilian children.

Conclusions: The results of this pilot project suggest that the use of the TGMD-2 in Guatemala reveals similar trends in data to validation studies conducted elsewhere. The small sample size limits the generalizability of the findings, but our cohort of Guatemalan children may be slightly delayed in gross motor skill development. Further research is needed with a larger sample size.