

IMGS 2015 – Poster Presentations

Battersby, Lupin; Sarah Canham, Ryan Woolrych, Mei Lan Fang, Judith Sixsmith, Andrew Sixsmith

Gerontology Research Centre, Simon Fraser University; School of the Built Environment, Heriot-Watt University; Institute of Health and Wellbeing, University of Northampton
Canada
lbatters@sfu.ca

Long-term Care: Inside and Out

Institutional long-term care (LTC) settings have been acknowledged as environments that detract from older adults' health and well-being; diminish resident dignity, personal autonomy, and choice; and result in loss of personhood. However, the neighborhood surrounding a LTC residence can also influence the health and well-being of older adults and their caregivers and therefore requires consideration. To explore perceptions of the neighbourhood context of two institutional settings located in a downtown urban setting, we collected and thematically analysed in-depth interviews from 21 older residents, 22 of their family members, and 32 care staff. Participants reported both positive and negative features of the urban neighbourhood setting. On the one hand, the neighbourhood was described as noisy, dirty, and rough, with the presence of drug use; on the other, the LTC residences benefited from close proximity to cafes and restaurants. Participants suggested that the downsides to being located in the downtown core have negative implications for residents' independence and safety. For instance, the ability of staff and family members to walk with the residents around the neighbourhood is limited by safety concerns. Instead, resident activities are largely confined to the indoor spaces of the LTC residence. The lack of mobility of LTC residents to areas outside has implications for both city planning and public health, which will be discussed in this presentation. In order to optimize the experience of living in a LTC setting, and thus improving the health and well-being of residents, both indoor and outdoor spaces need to be considered.

Aging

Long-term care

Environment and health

Berry, Isha; Lea Berrang-Ford

McGill School of Environment, Montreal, Canada & The Geographic and Environmental Epidemiology Lab, McGill Department of Geography, Montreal, Canada
Canada
isha.berry@mail.mcgill.ca

Leishmaniasis, Conflict and Political Terror: A Spatio-Temporal Analysis of Global Incidence

Leishmaniasis, a vector borne parasitic disease, is endemic to 88 countries worldwide and has been estimated to cause the ninth largest burden amongst global infectious diseases. Occurrence of the disease has been anecdotally associated with periods of conflict, particularly among soldiers, leading to its referral in the media as a disease of 'guerrilla warfare.' Despite this, there have been few studies that investigate the extent to which leishmaniasis is associated with conflict. This study employs a longitudinal approach to empirically test for an association between incidence of cutaneous and visceral leishmaniasis and incidence of conflict and political terror at the national-level, annually over a 15-year period (1995-2010). Disease incidence data were collected for 54 countries, and combined with the UCDP/PRIO Armed Conflict and Amnesty International Political Terror Scale datasets. Mixed-effects negative binomial regression models clustered at the country level with robust standard errors indicated a significant dose-response relationship for disease incidence based on increasing levels of conflict and terror, even when controlling for wealth. Country-years experiencing major conflict and high political terror had an incidence rate ratio 2.00 [95%CI: 1.18-3.38] times higher for cutaneous leishmaniasis and 5.59 [95% CI: 2.24-13.91] times higher for visceral, as compared to country-years of no conflict and low terror. Through a further evaluation of the causal mechanisms, this research indicates that conflict and political terror have further-reaching impacts than simply the initial period of active warfare.

Global health
Infectious diseases
Methods – quantitative

Canham, Sarah; Norm O'Rourke, David B King, Andrew Sixsmith, the BADAS Study Team

Gerontology Research Centre, Simon Fraser University
IRMACS Centre, Simon Fraser University
IRMACS Centre, Simon Fraser University
Gerontology Research Centre, Simon Fraser University
Canada
scanham@sfu.ca

Bipolar Affective Disorder and older Adults (BADAS) Study

Large numbers of persons with severe mental illness are living to later life for the first time in human history. This includes bipolar disorder (BD), an often severe and disabling psychiatric condition that afflicts roughly 75,000 Canadians 50+ years of age. Despite growing numbers, psychosocial research specific to BD in the second half of life is limited. For our Bipolar Affective Disorder and older Adults (BADAS) study, we developed and tested an iOS mobile tool in a process of iterative prototyping to optimize functionality, usability, and user acceptability. Within specified time windows of general availability, participants are randomly prompted twice daily to provide responses. They report mood-in-the-moment, BD medication adherence, sleep quality, daily hassles and uplifts. Responses and GPS data are collected via FTE and WiFi enabled iPhones or iPads enabling global recruitment and data collection (i.e., Canada, US, UK, Ireland, South Africa, Australia and New Zealand). Cohabiting partners of BADAS participants will also be asked to participate allowing us to examine the role of social support and interpersonal factors. Moreover, we compile and synthesize participant data to provide participants with personalized self-care web pages. The BADAS Study will expand scientific understanding of the factors that contribute to health and quality of life with BD across the adult lifespan. Such tools can be adapted for a range of mental health conditions and other older adult populations.

Aging
Mental health
Mixed research methods

Chhetri, Bimal; Sunny Mak, Eleni Galanis, Michael Otterstatter, Robert Balshaw, Sarah Henderson, Marc Zubel, Marcus Lem, Jordan Brubacher, Tim Takaro

BC Centre for Disease Control
Fraser Health Authority
Simon Fraser University
Canada
bimal.chhetri@bccdc.ca

Geographic variation in acute gastrointestinal illness in Fraser Health Authority, British Columbia, Canada, 1993-2012.

The rates of acute gastrointestinal illness (AGI) are known to vary across British Columbia (BC). However, it is not known if any spatial clusters of infections exist and whether the existence of waterborne AGI clusters can be explained by differences in drinking water system (DWS). The objectives of this study are to map incidence rates and detect clusters of AGI in a large health authority in BC.

The incidence rates of AGI reported from 1993-2012 will be mapped using isopleth maps. The reported cases include 29,012 cases of salmonellosis, campylobacteriosis, shiga-toxin E. coli infections, giardiasis, and cryptosporidiosis. Each case's corresponding DWS is determined based on residence in one of the 398,916 parcels for which drinking water information exists for this study area. Using GIS intersection techniques, parcel level population at risk will be estimated using census data. A spatial scan test will be used to detect high risk clusters of infection. Using logistic regression, the case's probability of inclusion in the high risk clusters of waterborne AGI will be modeled as a function of drinking water system predictors (water system governance and water source). Other predictors include land use variables, proximity to agricultural lands, age and sex.

It is expected that spatial clusters of AGI exist in the study area and can be identified for respective AGI. It is also expected that the study will be able to identify risk factors for these clusters of waterborne disease, e.g. differences in DWS attributes, proximity to agriculture lands.

Population health
Spatial analysis
Infectious diseases

Clark, Sierra¹; Lea Berrang-Ford¹, Shuaib Lwasa², Didacus Namanya³,
Fortunate Twebaze², Kaitlin Patterson¹, Sherilee L. Harper⁴

¹Dept of Geography McGill University,

²Dept of Geography Makerere University

³Ugandan Ministry of Health

⁴Dept of Population Medicine University of Guelph

Canada

sierra.clark@mail.mcgill.ca

Acute Gastrointestinal Illness In An Africa Indigenous Population: The Lived Experience of Uganda's Batwa

Indigenous populations in developing regions are expected to be the most affected by social gradients in health, including high burden of infectious disease. Experience with illness also differs among populations with differential severity and impact based on the existing health status and context of the population. Using mixed methods, this study characterizes the lived experience of acute gastrointestinal illness (AGI) in an Indigenous Batwa-Pygmy population in Kanungu District, southwestern Uganda. Quantitative data analyses draw on three cross-sectional surveys of Batwa conducted in January 2013 (n=583), January 2014 (n=562), and April 2014 (n=524). These were complimented by qualitative data from key-informant interviews (n=11) and Batwa focus group discussions (n=10). Cases experienced a long duration and high magnitude of symptoms; episodes of diarrhea and vomiting lasted on average 3.6 [CI 2.3-4.3] and 3.0 [CI 2.1-3.9] days, and cases experienced an average of 4.3 [CI 3.9-4.8] and 2.6 [CI 2.1-3.1] maximum loose stools and vomiting episodes in 24hrs. Interviewees indicated that episodes of AGI were not limited to symptom-based health impacts for the individual but also have substantial social, psychological and financial consequences for the affected household. Using the Health Belief Model (HBM) as a guiding framework, current community-based educational campaigns alone remain insufficient to change AGI precautionary behaviors, given persistent socioeconomic barriers faced by the Batwa. This study moves beyond surveillance data and provides information on the true community-level burden of AGI for this population and provides narrative insights into the current challenges faced by marginalized populations globally.

Aboriginal/Indigenous Health

Infectious disease

Mixed methods

Fraser, Mieke¹; Sonya Ishiguro^{1,2}, Ashraf Amlani¹, Jane Buxton^{1,2}

¹Communicable Disease Control and Prevention Services, British Columbia Centre for Disease Control, Vancouver, BC

²School of Population & Public Health, University of British Columbia, Vancouver, BC
Canada
mieke.fraser@bccdc.ca

Mapping results of the 2013 Annual Substance Use survey in British Columbia

The British Columbia Centre for Disease Control's Harm Reduction (HR) program provides supplies to support safer sex and safer drug use throughout British Columbia (BC). In 2013, clients visiting participating HR supply distribution sites were surveyed to evaluate accessibility of services, sharing behaviour, overdose experiences and drug use by region.

In 2013, 779 surveys were completed at 34 HR sites in all five health regions of BC. GIS was used to map various aspects of the survey results. The spatial distribution of survey sites was mapped to ensure a representative sample was obtained, and to determine an urban, rural classification of sites. Part of the spatial analysis focused on ease of access; modes of travel, and time to get to the site were evaluated to determine if improvements to service access (e.g. extending duration that site was open) were needed. The second analysis focused on the spatial distribution of types of drug(s) used by clients. Distinct differences in drug use patterns across BC indicated the need to expand provision of supplies for safer injection and inhalation supplies in some regions, or provided the impetus for expanding overdose recognition & response programs.

The spatial analysis of the survey responses assisted the HR program to customize the types of services and products provided based on drug use patterns, and to evaluate and improve the accessibility of HR services across BC.

Spatial analysis

GIS

Community health

Hang Fu, Sze¹, Prabhat Jha^{1,2}

¹Centre for Global Health Research, Li Ka Shing Knowledge Institute, St. Michael's Hospital, University of Toronto, Toronto, Ontario, Canada,

²Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada
Canada
fus@smh.ca

Geographically weighted regression of malaria and its socioeconomic and environmental determinants in India

Introduction: The majority of malaria cases in Southeast Asia occur in India. Many studies have identified the links between malaria, socioeconomic, and environmental determinants at individual and population levels. However, most of these studies assume a stationary spatial relationship between malaria and its various determinants. India's socio-cultural and ecological diversity provide an ideal scenario to challenge this assumption.

Method: We examined relationships between malaria disease prevalence among Indians aged 15-69 years and determinants at the population level. We used ordinary least squares (OLS) regression to analyze the associations between malaria and socioeconomic and environmental risk factors. We used geographically weighted regression (GWR) to examine how these associations vary across Indian geographic regions. Male and female populations were analyzed in separate models.

Results: Our study shows significant geographic variations in the determinants of malaria, while confirming the significant associations between the disease and socioeconomic and environmental factors. Standard of living and scheduled tribes population are associated with malaria for both genders, particularly in the northeastern states. Environmental factors appear to have stronger associations with malaria for males than females, with significant associations in the northeastern states for rainfall and central states for forest and savannah land cover. All determinants display geographic variations and most show statistically significant spatial non-stationarity. GWR provides better model fit for both genders compared to OLS regression.

Conclusion: While some population-level determinants show strong associations with malaria across the country, others display regional patterns. Public health policymakers should consider these differences and implement targeted interventions where appropriate.

Spatial analysis

Social determinants of health

Environment and health

Hanibuchi, Tomoya; Tomoki Nakaya, Mayuko Yonejima, Kaori Honjo

School of International Liberal Studies, Chukyo University; Department of Geography, Ritsumeikan University

Ritsumeikan Global Innovation Research Organization

Global Collaboration Center, Osaka University

Japan

info@hanibuchi.com

Neighborhood walkability and physical activity among Japanese adults: Multilevel analysis of a nationally representative sample

Associations between neighborhood and health have been studied in many places; however, most studies have been conducted in limited cities or towns within countries. We used nationally representative samples linked with neighborhood indicators across Japan and explored whether physical activity of the residents was associated with both perceived and objective walkability of the neighborhoods. Data from the Japanese General Social Surveys conducted in 2010 (JGSS-2010) was used for our analysis. JGSS-2010 included 2,395 subjects (1,114 men and 1,281 women) aged 20-89 years living across Japan. Subjects were selected using a two-stage stratified random sampling design. Perceived walkability was scored using factor analysis for the respondents' perceptions of neighborhood conditions, and objective walkability was measured using the geographic information system (GIS) approach. Multilevel logistic regression was performed to examine whether neighborhood walkability was associated with the exercise habit of the respondents. The results showed that perceived walkability was positively associated with physical activity among women. The odds ratio of the highest quartile of perceived walkability was 1.70 (95% confidence interval: 1.12-2.59) compared with the lowest quartile. An association between objective walkability and physical activity was marginally significant among men (OR of Q4 = 1.48: 0.94-2.35). Women who perceived their neighborhoods as walkable or men who resided in objectively walkable neighborhoods tended to have regular exercise. This may indicate that the health policy should consider improvement of neighborhood conditions for improving the levels of physical activity.

Neighborhood

Public health

Social determinants of health

Hankivsky, Olena; Daniel Grace, Gemma Hunting, Melissa Giesbrecht,
Alycia Fridkin, Sarah Rudrum, Olivier Ferlatte and Natalie Clark

School of Public Policy, SFU
London School of Hygiene & Tropical Medicine
Dalla Lana School of Public Health, University of Toronto
Institute for Intersectionality Research & Policy, SFU
Department of Geography, SFU
Canada
mgiesbre@sfu.ca

An intersectionality-based policy analysis framework: critical reflections on a methodology for advancing equity

In the field of health, numerous frameworks have emerged that advance understandings of the differential impacts of health policies to produce inclusive and socially just health outcomes. In this poster, we present the development of an important contribution to these efforts – an Intersectionality-Based Policy Analysis (IBPA) Framework. Developed over the course of two years in consultation with key stakeholders and drawing on best and promising practices of other equity-informed approaches, this participatory and iterative IBPA Framework provides guidance and direction for researchers, civil society, public health professionals and policy actors seeking to address the challenges of health inequities across diverse populations. Importantly, we present the application of the IBPA Framework in seven priority health-related policy case studies. The analysis of each case study is focused on explaining how IBPA: 1) provides an innovative structure for critical policy analysis; 2) captures the different dimensions of policy contexts including history, politics, everyday lived experiences, diverse knowledges and intersecting social locations; and 3) generates transformative insights, knowledge, policy solutions and actions that cannot be gleaned from other equity-focused policy frameworks. The aim is to inspire a range of policy actors to recognize the potential of IBPA to foreground the complex contexts of health and social problems, and ultimately to transform how policy analysis is undertaken.

Policy
Critical health research
Diversity and health

Jarolímek, Jan^{1, 2}; Dagmar Džúrová¹, Jana Spilková¹

¹Charles University in Prague, Faculty of Science, Department of Social Geography and Regional Development, Albertov 6, 128 00 Prague, Czechia

²Public Health Authority of the Central Bohemia Region, Dittrichova 17, 120 00 Prague, Czechia

jan.jarolimek@natur.cuni.cz

Perception of health risk behaviors and neighborhood environment among teenagers in Czechia

In Czechia, and other post-communist countries of Central and Eastern Europe, risk behaviors are a substantial problem among young people. The objectives of this poster are to estimate the relationship between the built environment perception and health risk behaviors of teenagers in Czechia. A questionnaire survey was conducted as an on-line survey among 35 selected elementary schools throughout Czechia (1082 usable elementary students).

Environmental factors such as family, peer group, school, and home characteristics contributed to adolescents' health risk behaviors. The results show that family composition and relation with mother were confirmed as significant variables associated with risk behaviors. In the main wave of the survey, questionnaire included questions on the risk behavior of teenagers, family relations, relation with peers etc., the part related to the built environment perception was enriched by photographs of particular housing types of neighborhoods. The responses thus can be analyzed according to categories of neighborhood types, which in this case are expected to contribute to the social inequalities.

This study highlights the importance of focusing on perception on quality of environment for adolescent health. We hope that the present study findings will stimulate future research that characterizes health risk behaviors and considers its importance with regard to subsequent problem behavior.

Risk behavior
Built environment
Perception
Czechia

Jarolímek, Jan^{1, 2}; Pavel Urban³

¹Charles University in Prague, Faculty of Science, Department of Social Geography and Regional Development, Albertov 6, 128 00 Prague, Czechia

²Public Health Authority of Central Bohemia Region, Dittrichova 17, 120 00 Prague, Czechia

³National Institute of Public Health in Prague, Department of Industrial Hygiene and Occupational Health, Šrobárova 48, 100 42 Prague, Czechia

jan.jarolimek@natur.cuni.cz

Twenty year development of occupational diseases in Czechia: medical and geographical aspects

The analysis of occupational diseases (OD) in Czechia from the viewpoints of occupational medicine and medical geography or, more precisely, health geography is presented. It uses a dataset of 32,646 OD cases recognised 1994-2013.

The study analysed OD according to their spatial distribution, occurrence in different branches of economic activities and employees' gender. The incidence of OD showed an overall decreasing trend. This is related to the transformation of the national economy during studied period, increased responsibility of employers for safe working conditions, but also to concealment of health problems by employees for fear of losing jobs. An important exception to the decreasing trend is the automotive industry, where the incidence of OD has been rising.

Further, we studied the relation between unemployment and OD incidence in different regions of Czechia. The situation is described in more details for three regions, wherein a significant inverse association was shown between the rate of unemployment and OD incidence. The theory of marginal utility can explain this observation. To certain degree of health problems, employees prefer employment stability, especially if the unemployment is on rise in their region. By contrast, when losing job, they often try to claim benefits of OD.

Occupational diseases

Medical Geography

Ecological correlation study

Unemployment

Risk Factor

Lee, M; B. Barratt, P.C. Lai, T. Thach, C. Choi, A. Tsui, P. Wong, J. Cheng,
M. Brauer

Occupational and Environmental Hygiene at the University of British Columbia
Canada
martha.lee@alumni.ubc.ca

Modelling the spatial variability of air pollution in Hong Kong

Exposure to air pollution is linked to numerous adverse health effects. Knowledge of population exposure facilitates understanding of the potential health burden and provides a direction for management. As part of the development of a dynamic 3-dimensional air pollution exposure model, a two dimensional land use regression model of nitrogen dioxide (NO₂), a marker of combustion related air pollution, concentrations in Hong Kong was built. The model allows pollutant concentrations in unmeasured locations to be estimated and provides insight into the relationship between concentration variability and geospatial features.

In total, 43 2-week Ogawa passive samples were collected during a spatial sampling campaign in May 2014. At these measurement sites, predictor variables were extracted from geospatial layers and offered to a multiple linear regression model. Possible predictors included land use, aspect ratio (of street canyons), elevation, distance to specific features (e.g. port, shipping lanes) and population, traffic, intersection, and building density

There was substantial variability in NO₂ concentrations (M = 58.35 ppb, 95% SD = 24.73 ppb). A preliminary model (including the variables distance from port, the proportion of residential land use within a 1250 m circular buffer, the proportion of mixed land use within a 1500 m circular buffer and elevation) explained 32% of the variation in temporally adjusted 2-week average NO₂ concentrations. Further work will include additional geospatial variables, a larger set of measurements and a second spatial sampling campaign to develop a more robust model to estimate long-term average concentrations.

Pollution
Environment and health
Spatial analysis

Patterson, Kaitlin¹; Lea Berrang-Ford^{1,2}, Shuaib Lwasa^{2,3}, Didacus Namanya^{2,4}, Fortunate Twebaze³, Sierra Clark¹, IHACC research team, Sherilee L. Harper^{2,5}

¹Dept of Geography, McGill University

²Indigenous Health Adaptation to Climate Change Research Group, McGill University

³Dept of Geography, Makerere

⁴University Ministry of Health, Uganda

⁵Dept of Population Medicine, University of Guelph

Canada

kaitlin.patterson@mail.mcgill.ca

“Because Eating Is Life”: A Qualitative Approach to Analyzing Food Security and Malnutrition In The Batwa Pygmies Of Southwestern Uganda

Indigenous peoples and populations that rely on subsistence agriculture are expected to be negatively impacted by climate change. Africa is projected to experience increased temperature, extreme drought, and unpredictable precipitation; Sub-Saharan Africa was identified as one of the world's most vulnerable regions for food security. The Batwa Pygmies, a rural Indigenous peoples living in southwestern Uganda are particularly vulnerable to the health impacts of climate variation due to persistent health inequality compared to their non-Indigenous neighbors (Bakiga), high levels of poverty, and subsistence-based livelihoods. This paper uses qualitative methods to investigate the perceptions and experiences of food security and malnutrition in the Batwa pygmy population of Kanungu district in south western Uganda. Focus groups and mental mapping were employed in 7 Batwa settlements and 15 key informant interviews were conducted with local experts including health workers, district and national government officials, NGOs and local researchers. Participants self-identified as food insecure and stated that households were homogeneously poor and vulnerable. Community walks and mental mapping highlighted strategies to enhance food security that different communities employed and key informant interviews supported the level of inequality that Batwa faced compared to their non-Indigenous counterparts. The results of this paper offer self-identified and appropriate strategies and intervention points to reduce community and household vulnerability and enhance their resilience to future climate stressors.

Aboriginal/Indigenous Health

Vulnerable Populations

Methods - Qualitative

Rummo, Pasquale E.^{1,2}; Jana A. Hirsch^{1,2,3}, Penny Gordon-Larsen^{1,2}

¹Department of Nutrition, University of North Carolina at Chapel Hill

² Carolina Population Center

³ Centre for Hip Health and Mobility, University of British Columbia
USA

prummo@live.unc.edu; hirsch.jana@gmail.com; pglarsen@unc.edu

In which neighborhoods are older adult populations expanding?: Sociodemographic and built environment characteristics across neighborhood trajectories of older adult populations in four U.S. cities over 25 Years

Objectives:

As North American populations age, understanding neighborhood-level changes that support aging in place becomes increasingly important. Thus, we sought to examine the social and physical characteristics of neighborhoods experiencing different trajectories of older adult populations.

Methods:

We used 25 years (1985-2010) of longitudinal data from 4 U.S. cities (n=396 neighborhoods): Birmingham, AL; Chicago, IL; Minneapolis, MN; Oakland, CA. Using a finite mixture model procedure, we identified 3 distinct trajectories: neighborhoods with a stable, decreasing, or increasing older adult population (≥65 years), and compared the mean baseline and mean change in characteristics of these subgroups.

Results:

Compared to neighborhoods with a stable proportion of older adults, neighborhoods with increasing older adult populations had more stable housing prices and housing debt over time, while having lower population density and intersection density at baseline and becoming less densely populated over time. Neighborhoods with an increasing proportion of older adults were also characterized by higher baseline income and education levels, but greater change in income and education, than neighborhoods with stable older adult populations. We observed no statistically significant differences in racial composition, park area, availability of food and physical activity destinations, or proximity to employment subcenters across trajectories.

Conclusions:

While neighborhoods experiencing 25-year increases in older adult populations had more stable housing markets over time, we found that these areas were less dense with lower street connectivity, potentially suggesting lower walkability than other neighborhoods. These findings have important implications when planning supportive, livable environments for older adults.

Neighbourhood

Aging

Environment and health

Schærström, Anders¹; Stig H. Jørgensen², Thomas Kistemann³, Åke Sivertun⁴

¹(Freelance) Stockholm University, Dep. of Geography

²Norwegian University of Science and Technology (NTNU) Dept. of Geography

³Bonn University, Institute for Hygiene and Public Health,

⁴National Defence College, Research and Education

¹Sweden, ²Norway, ³Germany, ⁴Sweden

anders.schaerstrom@telia.com; stig.h.jorgensen@svt.ntnu.no; boxman@ukb.uni-bonn.de; Åke Sivertun

Geography and Health – A Nordic Outlook

This book (Published 2014) is the first major collection of issues in health-related geography based on Nordic perspectives and presented in a comprehensive form to international readers.

The Nordic region displays a high degree of similarity in its general social structures and trends, but it also presents a challenging diversity of physical features and recent social change.

In 26 chapters, this selection attempts to present a comprehensive, but not exhaustive, picture of geographical thinking of health. In addition, it attempts to picture a scholarly process, which has inspired and generated the current diversity of geographical approaches to health issues in Nordic contexts.

Thus, the chapters span a wide array of issues and approaches from spatial epidemiology to personal geographies and designing salutogenic everyday environments. The chapters represent studies based on in-depth interviews as well as mathematical analyses of large data sets, using historical archives and Geographical Information Systems. They exemplify what can be achieved with good access to data, for which the Nordic region has a reputation. Special attention is paid to processes in time and space.

The book was produced as an effort to display to colleagues internationally, as well as at home, what geographical thinking may contribute to understanding the contexts of health and ill health. Their intention is to stimulate curiosity and promote contacts. Sharing these examples, they hope to inspire new generations of students in geography – and other disciplines – to explore the geographical circumstances of health.

Nordic

Health geography

Methodology

Windhorst, Eric; Allison Williams

School of Geography & Earth Sciences, McMaster University

Canada

awill@mcmaster.ca

A Natural Rhythm: On Post-Secondary Students, Stress, and Nature Affiliation

Abstract: Given the mental health challenges that many college and university students are facing (American College Health Association 2014), and the relative lack of literature exploring the complex connection between mental health and natural places among post-secondary students, there remains a need to study further the nature-mental health dynamic in this population. The results of this exploratory photovoice study provide a rich description of natural places that twelve fairly nature connected university students consider beneficial to their mental health, and why. Findings illustrate that participants prefer natural environments that are familiar, contain a wide variety of natural elements (especially mature trees, and some form of water), and are separated from the context and various attentional demands of everyday campus life (distanced from the built and social campus environment). While in their chosen natural places, participants reported that they were able to relax deeply and reflect meaningfully on themselves and their lives. Overall, study findings demonstrate the importance of acknowledging social and symbolic factors when assessing the potential mental health benefits of natural places for different groups and individuals.

Yonejima, Mayuko¹; Tomoki Nakaya², Mamoru Watanabe³, Naoko Nihei³, Yoshio Tsuda³, Mutsuo Kobayashi³

¹Postdoctoral Fellow, Kinugasa Research Organization, Ritsumeikan University

²Department of Geography, Ritsumeikan University

³Department of Medical Entomology, National Institute of Infectious Diseases
Japan

yonejima@fc.ritsumei.ac.jp

Constructing potential habitat maps of vector mosquitoes in the eastern coast of Lake Biwa, Japan

The geographical variation in abundance of vector mosquitoes is largely dependent on landscape/land-cover variations related to their habitat. The purpose of this study is to construct and validate potential habitat maps of two vector mosquitoes, *Culex tritaeniorhynchus* and the *Anopheles sinensis* group carrying Japanese encephalitis virus and malarial parasite, respectively. Our study area is the eastern coast of Lake Biwa, Japan. Firstly, we employed partial least squares (PLS) regression to model the relationship between the number of mosquitoes collected in 2009 and compositions of land-cover categories classified from satellite images of ALOS around mosquito survey sites. Secondly, we constructed the potential habitat maps as the estimated distribution of abundance of the two vector mosquitoes by using the PLS models. The results indicated that suitable habitats for *Cx. tritaeniorhynchus* are mainly distributed across plains and those for the *An. Sinensis* group are concentrated around water bodies. Thirdly, we evaluated the accuracy of spatial and temporal extrapolation by comparing the potential habitat maps with another dataset of mosquito collecting survey conducted in 2010. Since the extrapolation was not sufficiently accurate in several situations, further considerations are needed to take into account wider environmental factors and annual variability of population sizes of the vector mosquitoes for building more robust models and updating the maps.

vector mosquitoes

GIS

partial least squares regression