# TABLE OF CONTENT

## Concurrent Panels: Oral Presentations – Session 1
(Tuesday, 16 November 2021, 09:50 – 10:50 am)

- Session 1.1: Mental Health among Adolescents and Students  
  P.3
- Session 1.2: Health Education/Literacy/Communication  
  P.8
- Session 1.3: Cancer  
  P.13
- Session 1.4: Health Care System and Health Economics  
  P.18

## Concurrent Panels: Oral Presentations – Session 2
(Tuesday, 16 November 2021, 10:55 – 11:55 am)

- Session 2.1: Health Risk Behaviour and Non-communicable Diseases  
  P.24
- Session 2.2: Urban Environments  
  P.29
- Session 2.3: Digital Technology  
  P.34
- Session 2.4: Infectious Diseases  
  P.39

## Concurrent Panels: Oral Presentations – Session 3
(Wednesday, 17 November 2021, 10:35 – 11:35 am)

- Session 3.1: Infectious Diseases  
  P.45
- Session 3.2: COVID-19  
  P.50
- Session 3.3: Child and Adolescent Health  
  P.56

## Concurrent Panels: Oral Presentations – Session 4
(Thursday, 18 November 2021, 10:50 – 11:50 am)

- Session 4.1: Non-communicable Diseases  
  P.62
- Session 4.2: COVID-19 and Health Technologies  
  P.67
- Session 4.3: Mental Health among Older Adults  
  P.72
- Session 4.4: Active Lifestyles  
  P.77

## Poster Presentation

P.82

## 2021 Global Health Student Poster Contest

P.125
CONCURRENT PANELS

ORAL PRESENTATIONS

TUESDAY, 16 NOVEMBER 2021

09:50 – 10:50am (GMT+8)

SESSION 1
SESSION 1.1
MENTAL HEALTH AMONG ADOLESCENTS AND STUDENTS
TUESDAY, 16 NOVEMBER 2021
09:50 – 10:50am (GMT+8)
VIRTUAL ROOM B1
Mental health policy for university students in Hong Kong: A shared responsibility among all university members

Mr Toi Wing Tseng

1Department of Social Work and Social Administration, The University of Hong Kong, Hong Kong SAR

Background:
The rationale for this paper is based on the pressing concerns on the impacts of the social unrest, particularly of the university students who participated in a majority of the movement arising from the Extradition Bill since 2019. The outbreak of the COVID-19 pandemic that began in 2019 further deteriorated the campus life of university students in Hong Kong. This paper aims to propose short-term initiatives and future directions in addressing university student mental health issues in Hong Kong.

Methods:
This paper reviews the literature on the 1) mental health challenges posed by the university students, 2) mental health services provided by the public sector of the mental health system in Hong Kong, and 3) obstacles encountered by the university mental health services and outlines the initiatives for a coordinated system of university health system according to the Hong Kong context.

Results:
Short-term initiatives for enhancing accessibility of counselling services and future direction for developing a coordinated system of the university health system are discussed. The author proposed that 1) Mental Wellness Clinic, 2) Campus-wide Promotion and Assessment, 3) Effective Triage, and 4) Clinical Emergencies and Crisis Support should be considered in the university health system.

Conclusions:
A timely tackle is required to respond to the overwhelming needs of student mental health services in Hong Kong. Mental health resources and efforts will fail if not supported by a coordinated health system within the campus and not considered as a shared responsibility among all university members. This paper also calls attention to the importance of setting up universal policies for informing standards of university mental health care services in Hong Kong.
Factors influencing the coping experience of health science students in remote learning during the COVID-19 pandemic in the Philippines

**Dr Maria Margarita Lota**, **Dr Emely Dicolen**

1Department of Medical Microbiology College of Public Health, University of the Philippines, Philippines, 2National Teacher Training Center for the Health Professions, University of the Philippines, Philippines

**Background:**
In response to COVID-19 restrictions, many countries have resorted to alternative learning activities for education. Remote learning is now considered as the ‘new normal’ – with the greatest burden on countries that have underutilized this method and its platforms. With the sudden shift in teaching methodologies, there is a need to determine the factors in the coping experience of students during the pandemic to provide evidence-based solutions to bridge the various gaps faced in remote learning.

**Methods:**
A descriptive, quantitative, cross-sectional study design was employed for this study. There were 167 undergraduate health science college students, who consented and completed the online, self-administered, structured questionnaire.

**Results:**
For technological factors, respondents had access to a stable internet of at least 4 hours (52.1%) and resources such as personal mobile phone (91.6%) and laptop (88%); and learning management systems such as Zoom (99.4%) and Canvas (82.6%). Human factors (i.e., teaching methods and course handling) were major influencers in learning. Most agreed that their study habits and attitudes -- regularly checking for announcements (90%), and accomplishing assigned tasks (80%), resulted in more time spent for schoolwork (81%). The identified psychosocial factors contributing to the stress and anxiety of the students included a combination of concerns on health (81.4%), deadlines (92.8%), school and household workload (86.3%), school delay (79.6%), and isolation (67.6%).

**Conclusions:**
Although the respondents noted advantages of remote learning, the majority disagreed with continuing its implementation after the pandemic (75.4%); traditional face-to-face remained the preferred mode of learning. The experience of students with remote learning during this pandemic provides valuable data to understand coping with shifts in teaching methodologies. The findings of the study underscore the importance of a resilient education system that also considers the learning capacity and mental health of students, especially for resource-limited countries.
‘Care for Our Future Scholars’: Prevalence and psychosocial correlates of mental health of mainland Chinese PhD students in Hong Kong

Ms Jing Jia¹, Prof Nelson Chun-yiu Yeung¹

¹The Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, China

Background:
Ph.D. students’ prevalence of depression is high. International Ph.D. students’ mental health should not be overlooked as well. According to the Education and Life Transition (ELT) model, international Ph.D. students usually go through transitions both from academic and acculturation lives. Unsuccessful transitions may cause stress and harm the psychological well-being of these academic sojourners. Mainland Ph.D. students occupy the largest population of non-local research postgraduate students in Hong Kong. As a special case of internal migration in China, they are at risk of suffering from poor mental health but remain understudied. This study aimed to assess the prevalence and characteristics of mental health problems (depression) among mainland Chinese Ph.D. students in Hong Kong and examine the major psychosocial risk factors.

Methods:
An online cross-sectional survey was conducted with 511 full-time mainland Ph.D. students in Hong Kong. Participants were invited to complete questionnaires measuring their depression (DASS-21), psychosocial (perceived academic stress, acculturative stress, and social support) and demographic variables.

Results:
The prevalence of probable depression was 30.9%. Multivariate logistic regression analysis revealed that higher perceived academic (ORs=1.66-2.49) and acculturative stress (ORs=1.09-1.20), lower perceived social support (ORs=0.39-0.68), lower perceived English proficiency (ORs=0.52-0.71), living in the county (OR=7.91) and village (OR=8.38) (vs. city), coming from Northeastern (OR=8.78) and Western China (OR=12.78) (vs. Eastern China) were associated with greater risk of probable depression. Unexpectedly, risk predictors also included higher perceived Cantonese proficiency (OR= 1.86), religious beliefs (OR= 9.58) and acculturation experience (OR= 2.91). (all ps<0.05)

Conclusions:
The prevalence of probable depression among mainland Ph.D. students in Hong Kong is high. The economic development level positively predicts the psychological well-being of Chinese academic internal migrants. Universities may pay more attention to students from less-developed regions and care for their psychological needs. Practitioners may consider organizing stress-reducing activities and providing more social support for these students.
Impact of COVID-19 pandemic on sleep of undergraduate students: A systematic literature review

Mr Rafael Lorenzo Valenzuela¹, Mr Raphael Ian Velasco¹, Dr Manuel Peter Paul Jorge²

¹College of Medicine, University of the Philippines Manila, Philippines, ²Department of Physiology, College of Medicine, University of the Philippines Manila, Philippines

Background:
The coronavirus disease has infected over 187 million globally and continually disrupting society. Global universities and colleges have closed and have shifted to distance learning. This sudden change in the living environment aggravates pre-pandemic mental and physical vulnerabilities of undergraduate students, including sleep. This systematic literature review aims to describe the prevalence of sleep problems, circadian rhythm disruption, sleep duration, sleep quality, insomnia symptoms, and psychological factors affecting the sleep of undergraduate students from various countries.

Methods:
A systematic search on March 2, 2020 for articles published from January 1 to December 31, 2020 using the words “COVID-19,” “Coronavirus,” “Pandemic,” “Sleep,” “Mental Health,” and “Students” from PubMed, Scopus, and Cochrane yielded 757 articles. After removing duplicates, and excluding articles not meeting the selection criteria, 26 articles were included. Criteria for selection were: article is originally open-access and in English, participants are undergraduate students and not in the postgraduate level, sleep outcomes were assessed via objective or subjective tools, and participants did not belong to allied health courses.

Results:
Included works came from the USA (5), Italy (5), Spain (1), China (8), Bangladesh (2), UAE (1), Jordan (1), India (2), and Indonesia (1). All included studies recorded data on sleep after stay-at-home orders. Point prevalence of self-reported sleep problems varied across regions, while longitudinal studies showed that prevalence increased during stay-at-home orders. Most studies showed a significantly increased sleep duration, and circadian rhythm disruption. Increased stress, depression, anxiety, discrimination, shame, stigma, negative affect, increased cases, increased digital media use, and living in rural residence, being unemployed, inaccurate knowledge of pandemic, and being a college student negatively influenced sleep.

Conclusions:
Results highlight the impact of stay-at-home orders on the sleep of undergraduates and reveal opportunities for local and global institutions to intervene with policies and programs to promote the well-being of this group.
SESSION 1.2

HEALTH EDUCATION/LITERACY/COMMUNICATION

TUESDAY, 16 NOVEMBER 2021

09:50 – 10:50am (GMT+8)

VIRTUAL ROOM B2
Assessment of permissibility of behavioral change counseling in the Philippine Family Planning Program: Basis for learning and development strategy

Prof Aldrin Riel Boyano¹, Prof Carmelita Canila²

¹University of Perpetual Help - Dr. Jose G. Tamayo Medical University, Community and External Services, Philippines,
²University of the Philippines Manila - College of Public Health, Department of Health Policy and Administration, Philippines

Background:
Family planning is one of the many aspects that affect maternal, child well-being and family economic welfare. Over the past 18 years, the Philippines has ranked 12th amongst Asian countries with the highest population growth rate, this could be due to the existing gaps in the manner of communication being imparted during family planning counseling especially during a pandemic.

Methods:
The study employed a mixed methods design. A case study design was used to analyze the policies, guidelines and procedures of behavior change counseling and learning and development strategy. Meanwhile, a cross-sectional study was designed to determine the extent of behavioral change counseling skills and practices of frontline healthcare providers. It was participated by 9 key persons and 65 frontline health care providers.

Results:
Results revealed that there is a high permissibility of behavioral change counseling in the current family planning because of a pending policy approval by the Department of Health Executive Committee which includes individual based behavioral change communication. The gaps identified included a no clear policy on the use of behavioral change counseling in the National Family Planning Program. Meanwhile, supervisory health care providers such as the Public Health Nurse and City Family Planning Coordinator are the direct supervisors of frontline health care providers and are in charge of providing supportive supervision, appropriate job aids and training. However, the supervisors are not trained in supervision, communication strategies and family planning in general. On the other hand, both professional and barangay frontline health care providers perceived having minimal skills and practices in empathic listening and summarizing skills.

Conclusions:
The recommendations include a learning and development strategy of frontliners and inter-agency policies with the aim of contributing to the improvement of the communication skills and involving behavioral change.
Teaching bioethics and bioethics research using inquiry-based pedagogy

Mr Leander Marquez

Philosophy, University of the Philippines, Philippines

Background:
Bioethics, which was previously confined to the related studies of philosophy, ethics, biology, and medicine is a growing field of study that has broadened to include public health, law, and globalization among others. This has made the teaching of bioethics and bioethics research education increasingly significant. In this light, this paper discusses how bioethics and bioethics research can be taught using an inquiry-based pedagogy, particularly, through building a community of inquiry.

Methods:
The succeeding discussions detail each aspect of the Lipman-Sharp five-point approach to building a community of inquiry. The method is then applied to several concepts and issues in bioethics and bioethics research. These concepts and issues serve as sample cases to determine how they can be taught to students using the Lipman-Sharp approach. There is a clear distinction between bioethics education and bioethics research education.

Results:
For this reason, several cases are presented to entirely cover both areas of investigation. The result of this application is a pedagogical approach to teaching bioethics and bioethics research. It is expected that if the results of this research are adopted by educational institutions and organizations that are concerned with bioethics, it can help improve how bioethics and bioethics research is taught and practiced in many parts of the world.

Conclusions:
Such conclusions are drawn from the inherent nature of the community of inquiry to be democratic and reasonable. As such, the teaching of bioethics as well as bioethics research education will avoid being didactic, infallible, and teacher-centered. Rather, it would be reflective, open to questions, and student-driven.
Medication risk communication: A cross-sectional survey among healthcare professionals in Malaysia

Ms Rema Panickar¹², Prof Dr Zoriah Aziz¹³, Prof Dr Adeeba Kamarulzaman¹

¹Faculty of Medicine, Universiti Malaya, Malaysia, ²Ministry of Health, National Pharmaceutical Regulatory Agency, Malaysia, ³Faculty of Pharmacy, MAHSA University, Malaysia

Background:
Effective medication risk communication is essential at every stage of the pharmacovigilance risk management process. However, this fundamental activity has never been evaluated among Malaysian healthcare professionals. We aimed to assess the awareness of doctors and pharmacists on risk communication methods in Malaysia, and identify factors predicting the usefulness of medication risk communication.

Methods:
We conducted a cross-sectional, web-based survey involving doctors and pharmacists across Malaysia. The adapted questionnaire covered four risk communication methods used in Malaysia, namely Direct Healthcare Professional Communications, educational materials, safety alerts and safety bulletins. We used the Pearson χ² test to examine the association between awareness of risk communication methods and demographic variables. To determine factors which predicted the usefulness of risk communication, we used logistic regression analyses.

Results:
Of the 1146 responses received, 650 (56.7%) were from pharmacists. Overall, 71.5% of respondents were aware of educational materials, while awareness of the other three risk communication methods ranged from 20.7% to 53.9%. Private sector healthcare professionals were significantly more aware of Direct Healthcare Professional Communications [χ²(1, N = 237) = 21.5, P<0.001] compared to those in the public sector. The significant predictors for finding risk communication useful included being a pharmacist [odds ratio (OR) 18.2; 95% confidence interval (CI) 11.0-30.1; P<0.001], having more than 30 years’ work experience (OR 4.9; 95% CI 2.0-12.1; P<0.001), working in the pharmaceutical industry (OR 4.6; 95% CI 1.1-19.7; P=0.039), and having received medication safety training (OR 1.6; 95% CI 1.2-2.2; P=0.004).

Conclusions:
Awareness on medication risk communication in Malaysia needs to be increased. Key suggestions to enhance risk communication usefulness are to improve public-private healthcare sector collaboration for better outreach, enlist pharmacists as contact points for dissemination, and establish regular training programmes for healthcare professionals and risk communicators.
Biosimilar medicines: A cross-sectional study on hospital pharmacists’ perceived confidence and barriers to promote prescribing among clinicians in Malaysia.

Mrs Noraisyah Mohd Sani1,2, Professor Zoriah Aziz1,3, Professor Adeeba Kamarulzaman1

1Faculty of Medicine, University of Malaya, Malaysia, 2Ministry of Health, Malaysia, 3Faculty of Pharmacy, MAHSA University, Malaysia

Background:
The use of biosimilar medicines offers potential cost savings in healthcare. As biosimilars become more widely available, pharmacists are better positioned to spearhead the appropriate and safe administration of biosimilars among clinical prescribers. Thus, we aimed to determine pharmacists’ perceived confidence and barriers towards promoting the use of biosimilars in clinical practice among clinical prescribers in Malaysia.

Methods:
We conducted a cross-sectional study using a web-based survey involving all registered pharmacists working in Malaysian hospitals. We refined the questionnaire from previous studies and piloted it before finalising the 41-items questionnaire. We analysed the data descriptively.

Results:
From a total of 913 responses received, 65.9% of pharmacists have dealt with biosimilar medicines in their workplace. Most of them (87.4%) had a good basic knowledge related to marketing authorisation requirements of biosimilars. On the aspect of how confident they would be in promoting a switch to a biosimilar in patients currently receiving the originator product, about 50% of them were confident. However, we found a low percentage of pharmacists (22.3 %) were confident to promote the use of biosimilars among clinical prescribers. The major barriers cited to promote prescribing of biosimilars medicines included efficacy concerns (68.7%), prescribers’ preferences (64.6%), insufficient information resources (51.4%) and lack of knowledge (43.0%).

Conclusions:
The findings show a lack of perceived confidence among pharmacists in promoting biosimilars to clinical prescribers. One of the main barriers identified was the lack of knowledge or training on biosimilars. These data provide preliminary information needed to introduce educational programs in the undergraduate pharmacy curriculum and launch continuing educational programmes among the pharmacists to improve their overall confidence.
SESSION 1.3

CANCER

TUESDAY, 16 NOVEMBER 2021

09:50 – 10:50am (GMT+8)

VIRTUAL ROOM B3
Association between usage of cooking oils and risk of lung cancer among women: A hospital-based case control study in Singapore

Ms Xin Er Frances Jin¹, Dr Adeline Seow¹,², Dr Wei Jie Seow¹,²

¹Saw Swee Hock School of Public Health, National University of Singapore and National University Health System, Singapore, ²Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore and National University Health System, Singapore

Background:
Lung cancer is one of the most frequently diagnosed cancer and the leading cause of cancer deaths globally. It is also the third most frequently diagnosed cancer in Singaporean women. While previous studies have shown that cooking-related factors like cooking oil fumes are risk factors for lung cancer, they failed to take into consideration that cooking oils differ in properties like cooking fumes’ mutagenicity, which have a direct impact on associated risk levels. Given that cooking is a universal activity, there is a need to examine the associations between different cooking oils and lung cancer risk, and the corresponding risk levels imposed on vulnerable populations like housewives due to their daily usage of these cooking oils.

Methods:
A total of 399 lung cancer cases and 815 frequency-matched hospital controls from the Gene and Environment Life Study, a Singapore hospital-based case control study conducted from 2005 to 2008, were included in the analysis. Information on demographics, cooking oil use (corn, soybean, peanut, palm, blended vegetable, sunflower oil or lard), dietary and lifestyle factors were collected using questionnaires. Odds ratios (ORs) and 95% confidence intervals (CIs) were estimated using multivariable logistic regression, adjusting for potential confounders.

Results:
Frequent lard users had higher odds of lung cancer (OR= 3.73, 95% CI: 1.32 – 10.44) compared to blended vegetable oil users, particularly among never-smokers (OR= 9.33, 95% CI: 1.13 – 76.75). Similarly, peanut oil users had higher odds of lung cancer when adjusted for smoking intensity (OR= 7.33, 95% CI: 1.33 – 40.38) compared to blended vegetable oil users, especially among ever-smokers (OR= 7.11, 95% CI: 1.29 – 39.28).

Conclusions:
Cooking with lard and peanut oil are associated with lung cancer risk, though confirmation in prospective studies with bigger sample sizes is warranted.
Factors associated with uptake of cervical cancer screening: A population-based study of 2,305 Chinese females

Dr Junjie Huang1, Mr Chun Ho Ngai1, Mr Man Sing Tin1, Ms Veeleah Lok2, Mr Xianjing Liu3, Dr Lin Zhang4, Prof Jinqiu Yuan5, Prof Wanghong Xu6, Prof Zhi-Jie Zheng7, Prof Martin Wong1

1JC School of Public Health and Primary Care, The Chinese University of Hong Kong, China, 2Department of Global Public Health, Karolinska University Hospital, Sweden, 3Department of Radiology and Medical Informatics, Erasmus University Medical Centre, Netherlands, 4Melbourne School of Population and Global Health, The University of Melbourne, Australia, 5Clinical Research Centre, The Seventh Affiliated Hospital, Sun Yat-sen University, Guangdong, China, 6School of Public Health, Fudan University, China, 7Department of Global Health, School of Public Health, Peking University, China

Background:
Cervical cancer screening is one of the most common cancers amongst females. It is also one of the leading causes of female cancer death globally and in Hong Kong. Cervical cancer screening has been suggested as an effective means to reduce the incidence and mortality rate; however, the uptake rate remains suboptimal in many countries. In 2017, the proportion of Hong Kong women aged 61-64 who registered for the cervical cancer screening programme run by the government was only 22.1%. To provide more insights on enhancing the uptake rate, we explored the association between socio-demographic factors and cervical cancer screening uptake among a Chinese population.

Methods:
Data from 2,305 participants were collected through a telephone survey via simple random sampling of telephone numbers in a territory-wide directory (from 2016 to 2018). Sociodemographic factors (e.g. education level, marital status, occupation status, income level) and health-related factors (e.g. smoking habit, self-perceived health condition) were collected. A binary logistic regression model was constructed to identify the association between the above factors and cervical cancer screening uptake.

Results:
Older individuals (66-70 vs. 61-65 [referent]: adjusted odds ratio (AOR)=0.63, 95% CI=0.50-0.79, p<0.001) and lower level of self-perceived health condition (normal vs. very good: AOR=0.54, 95% CI=0.37-0.79, p<0.001) were less likely to participate. In contrast, higher monthly household income (HKD>20000 vs. HKD<=10000: AOR=1.93, 95% CI=1.46-2.55, p<0.001) and higher level of education (Tertiary vs. Primary: AOR=4.15, 95% CI=2.64-6.50, p<0.001) were significantly associated with cervical cancer screening.

Conclusions:
Policy-makers may develop new strategies, such as education, publicity, and subsidies among these target groups in order to enhance the participation rate of cervical cancer screening. Our findings suggested that age, self-perceived health condition, household income, and education level were associated with uptake of cervical cancer screening. Future studies may identify effective strategies to increase its uptake rate.
Cancer incidence and mortality in Asian countries: A trend analysis

Dr Junjie Huang\textsuperscript{1}, Mr Man Sing Tin\textsuperscript{1}, Mr Chun Ho Ngai\textsuperscript{1}, Ms Veeleah Lok\textsuperscript{2}, Mr Yunyang Deng\textsuperscript{1}, Dr Lin Zhang\textsuperscript{3}, Prof Jinqiu Yuan\textsuperscript{4}, Prof Wanghong Xu\textsuperscript{5}, Prof Zhi-Jie Zheng\textsuperscript{6}, Prof Martin Wong\textsuperscript{1}

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Background:
This study aimed to evaluate the updated burden and trends of cancer incidence and mortality in Asian countries.

Methods:
The data used in this study is retrieved from the Global Cancer Observatory, Cancer Incidence in Five Continents volumes I-XI, and the World Health Organization mortality database. These data are used to calculate the Average Annual Percentage Change (AAPC), with a 95% confidence interval (CI) to determine the epidemiological trend in the past decade, from the joinpoint regression analysis.

Results:
In 2020, the cancer incidence in Asia was 169.1 per 100,000, accounting for 49.3% of the global cancer incidence. The most common cancers included lung (13.8%), breast (10.8%), and colorectal (10.6%). Its mortality was 101.6 (58.3% of the global cancer death) with lung (19.2%), liver (10.5%), and stomach (9.9%) cancers being the most common causes of cancer death. The cancer incidence had been increasing in female population, with Korea (AAPC = 5.73, 95% CI [5.30, 6.17], p < 0.001), Japan (AAPC = 2.67, 95% CI [2.12, 3.23], p < 0.001), and Kuwait (AAPC = 2.08, 95% CI [0.49, 3.69], p = 0.016) showing the most significant increases in the past decade. The incidence increase was also observed among females aged < 40 years old, with Korea (AAPC = 8.42, 95% CI [7.40, 9.45], p < 0.001), Japan (AAPC = 2.94, 95% CI [2.07, 3.81], p < 0.001), and China (AAPC = 2.88, 95% CI [1.88, 3.88], p = 0.016) showing the most significant increases. However, there was an overall decreasing trend of cancer mortality.

Conclusions:
There was a substantial burden of cancer incidence and mortality in Asia. Although there was a decreasing trend in cancer mortality, its incidence had been increasing especially among female and younger populations. More intensive cancer prevention measures are recommended for these populations.
Economic evaluation of colorectal cancer screening programme in Hong Kong

Mr Shing Him Matthew Lee

Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR

Background:
With the increasing incidence and mortality rate, colorectal cancer (CRC) has become a major public health problem for the Hong Kong (HK) population. At present, it has the highest incidence with the second-highest mortality rate among all cancers in HK, exerting enormous pressure on the local healthcare system which has already been pressurized by the problems of aging population and chronic diseases. This study aims to perform an economic analysis on the Colorectal Cancer Screening Programme (CRCSP) in HK for the prevention of colorectal cancer so as to evaluate the cost-effectiveness of the measure.

Methods:
The incremental cost-effectiveness ratio (ICER) would serve as the core outcome of the cost-effectiveness analysis. The cost is defined as all items that would be associated with the CRCSP, including administrative cost, consultation fees, laboratory analysis, colonoscopy fee as well as co-payment fees. The effectiveness is measured as life-years gained (LYG), which is defined by the difference between the number of life-years lost due to CRC in the cohort participating in the CRCSP and the number of life-years lost due to CRC in the cohort not participating in the CRCSP.

Results:
Compared to without screening, the ICER presented HK$39344/LYG for the CRCSP, which is lower than the willingness-to-pay threshold of HK$50000/LYG established. The additional costs incurred for the implementation of the CRCSP is justified as it could provide effective prevention and protection for the HK population from the consequences and complications of CRC.

Conclusions:
The CRCSP provides subsidized CRC screening tests for eligible HK citizens to prompt early detection, prevention and treatment of CRC. It is a cost-effective intervention, which increases survival rate of participants with justified costs incurred. More effort should be employed to promote eligible citizens in participating in the programme.
SESSION 1.4

HEALTH CARE SYSTEM AND HEALTH ECONOMICS

TUESDAY, 16 NOVEMBER 2021

09:50 – 10:50am (GMT+8)

VIRTUAL ROOM B4

Mr Charles Jason Cahilig¹

¹College of Medicine, University of the Philippines, Philippines

Background:
Through the initiation and enactment of the Universal Health Care Act, it seeks to realize universal health care in the Philippines through a systematic approach and a clear description of the functions and responsibilities of the key agencies and stakeholders. The law ensures all Filipinos with guaranteed equitable access to quality and affordable health care goods and services and protection from financial risk. This paper aims to revisit the Universal Health Care (UHC) Act to emphasize the right to health as a matter of State interest and how Philippine Health Insurance Corp. (PhilHealth) enacted UHC in the current pandemic response. The paper focuses on the UHC and national health insurance program of PhilHealth’s financial risk protection management during COVID-19 situation.

Methods:
Secondary data analysis is used in this paper to analyze the existing data collected by others. Secondary analysis affords to investigate the enactment of Universal Health Care law of the Philippines specifically to address financial risk protection of the general population during COVID-19 pandemic. It gives a general view of the social situation and financial risk management in the country.

Results:
The Philippine government increased its budget allocation and safety nets for health to respond to COVID-19 pandemic. Despite reforms, financial health protection remains limited. Out-of-pocket spending continues to dominate as source for health care financing, while others forgo medication. According to the 4-month study conducted in University of the Philippines – Philippine General Hospital, Tabuñar and Dominado estimated 12% average out-of-pocket payment per patient of the total hospital expenses.

Conclusions:
Although the level of financial protection provided remains limited, PhilHealth has claimed success in terms of population coverage: estimated at 86% in 2010, coverage increased to 92% in 2016, and to a ‘universal’ coverage, at 100%, in 2019 due to the implementation of Republic Act no. 11223, known as Universal Health Care Act. However, a real universal health could be attained through a restructured health financing system that emphasizes government and shared risk sourcing of funds and minimizes reliance on out of pocket payments at the point of service.
How should doctors be paid? A systematic review of the impacts of provider payment methods for primary care physicians on patient healthcare utilisation

Ms Margaret Kay Ho1, Ms Elaine Tian1

1Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR

Background:
Physician payment methods are valuable supply-side measures that may be reformed to achieve health policy objectives. However, few studies provide a comparison of the various methods of payment, to inform policy development. This review examines how payment methods for primary care physicians (PCPs) affect their patients’ healthcare utilisation, as a reflection of quality of care.

Methods:
PubMed, Embase, MEDLINE, EconLit, CINAHL Complete, and Web of Science were searched to identify papers in English investigating comparisons of payment methods for PCPs and their patients’ care usage. Payment methods included fee-for-service (FFS), capitation, salary, pay-for-performance (P4P), or a blend of these. Relevant outcomes were patient use of inpatient, outpatient or emergency care services.

Results:
31 studies involving 49008 PCPs and 11998174 patients were included. The most commonly examined reimbursement mechanism was FFS (N=23), followed by capitation (N=18), P4P (N=13), and salary (N=6). Most outcomes concerned inpatient care (N=21), compared to emergency (N=15) and outpatient (N=1) care; some studies compared multiple methods and outcomes. Of the eight countries covered, the two most widely represented were USA (N=14) and Canada (N=9). The most consistent finding was improvement in outcomes under PCPs with a P4P adjunct compared to PCPs without; this was demonstrated in six of the nine studies. Of the thirteen studies comparing FFS and capitation reimbursement, four of seven studies with statistically significant outcomes showed that patients under FFS PCPs had lower care utilisation. No significant relationships were observed for studies comparing FFS and salary payments or investigating mixed payment models.

Conclusions:
This is the largest and most up-to-date study evaluating commonly used payment methods in terms of patient healthcare utilisation, and may serve as preliminary evidence in guiding policy reforms. Further research should employ more rigorously controlled designs, longer follow-up periods, and a wider range of quality outcomes to establish stronger conclusions.
Out-of-pocket payment and health insurance utilization by migration status in China

Ms Wanyue Chen¹, Dr Lucy Porter Jordan¹

¹Department of Social Work and Social Administration, The University of Hong Kong, China

Background:
In China, migrants and non-migrants, categorized by the possession of local household registration (i.e., hukou), obtain different health insurance benefits and procure diversified support from the healthcare system. Previous studies identified that migrants received less reimbursement than local residents, and were not well protected by health insurance, but limited studies attempt to examine the association between migration and out-of-pocket payment of medical expense (Zhang, Nikoloski & Mossialos, 2017; Qin, Pan & Liu, 2014; Chen, Zhang, Renzaho, Zhou, Zhang & Ling, 2017; Zhao et al., 2014). The current study seeks to fill this gap. Diversified health insurance programs may influence the effect of hukou-based migration on out-of-pocket, which will also be examined.

Methods:
We used one wave of data from China Family Panel Studies (2014, N = 19,133). Multiple linear and logistic regression models were applied. Subsamples were created by insurance participation to explore the heterogeneous effect. Migration coefficients were compared across groups through testing interactions and conducting Chow tests.

Results:
The main findings are as follows. Migration decreased the likelihood of utilizing reimbursement by 35%. Migrants had lower medical expenditure (b = -965, p = 0.018) and out-of-pocket cost (b = -426, p = 0.014), but higher out-of-pocket ratios (b=0.05, p<0.001) than local residents, and this association with out-of-pocket ratios also existed in subsamples that participated in basic health insurances, although the coefficients across groups were not significantly different.

Conclusions:
The healthy migrant hypothesis might explain why migrants cost less, but migrants still received insufficient support from health insurance which indicates long-term financial and health risks. Currently, one in every four Chinese people are migrants, but hukou-based health policies excluded migrants from Universal Health Coverage. The small-scale migrant-oriented policies that were established in recent years shall be expanded and benefit more people.
A system dynamic model of medical expenditure growth in public hospitals in China and an empirical study in Shanghai

Dr XUECHEN XIONG

School of Public Health, Fudan University, China

Background:
In recent years, China’s medical and health undertakings have developed rapidly. The excessively rapid growth of medical expenses brings about the increasing burden of medical expenses of residents and the waste of medical resources. This paper aims to identify the extent to which the changes in population, economy, disease spectrum, and the induced behavior caused by the inadequately compensated doctors contribute to the increase of medical expenses in public hospitals in Shanghai.

Methods:
Using the theory and method of system dynamics, a quantitative model of capital flow of public hospitals was constructed under the policy environment of China. The historical data of medical expenses in Shanghai for ten years were collected and the empirical analysis was carried out in Shanghai.

Results:
From 2010 to 2019, the total cost of public hospitals in Shanghai increased by 114.3 billion Yuan. The increase of financial input accounted for 13% of the total increase of medical expenses in public hospitals in Shanghai. The growth caused by external environmental factors such as population, disease and economy accounted for 51%, and the growth caused by inadequate compensation of doctors’ income accounted for 36%.

Conclusions:
From the perspective of hospital capital flow, this paper constructs the internal circulation path of hospital expenses, which helps to understand the game path of various stakeholders in the process of hospital capital flow and provides a model basis for evaluating the influence path and effect of non-policies and policy influencing factors on medical expenses.
CONCURRENT PANELS

ORAL PRESENTATIONS

TUESDAY, 16 NOVEMBER 2021

10:55 – 11:55am (GMT+8)

SESSION 2
SESSION 2.1

HEALTH RISK BEHAVIOUR AND NON-COMMUNICABLE DISEASES

TUESDAY, 16 NOVEMBER 2021

10:55 – 11:55am (GMT+8)

VIRTUAL ROOM B1
Social media marketing practices by alcohol brands and drinking venues: influence on youth drinking

Ms Rufina H.W. Chan¹, Prof Dong Dong¹, Ms Jiazhou Yu¹, Prof Jean H. Kim¹
¹JC School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong SAR

Background:
Young adults are highly active users of social networking sites. Past studies have shown that social media use is correlated with the use of illicit drugs and tobacco. In recent years, the alcohol industry has scaled up its digital advertising expenditures on sites such as Facebook with broad-reaching campaigns to encourage youth drinking. This study examines social media marketing strategies targeting Hong Kong young adults by popular alcohol brands and drinking venues.

Methods:
A mixed-method content analysis of 974 social media posts published by ten alcohol brands and four alcohol-serving venues on Facebook in 2011–2019. Descriptive statistics were conducted to understand the prevalence of social media alcohol marketing strategies.

Results:
The sample contained 639 alcohol brand posts (217.0 reactions and 7.8 shares per post). The main marketing practices involved were linking products with a specific consumption time and place (40.2%) and with branded events that occurred offline, or “real-world tie-ins” (36.3%). The main theme invoked was crafting an identity (80.1%) by associating drinking with an aspirational lifestyle (25%). For venues, 335 posts were captured (16.9 reactions and 1.7 shares per post). The main practices employed were associated with time and place (60.3%) and real-world tie-ins (36.4%). The main themes were crafting an identity (85.1%) by associating drinking with a party setting (53.4%) and celebratory events (30.4%). Over 70% of the posted comments were positive and suggestive of alcohol consumption. Of note, only 8.1% of the posts by brands and none by the venues contained messages promoting responsible consumption.

Conclusions:
The absence of ‘responsible drinking’ messages combined with the promotion of social drinking images where binge drinking commonly occurs is likely to encourage heavy alcohol consumption in this age group. Government health authorities should consider establishing regional, evidence-based policies on alcohol social media marketing.
Quitting is such a sweet sorrow: A grounded theory study of unassisted smoking cessation among Filipino adult smokers

Dr Agnes Raymundo¹, Ms Jochelle Sylvia Domingo¹, Ms Kirtana Dasi Reyes¹, Ms Cathrine Kaye Villegas¹, Mr Allison Joseph Icarangal¹

¹College of Nursing, Manila Central University, Philippines

Background:
Cigarette smoking is the foremost avertible cause of mortality globally. Prevention and cessation remain effective public health measures to reduce the harmful effects. The paper aimed to explore the cessation process of a selected group of Filipino adult smokers who have successfully quitted without assistance.

Methods:
The study employed the Glaserian grounded theory design. It was conducted in the national capital of the Philippines. The purposive sample (N-25) consisted of male and female Filipino adults, 30 – 50 years old, and who quitted smoking without assistance. The data were collected through face-to-face interviews. The validation techniques of members' checks and critical friends were used to ensure the trustworthiness of the study. Bracketing, horizontalization, and resonance were employed to increase the rigor of the inquiry.

Results:
Through constant comparing and aggregating the codes, four themes unfolded that describe the phases of unassisted smoking cessation that the study participants experienced, namely: Catalyzing phase, Channeling phase, Cultivating phase, and Characterizing phase. The presence of identifiable catalysts that motivated them is seen as the foundation for a successful quitting. Though driven by their motivations, they faced certain struggles, which they managed by channeling these challenges that enabled them to make quitting important enough to sustain in the long-term. Quitting became more appealing, facilitating and vital as smoking cessation cultivated positive outcomes. They ultimately characterized their success by being exemplars.

Conclusions:
A model was developed grounded on the data collected that could provide rich information about the complex and highly variable process of unassisted smoking cessation. This study provides the framework and evidence for emboldening health professionals to play important roles in advocacy and advisory concerning unassisted smoking cessation. Processes that facilitate change must be explored and identified, as they are vital in the development of effective health promotion interventions.
Ecological momentary assessment for the exposure to alcohol advertisements and promotion of alcohol drinking culture in university students

Ms Minjin Zhang¹, Dr Yee Tak Derek Cheung¹, Dr Qi Wang¹, Ms Bonnie Xin Yan Wu¹, Dr Sai Yin Daniel Ho², Prof Tai Hing Lam²

¹School of Nursing, The University of Hong Kong, Hong Kong, ²School of Public Health, The University of Hong Kong, Hong Kong

Background:
Alcohol marketing, including advertisement and promotion of alcohol drinking culture, is ubiquitous and easily accessible by young adults in Hong Kong. This study used ecological momentary assessment to assess young adults’ exposure to alcohol marketing and its effect on drinking behavior and appeals of alcohol marketing.

Methods:
We conducted a two-group observation study in current drinkers recruited from universities in Hong Kong. Participants in the EMA group installed an EMA smartphone app in their smartphone for 5 time-based system-triggered EMAs for 14 consecutive days. In each EMA prompt, participants documented their exposure to and response to alcohol marketing, alcohol consumption, and purchase of alcohol in the past 3 hours. The appeals of alcohol marketing were measured at the 5th EMA for each day. A generalized estimating equation was used to assess the association between these variables. Further use lagged analyses, daily alcohol marketing exposure, and daily appeal of alcohol marketing 1-day prior predict daily alcohol consumption.

Results:
49 current drinkers responded to 2529 EMA prompts (compliance 73.3%). The mean episode of exposure to alcohol marketing, drinking, and purchase of alcohol was 3.8, 3.2, and 1.2 times. Exposure to alcohol marketing was positively associated with drinking (AOR 2.52, 95%CI 1.70-3.75) and purchasing alcohol (AOR 4.20, 95%CI 2.66-6.61). Daily alcohol marketing exposure at day T also significantly predicted daily drinking (AOR 1.37, 95%CI 1.01-1.85) and daily purchasing alcohol (AOR 1.47, 95%CI 1.10-1.97) at day T+1. Daily alcohol marketing exposure increased the agreement of alcohol marketing increasing intention to drink/purchase alcohol, enticing to buy alcohol, and tempting to participate in promoting drinking events, but the associations were not statistically significant.

Conclusions:
Exposure to alcohol marketing is positively associated with drinking behaviors. However, further study with a larger sample size is needed to study the effect of alcohol marketing on the appeal of alcohol marketing.
Chronic disease knowledge among migrant workers in Singapore

Ms Annabelle Pan¹, Ms Hui Xiang Chia², Ms Min Xian Wang², Dr Jeremy Lim²

¹Medicine, Johns Hopkins University School of Medicine, United States, ²Saw Swee Hock School of Public Health, National University Singapore, Singapore

Background:
Chronic disease knowledge can influence an individual’s ability to effectively prevent and manage metabolic diseases such as diabetes, hypertension, and hyperlipidemia. Migrant workers in Singapore, an under-resourced population with high levels of undiagnosed chronic disease, may benefit from chronic disease education and outreach efforts. This exploratory pilot study examines the distribution of chronic disease knowledge amongst migrant workers in Singapore by using a convenience sample of individuals visiting a migrant worker healthcare center.

Methods:
A cross-sectional, interviewer-administered survey was carried out with 229 international migrant workers visiting HealthServe, a clinic located in Geylang, Singapore that exclusively serves migrant workers. The survey contained a self-designed questionnaire asking participants about their knowledge of chronic diseases, with a focus on diabetes, hypertension, and high cholesterol. Correct responses to 25 questions were added to form a total score. Logistic regression was used to assess predictors of adequate chronic disease knowledge.

Results:
The vast majority of participants identified themselves as Bangladeshi (92.6%), while less than 10% identified as either Indian, Malaysian, or Chinese. The mean age of respondents was 36 years, and one-third of respondents had at least one of the chronic conditions of interest (diabetes, hypertension, and hyperlipidemia). An attention-check question was answered correctly by 94% of respondents. The mean total score was 20 correct out of 25. Preliminary analysis showed that migrant workers with chronic disease morbidity had higher odds of having chronic disease knowledge (OR, 3.74; 95% CI, 1.42-9.80; p <0.05) as compared to those with no chronic disease. A similar pattern is observed among those with younger age (p< 0.05).

Conclusions:
In general, migrant workers visiting HealthServe are well informed about chronic diseases, particularly those who are older or have a chronic disease. Certain areas that are slightly weaker could be targeted by future education and outreach programs.
SESSION 2.2

URBAN ENVIRONMENTS

TUESDAY, 16 NOVEMBER 2021

10:55 – 11:55am (GMT+8)

VIRTUAL ROOM B2
The role of natural environments in the effectiveness of a mindfulness-based stress reduction (MBSR) programme: Psychological and physiological responses to stress

Dr Eun Yeong Choe

Urban Planning and Design, The University of Hong Kong, Hong Kong

Background:
To date, there is a considerable amount of evidence on the positive effects of exposure to natural environments on mental health and wellbeing. Research has been slow to explore them.

Methods:
Participants (n = 99) were randomly assigned to a weekly one-hour MBSR in one of three different environments (i.e., natural outdoor, built outdoor and indoor environments) over a six-week period. They were asked to complete a questionnaire four times during the research period before MBSR (T0), during MBSR (T1), after MBSR (T2) and one-month follow-up (T3). The questionnaire contained questions on DASS-21 and demographic details, such as age and gender. Moreover, participants who completed at least five MBSR sessions were invited to donate their hair samples to measure the physiological changes of stress levels.

Results:
The results of DASS-21 showed that all three groups experienced changes in levels of depression, anxiety and stress during the intervention. Particularly, participants’ depression and stress levels were more decreased in the natural outdoor environment, compared to other environments. However, no significant differences in hair cortisol concentration (HCC) between the environments were found.

Conclusions:
This study offers valuable insights into the role of natural environments in the effectiveness of a therapeutic intervention. The findings have applications relevant to clinical settings for the treatment of mental health issues, or where the alleviation of stress, anxiety or pain is a priority.
Social vulnerability, stressors and adaptive strategies among migrant workers in Singapore

Ms Aysha Farwin, Dr Huso Yi, Ms Amanda Low, Dr Natasha Howard

1 Saw Swee Hock School of Public Health, National University of Singapore, Singapore

Background:
Migrant workers make up approximately 4.8% of the global labour force of 167 million workers. Despite their contributions to the development of the receiving countries, low-wage migrant workers are not adequately protected by the labour and health policies putting them at risk of precarious working conditions and adverse health outcomes. The study aims to identify the sources of stressors and explore the interplay between social vulnerabilities and adaptive strategies to health risk among low-wage dormitory-dwelling migrant workers in Singapore.

Methods:
In-depth interviews with 33 migrant workers that focused on their living conditions, individual and collective social capital of migrant workers, and health risks and practices were conducted by the research team. Interpretive thematic analysis was used to identify the sources and pathways of vulnerabilities, their impacts on health and their strategies to overcome the hardships.

Results:
Major stressors that resulted in the susceptibility of migrant workers to adverse health outcomes were predominantly structural in nature, including inadequate labour protection, dire living conditions, barriers to healthcare access, food insecurity and social isolation. In addition, employer gatekeeping of healthcare and over-reliance on employers for essential needs disempowered migrant workers and caused them to adopt maladaptive coping strategies to deal with their everyday experiences.

Conclusions:
Non-inclusive protection systems were underlying sources of vulnerabilities, further propagated by their living conditions, making migrant workers susceptible to health risks. Collective agency needs to be developed to respond to the risk posed by these environments. Resilient health systems should be inclusive and focus on mitigating the harms caused by socio-environmental vulnerabilities of underserved populations.
Neighbourhood health niche and well-being related behaviour change after COVID-19 pandemic

Mr Siyu Chen¹, Dr Ying Chang¹, Dr Jack Benton²

¹Design School, Department of Urban Planning and Design, Xi'an Jiaotong-Liverpool University, China, ²School of Health Sciences, Manchester Centre for Health Psychology, University of Manchester, United Kingdom

Background:
The quality of open space within the neighbourhood becomes crucial post-COVID-19 pandemic. This paper enriches the concept of health niche (Sarkar et al., 2014) by relating well-being-related behaviour with small neighbourhood open space configuration.

Methods:
The dataset is 216 hours of video observation of elderly’ activities in 9 different open spaces of resettlement neighbourhoods. The baseline was in October of 2019 and follow-up was in October 2020. The sampling of sites has two levels: density and location.

The Wilcoxon signed-rank test was used to compare the total number of older adults observed per hour pre- and post COVID-19, by five well-being-related behaviours: walking, connecting, vigorous exercise, taking notice, and sedentary activities (Benton et al. 2018).

Results:
There was a decrease in the total number of older adults observed per hour from pre COVID-19 (median = 14.5, IQR = 21.5) to post COVID-19 (median = 12.5, IQR = 21.5). The test showed that these differences were significant (Z = -2.774, p=.006).

For high density, the Wilcoxon signed rank test showed that these differences were only significant in sedentary and vigorous activities but not significant in walking, connecting, and taking notice. The decrease was not significant for medium-density neighbourhoods, except in taking notice of activity.

For location, the decrease of elderly was only significant in open spaces near doorsteps, which saw a significant decrease in total elderly but only in sedentary, walking and vigorous activity.

Conclusions:
The study found an absolute decline in elderly outdoor activities within the neighbourhood. The health niche being affected the most by the COVID-19 pandemic is open space at the doorstep, particularly of high-rise buildings. The main change in the built environment is the government’s prohibition of informal self-made sitting furniture, as a social distancing control measure. This measure should be revisited to restore the health niche of the elderly.
Healthy ageing and socio-physical environments: 
Re-designing high-rise housing estates in compact Hong Kong

Prof Rebecca L.H. Chiu¹, Dr Bo Kyong Seo

¹Faculty of Architecture, The University of Hong Kong, Hong Kong SAR

Background:
The paper aligns with WHO’s call for concerted global actions to achieve healthy aging. It aims to provide sustainable physical and social environments to enable healthy ageing by investigating and enhancing the contribution of mixed age high-rise housing estates of compact cities like Hong Kong and by recommending more socially sustainable estate planning, design and management principles and practices.

Methods:
Applying the concept of social sustainability of housing, data were collected from a questionnaire survey of 600 residents living in eight different and mixed-age high-rise housing estates. Chi-square test and ANOVA identified how the use of, and satisfaction with, the estate facilities differ across different age groups. Multiple linear regression analyses examined whether and how people’s use of and satisfaction with the facilities/services were associated with perceived social and realistic physical environments.

Results:
The use and assessment of housing estate facilities were similar across all age groups except the use of recreation facilities and restaurants. Residents who commended neighbourliness usually perceived open space as helpful in facilitating neighbor interaction, liked natural features, felt safer with more residents around, and complimented the quality and accessibility of community facilities. Residents who felt safe were those who found the management office supportive and helpful, public facilities good and accessible, and natural green features provided in their estate. Residents who felt unsafe with outsiders using the shopping centres opined their housing estates possessed special character.

Conclusion:
The physical and social environments of high-rise housing estates help facilitate healthy ageing, particularly for sustaining functional ability and mental wellbeing. Estate planning and design must prioritise the quantitative and qualitative provision of open space, natural features, accessibility and quality of community facilities for nurturing neighbourliness, not only meeting daily needs. Apart from maintaining physical estate quality, estate management must also prioritise residents’ sense of safety and supportiveness.
SESSION 2.3
DIGITAL TECHNOLOGY
TUESDAY, 16 NOVEMBER 2021
10:55 – 11:55am (GMT+8)
VIRTUAL ROOM B3
How are countries using technologies to enhance health literacy on noncommunicable diseases (NCDs)? A global situational analysis

Ms Cynthia Sin Nga Lam1,2, Prof Richard Osborne3, Dr Guy Fones2
1Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong, Hong Kong SAR, 2Global Coordination Mechanism on NCDs (GCM/NCD), World Health Organization, Geneva, Switzerland, 3Centre for Global Health and Equity, Swinburne University of Technology, Melbourne, Australia

Background:
The Shanghai Declaration on Health Promotion 2016 highlights health literacy as a key health promotion pillar. Member States committed to “increas[ing] individuals’ control of their own health and its determinants, through harnessing the potential of digital technology.” Harnessing technologies and improving health literacy are instrumental to achieving universal health coverage. This study aims to:
(1) Review how countries harness technology to improve population health literacy on NCDs;
(2) Document the challenges in eHealth literacy (eHL) implementation;
(3) Explore what constitutes a good practice of NCD eHL.

Methods:
850 surveys were distributed across WHO, High-level Commission on NCDs network and academic focal points. 58 responses from 43 countries were returned, gathering experiences across NCD health literacy. Respondents were asked about their use of technology for NCD health literacy. 10 semi-structured interviews investigated the challenges faced by Member States while implementing eHL and the focus areas they prioritised. A situational analysis was conducted on the collected data. Qualitative data were analysed using open-coding with Nvivo 12 software to identify themes. The country initiatives were also analysed through the lens of the eHL framework.

Results:
Thematic analysis showed 5 main groups of technologies are being used. Social media was the most frequently used resource. Mass-media information dissemination, one of the NCD “best-buys” (WHO, 2017), was the most common type of intervention. The need for supportive infrastructure, contextual interventions and impact evaluation frameworks was highlighted. The analysis of initiatives using the eHL framework revealed adequate attention to the 2 domains dependent on the individual, yet inadequacy in addressing domains dependent on the system (access and suiting individual needs) and interactions between the individual and the system.

Conclusions:
While political commitment seeks to advance eHL efforts, stronger infrastructure and contextualization are essential for eHL to deliver impacts on NCDs.
The role of telehealth interventions on clinical outcomes in patients with chronic hepatitis C infection: A systematic review

Ms Lok Yee Jane Lam¹, Dr Hui Ling Yen¹

¹School of Public Health, The University of Hong Kong, Hong Kong SAR

Background:
Despite the development of effective treatments and vaccines, chronic viral hepatitis remains the predominant cause of liver cirrhosis and hepatocellular carcinoma. Only 1% have adequate access to treatment globally. Telemedicine has gained wider attention during COVID-19 and has been proposed as an alternative to traditional healthcare modalities. This review examined and synthesized available data on the impact of telemedicine on health outcome and patterns of usage of healthcare services in chronic HCV patients, aiming to provide evidence for potential telehealth interventions in improving accessibility to HCV treatment.

Methods:
Databases including PubMed and EMBASE were searched to compare the impact of telemedicine vs. standard care on chronic HCV patients’ rates of sustained virologic response, treatment completion rates and loss to follow-up. The qualities of included studies were assessed by a mixed methods appraisal tool. Relative risk (RR) estimates were pooled by meta-analyses and stratum-specific analyses were performed to evaluate differences by nationality and telemedicine modalities.

Results:
Twelve observational studies conducted in Canada, the United States, Australia, Taiwan and Mexico were included. Sustained virologic response rates attained in telemedicine were equivalent to that attained in traditional healthcare modalities. The pooled RR of sustained virologic response rates in participants treated by telemedicine was 0.864 (95%CI: 0.769-0.960). Compared to standard modalities, chronic HCV patients receiving telemedicine had a higher compliance rate (pooled RR of treatment completion rate: 0.541 [95%CI: 0.256-0.826]), lower dropout rate (pooled RR of loss to follow-up: 0.555 [95%CI: 0.132-0.978]). Major barriers in standard modalities included geographic inconvenience, financial constraints, and psycho-social challenges.

Conclusions:
Telemedicine for HCV management yields equivalent clinical outcomes to standard care, while circumventing the limitations of geographic and economic barriers. Its roles in facilitating in-between visit monitoring and promoting health empowerment have been demonstrated. Further research is yet required to determine optimal ways for telemedicine integration into routine clinical care management.
The development of a smart health technological framework for improving the health of ageing population in the Smart City (Hong Kong)

**Dr Tak Wing Tsui**, Prof Sai Chung Ip, Ms King Nam Hung, Ms Tsui Wa Tam, Ms Wai Fan Cheng

1. Shape, Vocational Training Council, Hong Kong SAR, 2. Department of Marketing, Hang Seng University, Hong Kong SAR, 3. Quality Assurance, HKU School of Professional and Continuing Education, China, 4. Marketing, VTC Marketing and Advertising Alumni Association Ltd., Hong Kong/China

Background:
The purpose of this research is to study the use of innovative technologies in developing an innovative Smart Health technological framework for ageing population. This framework can enhance health education and increase knowledge of preventive measures.

The health of ageing population is becoming one of the major concerns in Hong Kong. According to the population projections by Census and Statistics Department, the number of elderly persons aged 65 and over is projected to increase from 1.16 million (17% of the total population) in 2016 to 1.82 million (25%) in 2026. According to the second edition of Smart City Blueprint for Hong Kong (Blueprint 2.0), the vision is to embrace innovation and technology to build a world-famous Smart Hong Kong and the mission includes providing better care for the elderly and making people happier and healthier.

Methods:
Tsui, Pang and Cheng (2015) and Tsui et. al. (2020) have developed an innovative technological framework for ageing population. In the framework, different innovative technologies (such as mobile technologies, cloud computing, search engines, online health portals, social media and networks, wearable health devices) are applied for improving the quality of life of ageing population. This framework is continuously being enhanced to include artificial intelligence, online medical services and Internet of Things for developing an innovative Smart Health technological framework for this research.

Results:
This framework was successfully applied at the course ‘Live Nutritiously Regimen and Technology’ run by the Elder Academy of a local university and has proven to improve the health education of an ageing population.

Conclusions:
The research findings can be applied across a range of public health and education stakeholders for improving the health education as well as the health of ageing population in Hong Kong.
Cross-regional collaboration to promote digital mental health equity in the Asia Pacific in the context of COVID-19

Dr Jill Murphy¹, Dr Erin E. Michalak², Dr Andrew Greenshaw³, Prof Chee H. Ng⁴, Dr Arun Ravindran⁵, Dr Mellissa Withers⁶, Dr Promit Ananyo Charkraborty⁷, Dr Raymond W. Lam⁸

¹Psychiatry, The University of British Columbia, Canada, ²Psychiatry, The University of British Columbia, Canada, ³Psychiatry, University of Alberta, Canada, ⁴Psychiatry, University of Melbourne, Australia, ⁵University of Toronto, Psychiatry, Canada, ⁶Institute on Inequalities in Global Health, University of Southern California, USA, ⁷Psychiatry, University of British Columbia, Canada, ⁸Psychiatry, University of British Columbia, Canada

Background:
The COVID-19 pandemic has led to an unprecedented shift to the use of digital mental health technologies. While this presents an opportunity to improve access to care, there is a risk of excluding populations experiencing barriers to digital health access. The APEC Digital Hub for Mental Health (‘the Digital Hub’) and the Research on Mental Health Equity in the Asia Pacific-Digital Research Cluster (REMAP-Digital) have developed a cross-regional collaboration to advance research on digital mental health equity in the Asia Pacific. The objectives of this presentation are: 1) to present the results of a study identifying barriers and opportunities for equitable digital mental health care; and 2) to introduce opportunities for cross-regional collaboration.

Methods:
We use a mixed method, modified Delphi consensus approach consisting of consultations with policy makers (n=8), healthcare providers (n=7) and people with lived experience (n=8), and an online survey (n=2578). We used thematic analysis to identify key themes emerging from the consultations. Survey analysis consisted of descriptive statistics, T-tests and ANOVA to identify associations between the relevant key variables.

Results:
Results identified 1) several populations at risk of experiencing access barriers to digital mental health care 2) key access and delivery barriers from the perspective of service users and providers 3) resources and approaches needed to improve equitable digital care access.

Conclusions:
Digital mental health presents an opportunity to improve access to care, but its delivery must prioritize access by vulnerable populations. Cross-regional recommendations for best practices can help to support the equitable delivery of digital care. The collaboration led by the Digital Hub and REMAP-Digital cluster has great potential to advance evidence to guide Asia Pacific countries to maximize the delivery of equitable digital mental health care.
SESSION 2.4

INFECTIONOUS DISEASES

TUESDAY, 16 NOVEMBER 2021

10:55 – 11:55am (GMT+8)

VIRTUAL ROOM B4
Understanding the knowledge, awareness and perceptions of the gut microbiome and FMT in Singaporean adults

Ms Lydia, Wan Zhen Lim¹, Ms Rachel Quek², Ms Kai Yee Toh¹, Dr Jeremy Lim³

¹Laboratory and Operations, AMILI Pte Ltd, Singapore, ²Marketing and Research, AMILI Pte Ltd, Singapore, ³Saw Swee Hock School of Public Health, National University of Singapore, Singapore

Background:
Recent scientific developments have suggested Fecal Microbiota Transplantation (FMT) as a promising treatment modality for diseases as diverse as Inflammatory Bowel Disease and autism. Recent studies have also highlighted the importance of the gut microbiome in many common diseases such as diabetes. Nonetheless, the level of public knowledge and perceptions of the gut microbiome (GM) and FMT remain unclear. This study aims to identify the degrees of knowledge, awareness and perception in Singaporean adults regarding human gut microbiome and FMT, which would allow the implementation of education programmes that effectively inform target groups.

Methods:
A 19-question online survey was administered to 1831 Singaporean adults from the Singapore Population Health Studies Online Panel, a population-based cohort consisting of Chinese, Malay and Indian participants. The questionnaire provided information about FMT and GM, and surveyed participants’ knowledge and perceptions of both topics.

Results:
Only 32.6% of participants have ever heard of GM before. However, 92.7% have consumed probiotic drinks, of which almost half consumed for gut health. 84.8% have not heard of FMT before, but 72.0% would consider undergoing FMT to treat CDI. 58.1% chose colonoscopy over the nasal passage as the preferred mode of FMT. Preference for oral medication (57.2%) and being uncomfortable with the concept of FMT (54.1%) were the main reasons behind refusing FMT. 52.1% were much more inclined to accept FMT if orally administered in capsule-form. Willingness to receive FMT depended on recommendation from healthcare providers (77.1%) and clinical studies (59.7%).

Conclusions:
Awareness regarding GM and FMT were relatively low despite high engagement amongst participants in behaviours that improve gut health. Strategies to raise awareness may focus on the benefits of GM to cater to an increasingly health-conscious society. Barriers to accepting FMT may be overcome by making validated sources of information readily available for the public.
Angiotensin-converting enzyme inhibitor versus angiotensin receptor blocker use on pneumonia-related outcomes: A population-based study

Mr Jeremy Hui1, Mr Jiandong Zhou2, Ms Athena Lee3, Mr Oscar Chou1, Mr Teddy Lee4, Dr Tong Liu5, Dr Abraham Wai6, Prof Bernard Cheung1, Prof Gary Tse6, Prof Qingpeng Zhang2

1Department of Medicine, The University of Hong Kong, Hong Kong SAR, 2School of Data Science, City University of Hong Kong, Hong Kong SAR, 3Department of Medicine & Therapeutics, The Chinese University of Hong Kong, Hong Kong SAR, 4Emergency Medicine Unit, The University of Hong Kong, Hong Kong SAR, 5Department of Cardiology, Second Hospital of Tianjin Medical University, China, 6Department of Medicine, Kent and Medway Medical School, United Kingdom

Background:
Angiotensin-converting enzyme inhibitors and angiotensin receptor blockers are commonly used in managing hypertension and heart failure. Conventionally, patients prefer angiotensin receptor blocker over angiotensin-converting enzyme inhibitor given its side effect of coughing. The cough, however, may protect patients against pneumonia. The association between pneumonia and influenza and long-term exposures of angiotensin-converting enzyme inhibitors versus angiotensin receptor blockers remained unclear.

Methods:
This is a retrospective population-based cohort study using territory-wide healthcare data in Hong Kong. The study period was from January 1, 2000 to August 31, 2020. Angiotensin-converting enzyme inhibitor or angiotensin receptor blocker users were included and matched using a propensity score at 1:1 ratio. The follow-up started after a one-year lag time from drug initiation until outcome, death, or end of study. Risks of new-onset adverse pneumonia outcomes of bacterial, viral, and influenza infections were estimated using Cox proportional hazards models. Subgroup analysis was stratified by the follow-up time since drug initiation.

Results:
379201 patients (54436 angiotensin receptor blocker users and 324765 angiotensin-converting enzyme inhibitor users) were identified. In the matched cohort (N = 108872), angiotensin receptor blocker use was associated with significantly higher risks in new-onset pneumonia and influenza (hazard ratio: 5.73, 95% confidence interval: [4.49-7.32], P-value < 0.001), bacterial lung infection (hazard ratio: 4.17, 95% confidence interval: [2.94-5.91], P-value < 0.0001), viral lung infection (hazard ratio: 4.02, 95% confidence interval: [1.83-8.83], P-value = 0.0005), in particular influenza infection (hazard ratio: 9.84, 95% confidence interval: [6.61-14.63], P-value < 0.0001). The risks of angiotensin receptor blocker prescription were consistently more severe than angiotensin-converting enzyme inhibitors for both outcomes.

Conclusions:
Longer exposures of angiotensin receptor blockers, compared with angiotensin-converting enzyme inhibitors, demonstrated significantly higher risks for adverse pneumonia and influenza risk, and pneumonia and cardiovascular-related mortality. Angiotensin-converting enzyme inhibitor discontinuation is not recommended should the coughing be tolerable.
Human Immunodeficiency Virus (HIV) drug resistance in Southeast Asia: Prevalence, determinants and strategic management

Ms Hui Xiang Chia1, Ms Khin Chaw Ko1, Dr Si Ying Tan1, Dr Rayner Kay Jin Tan1, Dr Jeremy Fung Yen Lim1

1 Saw Swee Hock School of Public Health, National University of Singapore, Singapore

Background:
Human immunodeficiency virus (HIV) drug resistance is the ability of HIV to mutate such that it reduces the ability of antiretroviral drugs to block virus replication. This can lead to suboptimal treatment outcomes, treatment failure and continued community transmission of drug resistant HIV strains. The rapidly rising HIV drug resistance rates in low- and middle-income countries pose a critical challenge to ending the HIV epidemic. Across at-risk populations in low- and middle-income countries, HIV transmitted drug resistance prevalence almost doubled from 2004-2008 to 2009-2013 (Pham et al., 2014). In Southeast Asia, where national surveillance of HIV drug resistance is lacking, there is an urgent need to understand this public health issue to effectively curb HIV.

Methods:
Desk research and interviews with key informants from each Southeast Asian country were conducted to understand the trends of HIV drug resistance in Southeast Asia, including prevalence rates, factors causing drug resistance, and policy strategies for combating HIV drug resistance.

Results:
HIV drug resistance prevalence rates in Southeast Asia are generally low and caused by programmatic, patient-related, drug-related and viral factors. Most Southeast Asian countries have adapted WHO treatment guidelines and are in the process of transitioning to using antiretroviral drugs with higher genetic barriers to resistance. However, resource constraints and limited laboratory capacity have hindered their ability to conduct routine viral load monitoring for all patients and nationally representative surveys of HIV drug resistance.

Conclusions:
Most Southeast Asian countries are making good progress in their prevention and response strategies and governance mechanisms for addressing HIV drug resistance. However, to achieve the UNAIDS global target of maximal viral load suppression in 90% of all people receiving antiretroviral therapy, Southeast Asian countries need to strengthen their monitoring and surveillance of HIV drug resistance, in part through building laboratory capacity.
Characterizing and forecasting common infectious diseases in China: A time series analysis

Mr Zonglin Dai, Dr Eric HY LAU

School of Public Health, The University of Hong Kong, Hong Kong SAR, Laboratory of Data Discovery for Health, Hong Kong Science and Technology Park, Hong Kong SAR

Background:
Common infectious diseases affect over 5 million people in China every year. In this study, we characterized the 10 most common infectious diseases, and performed a short-term forecast of the disease burden.

Methods:
We analyzed the monthly cases of the 10 most common notifiable infectious diseases from the Chinese Center for Disease Control and Prevention, from January 2004 to April 2021. Autoregressive integrated moving average (ARIMA) model and Holt-Winters’ multiplicative damped trend method was fitted and used to forecast the monthly cases in the following 5 years. Spectral analysis was used to characterize the spectral density.

Results:
Hand-foot-and-mouth disease, influenza, hepatitis disease, tuberculosis, syphilis, epidemic parotitis, gonorrhea, dysentery, scarlet fever and acquired immune deficiency syndrome (AIDS) ranked the top 10 infectious diseases with the highest total number of cases in China in the past five years. The annual number of cases of the 10 top infectious diseases has increased by 160% from 2004 to 2019 with 8.8 million people infected but dropped by 48% in 2020 during the COVID-19 pandemic. Holt-Winters’ multiplicative damped trend method and spectral analysis were used to model hepatitis A virus and influenza respectively, while the other 8 infectious diseases were modelled using ARIMA model. We predicted the annual cases of AIDS and syphilis will increase by 34% and 17% in the next 5 years, whereas dysentery would see a dramatic decrease of 55%. Other diseases were predicted to remain stable over the next 5 years. The spectral analysis suggested strong annual seasonality in influenza.

Conclusions:
AIDS and syphilis are predicted to increase, whereas dysentery is predicted to decrease in the next 5 years in China. Other top infectious diseases would likely remain stable in the near future. Enhanced control measures may be needed to reduce the disease burden.
CONCURRENT PANELS

ORAL PRESENTATIONS

WEDNESDAY, 17 NOVEMBER 2021

10:35 – 11:35am (GMT+8)

SESSION 3
SESSION 3.1

INFECTIOUS DISEASES

WEDNESDAY, 17 NOVEMBER 2021

10:35 – 11:35am (GMT+8)

VIRTUAL ROOM B1
Background:
Despite the recommendation of seasonal influenza vaccination (SIV) for the elderly, vaccine effectiveness (VE) remains doubtful among this age group. Evidence regarding VE is needed for justification and evaluation. We sought to develop pooled VE estimates using all-cause mortality as an outcome measure to provide better insights for VE evaluation.

Methods:
A systematic review was performed to identify observational studies reporting all-cause mortality as an outcome measure for the VE of SIV. We searched MEDLINE (Ovid) and EMBASE from inception to June 2020. Meta-analysis with random effects model for all-cause mortality was conducted. Heterogeneity and publication bias were assessed.

Results:
We identified 8 observational studies for systematic review and meta-analysis from a total of 1782 studies in the initial search. The pooled VE estimate of SIV among the elderly considering all-cause mortality as the outcome was 22% (95% CI 12% to 31%, p < 0.05). Significant heterogeneity (I² = 95.7%) was demonstrated. A large p-value (0.969) in Egger’s test and symmetrical funnel plot were observed.

Conclusions:
Pooled VE estimate of SIV considering all-cause mortality as the outcome was derived. The heterogeneity of our study could be due to differences among study characteristics and designs, vaccine strain match, underlying conditions and previous vaccination status. The funnel plot suggests no significant publication biases, while this study may still be prone to other possible biases such as reporting bias. Overall, a review of current evidence demonstrated significant VE of SIV among the elderly by reducing all-cause mortality, which could be utilised in the encouragement of SIV uptake by public health officials in the future.
Does poor awareness of antimicrobial resistance among general public and health professionals lead to high prevalence of it? A study in a Sri Lankan urban setting

Dr Yasodhara Gunasekara¹, Dr Thilini Nisansala¹, Dr Tierney Kinnision², Mr Isuru Wijewickrama¹, Dr Yasodha Basnayake¹, Dr Sandra Kottawatta¹, Prof Ayona Silva-Fletcher², Prof Ruwani Kalupahana¹

¹Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Sri Lanka; ²The Royal Veterinary College, University of London, United Kingdom

Background:
Antimicrobial resistance can be the next global pandemic. Because of high population density, urban areas will be more vulnerable. Urban wild animals may be exposed to antimicrobials through livestock, humans, and the environment. Hence, they could act as reservoirs and indicators of environmental contamination. This study aimed to investigate the antimicrobial resistance profile in Escherichia coli isolated from livestock and wild animals in an urban ecosystem and to investigate the knowledge, awareness and perception of antibiotics and antimicrobial resistance among general public and health professionals in an urban setting in Sri Lanka.

Methods:
A one-square kilometer area with potential antimicrobial resistance sources was selected. Freshly voided fecal samples were collected from livestock and wild animals. Isolation, identification of E. coli and antimicrobial sensitivity test was performed for 12 antibiotics according to standard protocols. A self-administered questionnaire was conducted among the general public and analyzed. Health professionals were interviewed by an independent interviewer and analyzed using thematic content analysis.

Results:
Out of all tested E. coli isolates, 54.4% and 46.7% isolates from livestock and wildlife were resistant to at least one antibiotic. The highest resistance was for Ampicillin (36%) followed by Tetracycline and Nalidixic acid. Only 26% of the general public had a good ability to identify antibiotics correctly and 40% of them thought they had poor knowledge on antimicrobial resistance. Ten major themes were identified including thoughts among health professionals regarding how antimicrobial resistance develops and spreads.

Conclusions:
Antibiotic resistance was observed for commonly used antibiotics in both livestock and wildlife in urban ecosystems. Both health professionals and the general public showed poor awareness regarding how antimicrobial resistance develops and spreads. This lack of awareness can lead to AMR development. Therefore, it is important to educate both health professionals and the general public regarding antimicrobial resistance in said setting in Sri Lanka.
Malaria in rural northern Uganda: A household survey of Malaria infection rates and common prevention strategies

Dr. Heather Wipfli, Ms. Sarah Phillips, Ms. Peninah Tumuhimbise, Mr. Kenneth Odur, Ms. Ally Koh, Ms. Kathy Lam, Ms. Maya Spencer, Ms. Valeria Flores-Cadena, Ms. Kayla Samimi, Ms. Abigail Kim

1Keck School of Medicine, University of Southern California, United States

Background:
Malaria continues to be one of the leading causes of morbidity and mortality in Sub-Saharan Africa despite years of preventative efforts. While over 80% of Ugandans have access to mosquito nets, Uganda is one of six countries that account for over half of global malaria cases (World Health Organization, 2019. World malaria report 2019. World Health Organization. https://apps.who.int/iris/handle/10665/330011. License: CC BY-NC-SA 3.0 IGO). Pregnant women are particularly vulnerable to malaria, due to increased susceptibility and reduced treatment options, making them a population of interest. This survey of 512 households assessed the efficacy and usage of tools commonly used in malaria prevention, namely mosquito nets and insecticides.

Methods:
In collaboration with the Peace Corps, community member volunteers aged 18-22, trained by Ray United Foundation Corp workers, distributed PC-provided mosquito nets and conducted surveys following receipt of consent from the heads of each household. Analysis was conducted in Qualtrics.

Results:
Of 512 households, 154 males and 179 females, 333/512 (65.03%) households, reported having malaria in the past six months; 187/330 (56.66%) used insecticides 2-3 times per year. 475/508 (93.32%) reported it was extremely difficult to access insecticides; 311/475 (65.47%) had malaria in the past six months. 71/511 (13.89%) were pregnant; 54/71 (76.05%) reported having malaria. 430/510 (84.31%) said they knew how to properly hang and use a mosquito net.

Conclusions:
The majority of the households that had reported having malaria in the past six months also had access to mosquito nets, suggesting that net access alone isn’t sufficient for malaria reduction. Insecticide access is another challenge, for reasons such as availability and high cost. Persistently high infection rates, particularly among pregnant women, suggest that new strategies are needed to reduce the burden of malaria in Uganda.
Health professionals with human immunodeficiency virus on antiretroviral therapy: A mixed design study

Ms Lheanne Ruth Castil1, Ms Renei Iza Niu1, Ms Carla Marie Calosa1, Ms Gia Margurette Cruz1, Dr Agnes Raymundo1

1College of Nursing, Manila Central University, Philippines

Background:
While health professionals have specific roles in the care and treatment of clients with human immunodeficiency virus, there is a growing cohort of infected health professionals in the Philippines on antiretroviral treatment. The study determined the level of knowledge, degree of disposition, and level of adherence of a select group of Filipino health professionals with human immunodeficiency virus to antiretroviral treatment. Moreover, the study explored their lived experiences while on antiretroviral treatment.

Methods:
The study employed the sequential explanatory mixed method of inquiry. It was conducted in a non-government human immunodeficiency virus support center. The purposive sample (N=30) consisted of Filipino health professionals diagnosed with non-occupational related human immunodeficiency virus. The study utilized the descriptive-correlational design for the quantitative phase. Data were collected using validated self-administered questionnaires developed by the researchers. The qualitative phase applied the descriptive phenomenology design using face-to-face, in-depth, semi-structured interviews. The hypotheses were tested using Fisher’s statistics. Colaizzi’s method was used to analyze the qualitative data.

Results:
The study revealed that participants had high levels of knowledge and adherence and a very high degree of disposition to antiretroviral therapy. There were no significant differences among the measured variables. Four themes emerged in the qualitative phase, namely: On antiretroviral therapy, it is a struggle, for antiretroviral therapy, it is a partnership, with antiretroviral therapy, there is anchorage, and through antiretroviral therapy, there is valuing of self. Study participants struggled with ambiguity while on antiretroviral therapy. However, with the immense support, they were able to assert control over their lives.

Conclusions:
A high level of adherence is required for antiretroviral therapy to be effective. Adherence to antiretroviral therapy entails client empowerment and a supportive environment. Continued research and key policy changes could greatly improve health outcomes for human immunodeficiency virus-positive health professionals.
SESSION 3.2

COVID-19

WEDNESDAY, 17 NOVEMBER 2021

10:35 – 11:35am (GMT+8)

VIRTUAL ROOM B2
Health-DRR nexus: Where is the Rub? A case study on the Philippines’ response to the COVID-19 pandemic

Dr Ebinezer Florano

1 National College of Public Administration and Governance, University of the Philippines, Philippines

Background:
This paper reviews the theoretical, legal, and operational links between health emergency management and disaster risk reduction (DRR) in the context of the COVID-19 pandemic. While the Sendai Framework for Disaster Risk Reduction recognizes epidemics and pandemics as among the biological hazards that should be addressed in DRR, there seems to be a disconnect in the way the world, and national governments treated DRR of the SFDRR and the Health Emergency Disaster Risk Management (Health-EDRM) framework adopted by the WHO in 2019. An initial study on the topic notes the “silo” between the two when it stated that “there is no mention of disaster at all within the WHO Coronavirus disease (COVID-19) technical guidance” and “it is not clear whether COVID-19 is leading to collaboration between the WHO and the UN Office for Disaster Risk Reduction.” At the country level, it has been noted that countries took dramatically different implementation approaches in managing the pandemic.

Methods:
This paper examines the theoretical, legal, and inter-operational relationships between DRR and Health-EDRM at the national and local levels as the Philippine government responds to the threats of COVID-19. The case at the national level and three case studies at the local level are analysed through key informants’ interview and document analysis.

Results:
The study found out that the COVID-19 pandemic management in the Philippines, whether at the national or local level, has been led mostly by the health sector. However, the DRR sector closely collaborates with it on a case-to-case basis because different local governments have different levels of pandemic management capabilities.

Conclusions:
There are still lingering questions whether the DRR sector should just focus on responding to disasters caused by natural hazards and/or still be at the forefront of pandemic management. If in the case of the latter, the follow-up question is – could and should its roles/tasks be standardized nationwide?
Association of smoking, lung function, and COPD in COVID-19 risk: A two step Mendelian randomization study

Dr SL Au Yeung\(^1\), Prof AM Li\(^2\), Dr B He\(^1\), Dr KO Kwok\(^3,4,5\), Dr CM Schooling\(^1,6\)

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Background:
Smoking increases the risk of severe COVID-19. However, it is unclear if it predisposes people to milder forms of COVID-19, which account for the majority of cases. Whether lung function or chronic obstructive pulmonary disease (COPD) mediate the underlying associations has not been comprehensively explored using Mendelian randomization.

Methods:
We conducted a 2 step Mendelian randomization study using summary statistics from large genome wide association studies of smoking (n=462,690), lung function (n=421,986), COPD (n=257,811) and risk of different severities of COVID-19 (n<=2,586,691). The main analysis was inverse variance weighting, and we included a range of sensitivity analyses to assess the robustness of findings.

Results:
We found smoking increased the risk of COVID-19 compared to population controls, for overall COVID-19 (odds ratio (OR) 1.19 per standard deviation (SD) of lifetime smoking index, 95% confidence interval (CI) 1.11 to 1.27), hospitalized COVID-19 (OR 1.67, 95% CI 1.42 to 1.97) or severe COVID-19 (OR 1.48, 95% CI 1.11 to 1.98), with directionally consistent effects from sensitivity analyses. Lung function and COPD liability did not appear to mediate these associations.

Conclusions:
Smoking is a modifiable factor contributing to increased COVID-19 risk. Strengthening tobacco control policy is necessary to reduce the COVID-19 associated disease burden. The underlying mechanisms require further investigation.
Long COVID-19 syndrome: A comprehensive review of its effect on various organ systems and recommendation on rehabilitation plans

Mr Zhipeng Yan\textsuperscript{1}, Dr Ming Yang\textsuperscript{1}, Mr Dennis Tse-Wah Law\textsuperscript{1}, Ms Wing-Sze Yuen\textsuperscript{1}, Prof Ching-Lung Lai\textsuperscript{1}

\textsuperscript{1}Medicine, The University of Hong Kong, Hong Kong SAR

Background:
Despite the majority of COVID-19 survivors fully recovered within a few weeks. Many COVID-19 survivors suffer from long-lasting problems similar to the multi-organ damage in acute infection, or continuous symptoms after discharge. Post-COVID-19 Syndrome (PC19S) refers to the diseases in survivors 4 months after initial symptoms onset. It requires further understanding of the systemic effects, manifestations and rehabilitations of PC19S in survivors to restore functional recovery.

Methods:
A literature search was done on databases to evaluate the systemic effects, its manifestations and rehabilitations of PC19S patients. The keywords were: Long COVID-19 Syndrome, Post-COVID-19 Syndrome, Rehabilitations.

Results:
Multi-organ impairments persist after recovery in PC19S. Common cardiopulmonary presentations were persistent lung pathology (63%), pulmonary function deficit (54%), diffusion impairment (47.2%), endothelial-cell dysfunctions, vasculitis changes and myocarditis (60%). Haematological impairments included elevated D-dimer (30%), persistently elevated cytokines and white-blood-cells (90%), and decreased lymphocytes and platelet counts. Renal injury such as acute-kidney-injury (<1%), decreased glomerular-filtration-rate (60%) and chronic-renal-failure (1.4%) were observed.

A three-tier rehabilitation system was proposed: low-risk patients were managed with surveillance and telemedicine consultations; moderate-risk patients by community-therapy teams with regular follow-up, and high-risk patients by multidisciplinary care with specialist one-stop clinics. A six-week rehabilitation program gave promising clinical outcomes.

Conclusions:
The literature on long-term effects of PC19S, effective rehabilitation programs, cost per quality-adjusted-life-year and patient demographics are limited to date.

Standardization of PC19S-severity-reporting-system is required to facilitate clinical communications and evaluations of disease progressions. A clinical scoring system that includes functional assessment, self-reported symptoms, prognosis of multiorgan involvement, biomarkers, radiological findings at different times after discharge should be established to stratify the risk of patients and predict morbidity and mortality to facilitate rehabilitations.

The three-tier rehabilitation system should start early to improve long-term recovery of PC19S patients. Revision of rehabilitation guidelines is required to optimize function, disability and earlier return to premorbid status.
Comparative sensitivity of different self-sampling methods for SARS-CoV-2 RT-PCR testing

Ms Nicole Ngai Yung Tsang¹, Ms Hau Chi So¹, Ms Ka Yan Ng¹, Prof Benjamin J Cowling¹, Prof Gabriel M Leung¹, Dr Dennis Kai Ming Ip¹

¹WHO Collaborating Centre for Infectious Disease Epidemiology and Control, School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China

Background:
Alternative sampling methods allow for the possibility for self-collection to facilitate SARS-CoV-2 testing in ambulatory care settings. Self-sampling has been well defined for influenza in community settings, but remains unclear in the context of COVID-19. A systematic review and meta-analysis assessing the comparative sensitivity of different self-sampling methods for SARS-CoV-2 testing is needed.

Methods:
In this meta-analysis, we systematically searched 4 different databases and 2 preprint platforms. We included original clinical studies that examined the performance of nasopharyngeal swabs and any additional respiratory specimens for the diagnosis of SARS-CoV-2 infection among individuals presenting in ambulatory care. Studies without data on paired samples, or those that only examined different samples from confirmed SARS-CoV-2 cases were not useful for examining diagnostic performance of a test and were excluded. Sensitivity of the diagnostic test was examined using random effects models.

Results:
A total of 26 studies including 9684 participants were included. Using nasopharyngeal swabs as the gold standard, pooled nasal and throat swabs gave the highest sensitivity of 97% (95% CI 93–100), whereas lower sensitivities were achieved by nasal swabs (86%, 77–93), saliva (85%, 75–93) and gargle (85%, 65–98), and a much lower sensitivity by throat swabs (68%, 35–94). Comparison between health-care-worker collection and self-collection for pooled nasal and throat swabs and nasal swabs showed comparable sensitivity.

Conclusions:
Our review suggests that pooled nasal and throat swabs would be the best alternative sampling approach to nasopharyngeal swabs, for diagnosis of SARS-CoV-2 infection in ambulatory care. Saliva, gargle and nasal swabs gave a comparably good and still reasonable sensitivity and are clinically acceptable alternative sampling approaches. All these alternative sampling approaches appeared as a feasible option to facilitate self-collection of specimens and scaling up of diagnostic testing programs. Throat swabs gave a much lower sensitivity and should not be recommended.
Perceptions and experiences of young adults regarding the COVID-19 pandemic in Uganda: A focus group study

Ms Valeria Flores-Cadena¹, Ms Kayla Samimi¹, Ms Ally Koh¹, Ms Peninah Tumuhimbise², Mr Odur Kenneth³, Ms Abigail Kim¹, Ms Sarah Phillips¹, Ms Maya Spencer⁴, Ms Kathy Lam¹, Dr Heather Wipfli¹

¹Keck School of Medicine of USC, University of Southern California, United States, ²Public Health Programming, Ray United FC, Uganda, ³Public Health Programming, Children’s Chance International, Uganda, ⁴School of Public Health, University of California Berkeley, United States of America

Background:
Uganda is amid its third resurgence of COVID-19. The government instituted its second lockdown on June 7, 2021, closing schools and other public facilities. This study explored the perceptions and experiences of young adults related to social isolation and other measures regarding the COVID-19 pandemic in Uganda.

Methods:
27 Ugandan residents (18-22 years old) from the district of Lira were divided into five groups by parish (Bar Pii, Acut Kumu, Otara, Te-Adwong, and Agweng) for focus group interviews. Interviews were conducted in English by health facilitators trained by Ray United FC to evaluate personal and community perceptions and experiences from the COVID-19 pandemic. Responses were compiled, transcribed, and analyzed using nVivo software to code responses for thematic insights.

Results:
Qualitative analysis revealed recurring themes of social, financial, reproductive, and educational impacts from school and business closures.
Though they understood the purpose of lockdown in mitigating the pandemic’s effects, participants cited concerns about rising instances of crime, domestic violence, early marriage, and social isolation. Barriers to vaccination included doubled transportation costs, lack of public interest, and fear. Sources of fear included religious condemnation, distrust in vaccine providers, and community myths.

Conclusions:
This study found that the COVID-19 pandemic has worsened pre-existing community-specific challenges in Uganda. Cultural, political, and religious beliefs have negatively impacted perceptions and behaviors regarding public health initiatives to combat the pandemic. This study emphasizes the need for future public health policies and interventions that address these social issues and misconceptions.
SESSION 3.3

CHILD AND ADOLESCENT HEALTH

WEDNESDAY, 17 NOVEMBER 2021

10:35 – 11:35am (GMT+8)

VIRTUAL ROOM B3
Association low-birthweight babies with environmental factors in Indonesia: A cross-sectional study

Ms Aulia Salmadiina

1Universitas Indonesia, Depok, Indonesia

Background:
In 2017, Indonesia’s under-five mortality rate reached 34 per 1000 births. This value is 4 times greater than under-five mortality in European countries. The main cause of mortality among children under five is low birthweight, which is suspected to be associated with environmental hazards exposure. The environmental health condition in Indonesia was poor at that time, with a low implementation of good hygiene and sanitation (49.3%) and a lack of quality monitoring of drinking water (22.8%). This study aims to identify the association between the incidence of low birth weight with environmental factors.

Methods:
This is a cross-sectional study with multivariate analysis using binary logistic regression test (IBM SPSS 25). Using data from Indonesia Demographic and Health Survey (2017). Variables included are baby size and weight, maternal factors, and environmental factors.

Results:
This study found an association between baby size with type of sanitation facility (OR 1.25; p-value 0.000) and floor type (OR 1.25; p-value 0.001) which was also influenced by the mother’s education level (OR 1.2; p-value 0.005). In addition, another correlation was found between the baby’s weight with the type of cooking fuel (OR 1.32; p-value 0.000) which is influenced by the mother's age, education level, and literacy skill.

Conclusions:
Low-birthweight babies were born from mothers under 30 years of age with low education and literacy levels. Furthermore, from this study policymakers could start to conduct supervision of sanitation and floor construction using improved materials, and urged the use of clean cooking fuel.
Exploring the experience of young queer people in Mongolia using visual social research methods

Mr Dorjantsan Ganbaatar

1Melbourne School of Population and Global Health, The University of Melbourne, Australia, 2Health Programme, The LGBT Centre (Mongolia), Mongolia

Background:
Sexual orientation and gender identity are important aspects of young people’s lives and have significant impacts on individuals’ mental and physical wellbeing. Obstacles faced by young queer Mongolians are significant due to social intolerance and discrimination, which may cause great psychological distress, including suicidal ideations and attempts from a very young age. Further, queer youth had been excluded from the existing studies and consistently ignored by academic priorities and public policies. As a result, not much is known about them. This research aimed to explore the lived experience of young queer Mongolians in their immediate environments and navigation of their queer identity in broader society.

Methods:
12 young queer people aged 18-25 from Ulaanbaatar, Mongolia used the photo-elicitation interview method to identify and explore their lived experiences. Visual research methods allowed participants to generate rich data through various techniques (visual, textual, and oral) about the experience of young queer Mongolians and followed by a thematic analysis with an inductive approach.

Results:
Twelve youth participated representing a range of sexual and gender identities. Three domains (high school, family, and broader society) with nine themes emerged. Findings indicated that peer bullying and gender expectation at school, heteronormativity and gender role expectation in a family setting along with strong stereotypes around queerness in broader society have significantly impacted their mental and physical wellbeing.

Conclusions:
This study demonstrated that young queer people in Mongolia need significant support from their immediate environments, such as school and family. Stigma and misconception around queerness remain persistent among the public, but young people are continuously resisting prejudice with the help of improved access and growing visibility. Understanding these challenges is crucial to increase inclusivity in the policies and programmes that could enhance the wellbeing of young queer Mongolians.
Meditation and yoga in pregnancy: Maternal and fetal effects

Dr Sumita Mehta

1Senior Specialist, Obstetrics and Gynecology, India, 2Specialist, Obstetrics and Gynecology, India, 3Medical Officer, Obstetrics and Gynecology, India, 4Consultant, Obstetrics and Gynecology, India, 5Medical Student, Healthcare, India

Background:
Yoga is a practice which amalgamates the emotional, mental, physical, and spiritual aspects of the human body through physical postures, breathing exercises, concentration and meditation. A positive role of yoga in alleviating depression and anxiety during pregnancy and in reducing antepartum complications has been suggested but more systematic research is required to validate it. With the above background, we undertook this study to evaluate the effect of prenatal yoga and meditation on maternal and fetal outcomes.

Methods:
A prospective randomised trial was undertaken in the antenatal outpatient department of our institute and 60 primigravidas with a singleton, low-risk pregnancy between 18-26 weeks were recruited. The women were randomly allocated into 2 groups; 30 women in the interventional group attended meditation and yoga sessions of 30 min twice a week till delivery while 30 women in the control group underwent routine antenatal care. Obstetric outcomes including gestational age, antepartum and intrapartum complications, cord blood cortisol levels at delivery and neonatal outcomes were recorded and compared for both the groups.

Results:
13 women in the control group went post-dated as compared to 3 in the interventional group which was statistically significant (p-value 0.0003). APGAR scores of neonates in the interventional group showed a highly significant improvement with p-value of 0.0013 as compared to the control group. Cord blood cortisol levels were higher than 10 ng/ml in 16 women in the control group compared to 7 in the group who performed yoga and meditation with p-value of 0.01. NICU admissions were significantly more (p=0.002) in the control group.

Conclusions:
Yoga is a non-invasive, easy to incorporate, complementary alternative medicine, which has a promising role to play in antenatal care with positive effects on maternal and fetal health.
Sexuality 360@ School: An ecosystem approach to comprehensive sexuality education in Hong Kong

Ms Neda Ng1, Dr Edmond Pui Hang Choi1, Dr Ellie Bostwick Andres2, Ms Alice Wai Chi Fung4, Mr Kevin Wing Chung Lau4, Ms Monique Yeung3

1School of Nursing, The University of Hong Kong, Hong Kong SAR, 2School of Public Health, The University of Hong Kong, Hong Kong SAR, 3Community Services, Mother’s Choice, Hong Kong SAR, 4Youth Services, Mother’s Choice, Hong Kong SAR

Background:
The number of teen pregnancies in Hong Kong is unknown. According to Hong Kong census data along with pregnancy termination data from Hospital Authority and the Family Planning Association, it is estimated that approximately 5,000 girls aged 15-24 face crisis pregnancies each year. Among sexually active adolescents in Hong Kong, 44 percent report inconsistent use of contraceptives and 11% report no use of contraceptives (Lau, M.W., 2016, June 8. #LetsTalkAboutIt - Sexuality education in Hong Kong. [Web log post]. Ming Wai Lau. Retrieved from http://hello.mingwailau.hk/wp-content/uploads/2016/06/Sex-Ed-Report-FINAL-CLEAN.pdf). The study purpose is to develop a comprehensive sexuality education (CSE) program for Hong Kong adolescents.

Methods:
Adapting the WHO Health Promoting School approach, Mother’s Choice developed a CSE ecosystem program to empower adolescents and key adults in their support networks (i.e. school and family) with the sexual health knowledge, attitudes, skills and connection to motivate healthy sexual decision-making.

Results:
We developed a four-year CSE curriculum for Hong Kong secondary school youth (Form 1- Form 4) along with training programs for teachers and parents. The curriculum adapts best practices from International Technical Guidance from UNESCO and National Sexuality Education Standards (USA) that is suitable for Hong Kong’s context. In our initial testing of the program with secondary students, we found that both teachers and students responded positively to our program and students generally found our program useful.

Conclusions:
Going forward, we hope to test the CSE curriculum in more schools and refine the program as needed to empower healthy sexual decision making among Hong Kong adolescents.

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CONCURRENENT PANELS

ORAL PRESENTATIONS

THURSDAY, 18 NOVEMBER 2021

10:50 – 11:50am (GMT+8)

SESSION 4
SESSION 4.1

NON-COMMUNICABLE DISEASES

THURSDAY, 18 NOVEMBER 2021

10:50 – 11:50am (GMT+8)

VIRTUAL ROOM B1
Incident dementia, anxiety and depression in Metformin versus Sulphonylurea in Type 2 Diabetes Mellitus: A retrospective population-based cohort study

Mr Jeremy Hui, Mr Jiandong Zhou, Mr Teddy Lee, Mr Oscar Chou, Dr Abraham Wai, Dr Kamalan Jeevaratnam, Dr Carlin Chang, Dr Tong Liu, Prof Gary Tse

1Department of Medicine, The University of Hong Kong, Hong Kong SAR, 2School of Data Science, City University of Hong Kong, Hong Kong SAR, 3Emergency Medical Unit, The University of Hong Kong, Hong Kong SAR, 4Faculty of Health and Medical Sciences, University of Surrey, United Kingdom, 5Department of Cardiology, Second Hospital of Tianjin Medical University, China, 6Department of Medicine, Kent and Medway Medical School, United Kingdom

Background:
Metformin and sulphonylurea are commonly prescribed for type 2 diabetes mellitus. New evidence shows that dementia and anxiety disorders may be microvascular complications of type 2 diabetes. This is the first study to compare the effects of metformin and sulphonylurea on new-onset dementia, new-onset anxiety disorder and depression, and all-cause mortality in type 2 diabetes patients.

Methods:
This is a retrospective population-based cohort study using territory-wide healthcare data from Hong Kong. The study period was from January 1, 2013 to December 31, 2019. Patients diagnosed with type 2 diabetes mellitus and who received either metformin or sulphonylurea were included. The primary outcome was new-onset dementia, and anxiety disorder/depression. Follow-up was until the primary outcome or study end date (2019/12/31), whichever was earlier. Propensity score matching (1:1 ratio) between metformin and sulphonylurea users was performed. Cox regression was used to identify significant risk predictors. Competing risks were further considered with cause-specific hazard models and subdistribution hazard models.

Results:
A total of 89,711 patients (45.62% males, mean age at initial drug use: 66.5 years old [standard deviation: 12.5]) were studied over a mean follow-up duration of 1,579 days [standard deviation: 652.3]. Patients using metformin, compared to patients using sulphonylurea, were at lower risk of new-onset dementia (before: 0.78 [0.72, 0.84], P-value < 0.0001; after: 0.88 [0.80, 0.97], P-value = 0.0074), anxiety disorder and depression (before: 0.77 [0.69, 0.86], P-value < 0.0001; after: 0.71 [0.61, 0.82], P-value < 0.0001), and all-cause mortality (before: 0.69 [0.68, 0.71], P-value < 0.0001; after: 0.83 [0.80, 0.85], P-value < 0.0001). The association remained significant in the competing risk models.

Conclusions:
Metformin use is significantly associated with lower risks of new-onset dementia, anxiety disorder/depression and all-cause mortality, compared to Sulphonylurea. Early treatment of type 2 diabetes with Metformin may slow cognitive decline and improve clinical outcomes in patients.
The effect of economics-based incentives on physical activity for newly diagnosed Type 2 Diabetes: A pilot randomised controlled trial

**Ms Hiu Yung, Harley Kwok¹, Dr Jianchao Quan¹**

¹School of Public Health, The University of Hong Kong, Hong Kong SAR

**Background:**
Behavioural economics-based incentives have been shown to increase physical activity in Western populations though evidence of improved health outcomes is limited. We sought to establish the generalisability of behavioural economics-based incentives on physical activity and health among people with diabetes in an Asian setting.

**Methods:**
We conducted a two-arm pilot parallel assessor-blinded randomised controlled trial at two sites in Hong Kong from November 2020 to (planned) December 2021. Eligible participants were aged 30-70 with newly diagnosed type 2 diabetes, drug-naïve, and with glycated haemoglobin (HbA1c) 6.5%-7.5%. Participants were randomly assigned in a 3:1 ratio to intervention (financial incentive framed around loss aversion and the endowment effect plus standard care) and control (standard care alone) groups. Prespecified outcome was a change in average daily step count at 26-weeks. We present preliminary results at 20-weeks.

**Results:**
Among 11 randomised participants (age 54 to 68, mean 61, SD 3.9) 36.4% were female. Among intervention (n=8) and control (n=3), 6 had completed 26-weeks follow-up as of June 2021. Mean daily step counts at baseline were higher in the intervention than the control group, 11,743 (SD 5071) vs 9,700 (SD 2768). Mean daily step count increased by 5.0% in the intervention group (mean 475.7 steps, 95% CI, -101.5 to 1052.8) but declined by 5.9% in the control group (mean -138.0 steps; 95% CI, -559.7 to 283.7) at 20 weeks. No adverse event was reported.

**Conclusions:**
This pilot study demonstrated the feasibility of economics-based incentives to increase physical activity in Asia, consistent with Western studies. Behavioural economics-based interventions to improve lifestyle as part of chronic disease management programmes may be easily implemented and applicable to many settings. A full-scale trial is underway to assess any improvements in health outcomes.

**Trial Registration:**
clinicaltrials.gov: NCT04443842-PILOT

**Funding:**
Research Grants Council (17607619) of the Hong Kong SAR, China.
Quality measurement of specialty care in Pacific Rim countries: An analysis of five models

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Background:
Due to its complexity, specialty care is more concentrated in urban areas, and less subject to being measured by standardized quality indicators. A quality measurement program can inform resource allocation and patient care-seeking. Particularly for specialty care, rural residents might need to travel to unfamiliar urban facilities. This analysis surveys existing initiatives to inform stakeholders the diverse ways to develop such a program.

Methods:
We purposefully sampled five initiatives for their diverse program setup: Society for Thoracic Surgery clinical registries (STS); Chinese government non-payer branch’s National Report on Quality and Safety (CN-NRQS; all specialties), US government payer branch’s Care Compare (US-CC; all specialties), a partnership between the Japanese government, National Cancer Center and Hospital Association (JP-NCC-DCCH), and Singapore National Eye Centre’s clinical audit (SG-NEC).

Results:
STS is a society-led international initiative (US, Canada, Australia, etc.) while others are on a country or facility level. STS developed its measures and sought external endorsement. CN-NRQS’s measures were developed by the government. Some of US-CC’s and all JP-NCC-DCCH’s measures were developed by government-sponsored academia, while US-CC also built upon other US quality programs. SG-NEC aligned internal measures with existing publications. Every year, CN-NRQS is published as a book, with aggregated results on a random sample of hospitals. JP-NCC-DCCH published several one-off papers for different cancers. Hospital participation was voluntary and anonymous. STS and US-CC were most transparent, as hospital-identifiable information was either voluntarily (STS) or mandatorily (US-CC) available on websites. SG-NEC used to update annually on their website. STS, CN-NRQS and SG-NEC heavily relied on outcome measures, while US-CC and JP-NCC-DCCH also had process measures. Each JP-NCC-DCCH paper only selected a subset of measures from its library.

Conclusions:
Healthcare executives on all levels could learn from these initiatives to develop specialty care quality programs that meet their needs.
Challenges of research investigating the impact of Ramadan fasting in children with Type 2 Diabetes during the COVID-19 pandemic in the United Kingdom

Dr Hala Elmajnoun¹, Prof Parvez Haris¹, Dr Abu-Bakr Abu-Median¹

¹Leicester School of Allied Health Sciences, De Montfort University, Health and Life Sciences, United Kingdom

Background:
Muslims constitute 5.2% of the UK population and adults from this community perform a dawn to dusk fasting, with no food and water, for 29-30 days during the month of Ramadan. Adults and some children, with type 2 diabetes, also engage in fasting often without medical guidance. The potential benefits or harms associated with this have not been well investigated. This study discusses the development of retrospective and prospective questionnaires and the challenges faced in engaging Ramadan fasting children and young adults in this research during the COVID-19 pandemic in the UK.

Methods:
SOGOSurvey software was used to design the questionnaires which gathered information on medical history, lifestyle and COVID-19 pandemic-related impacts. The questionnaires were sent to healthy people and patients with type 2 diabetes aged from 12 to 80 years old, who are interested in fasting during Ramadan for a minimum of 10 days. The participants were recruited from several communities and medical centres in the UK. Participants were contacted by phone and email.

Results:
Only 81 individuals completed the retrospective questionnaire out of 300 recruited, and just 9 patients among 34 recruited for the prospective questionnaire. The majority of the respondents were above 18 years old. The number of responses was significantly lower than expected despite being reminded and offered help to complete the questionnaires if needed.

Conclusions:
The low percentage of completion of the questionnaires may be due to COVID-19 pandemic restrictions. Furthermore, it is known that participation in research is low amongst ethnic minorities in the UK. Creating greater awareness about the importance of participation in research studies within ethnic minorities in the UK is needed. Face-to-face completion of questionnaires with the researcher could be the most effective approach for engaging 12 to 16 year old children in research.
SESSION 4.2

COVID-19 AND HEALTH TECHNOLOGIES

THURSDAY, 18 NOVEMBER 2021

10:50 – 11:50am (GMT+8)

VIRTUAL ROOM B2
Global monitoring of COVID-19 vaccine hesitancy on social media with deep learning and natural language processing

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Background:
COVID-19 vaccine hesitancy is a major global public health challenge. Discussions on social media can reflect public sentiment. Given the volume and velocity of data, machine learning approaches could effectively analyse the data in real-time, monitor topics of interest, and track trends in sentiment.

Methods:
Chinese and English posts on COVID-19 vaccines were extracted from Twitter and Weibo from September 2020 to May 2021. We compared Naïve Bayes, Support Vector Machine, Bidirectional Long Short Term Memory Model and Bidirectional Encoder Representations from Transformers Model (BERT) to evaluate relevance and vaccine sentiment. Hierarchical Dirichlet Process (HDP) was trained to model common tweet topics. Gross and by-topic trends in sentiment were summarised across 11 global locations.

Results:
We collected 3,740,935 posts on Weibo and 251,060,939 posts on Twitter. BERT outperformed other models (accuracy: 85.0%-94.9%). Hesitancy was most evident in China (19.8%), North America (10.8%; U.S.A and Canada), and Europe (12.1%; France), and lower in South America (7.0%; Argentina, Brazil, Chile, Peru, Colombia) and rest of Asia (4.9%; India and Thailand). Discussion on vaccine delivery was the most popular topic on both platforms. On Weibo, hesitancy was strongest over safety (22.0%), and hesitancy over trials increased over the study period (P=0.014). On Twitter, hesitancy over effectiveness (P=0.003) and safety (P=0.004) had the greatest declines over the observation period. Network analysis revealed relatively positive sentiments among academia and negative sentiments from media outlets and their influence on general users. Globally, hesitancy was positively associated with vaccine supply (P=0.004).

Conclusions:
Vaccine hesitancy has decreased notably on Twitter but increased mildly on Weibo over the study period. Doubts remained on many topics that varied by location. Network analysis revealed idea mixing patterns and may guide subsequent interventions. Social media data could provide dynamic insights for real-time tracking of vaccine hesitancy and guide future digital interventions.
Systematic review and meta-Analysis of the current Coronavirus disease 2019 vaccines for potential dose-optimal vaccine allocation based on reactogenicity and immunogenicity

Mr Wesley Rosete¹, Mr Rein Gerard Salenga¹, Ms Aubrey Mae Divinagracia¹

¹New Era University, Center for Medical and Allied Health Sciences, Philippines

Background:
With the limited Coronavirus Disease 2019 vaccine stockpile available, developing an equitable vaccination allocation strategy to maximize the number of people that escape infection is an ongoing global challenge. This study aims to bridge the reactogenicity and immunogenicity effects of Coronavirus Disease 2019 vaccines to a potential dose-optimal vaccine allocation.

Methods:
We included Phase 1 to 3 randomized clinical trials conducted in healthy human subjects 18 years old and older. Data were pooled via random-effects models. Risk ratio (RR) and standardized mean difference (SMD) for reactogenicity and immunogenicity responses were used, respectively. Risk of bias and quality of evidence assessments were performed according to Cochrane’s Risk of Bias tool and the Grading of Recommendations, Assessment, Development and Evaluation Approach Handbook.

Results:
Fifteen trials comprising 99,102 subjects were included. Local adverse reactions [RR=1.97; 95%CI=1.61–2.40, p<0.00001] and neutralizing antibody seroconversion rate [SMD=2.84; 95%CI=1.23–4.45, p=0.0006] were higher using low dosage vaccines on first vaccination. Local and systemic adverse reactions, neutralizing antibody titer and seroconversion rate were higher using high dosage vaccines on the first and second vaccinations and low dosage vaccines on second vaccination (All RR>1.0, SMD>0 and p<0.05).

At 14/21 days dose-timing using low and high dosage vaccines and at 28/56 days dose-timing using low dosage vaccines, neutralizing antibody seroconversion rate was significantly increased [All SMD>0 and p<0.05]. At 28/56 days dose-timing, neutralizing antibody titer [SMD=1.46; 95%CI=0.26-2.66, p=0.02] using low dosage vaccines and systemic adverse reactions [RR=2.25; 95%CI=1.21-4.19; p=0.01] using high dosage vaccines were significantly increased.

Conclusions:
The current vaccines have uniquely varying magnitudes of reactogenicity and immunogenicity responses per dosage regimen and dose-timing. Vaccinations have shown that the second dose has bigger effects on immunogenicity responses than the first. Therefore, vaccination allocation strategy should be dose-optimal to maximize the immune responses while minimizing reactogenicity responses and achieve equitable use.
Factors affecting adoption of digital contact tracing during the COVID-19 pandemic: A literature review

Ms Victoria Anna Yeo

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Background:
Digital tools are extensively used in handling the COVID-19 pandemic. While numerous countries have tried to adopt digital contact tracing (DCT) to facilitate the test-trace-isolate approach on newly confirmed cases, many struggles with low uptake of such applications, which limits its effectiveness.

Methods:
Papers were identified using Boolean operators on PubMed, Biomed Central, EbscoHost, and IEEE Xplore. A total of 277 publications have been identified, which were reduced to 78 articles after removal of duplicates and review of titles and abstracts.

Results:
The literature review shows consolidated agreement that factors affecting acceptance of DCT applications are:
1. technical factors, including privacy protection protocols, application design, and user experience;
2. social factors, including social influences and trust in responsible corporations;
3. political factors, including governance and trust in government;
4. health factors, including health awareness and perceived health benefits; and
5. cultural factors, including values of collectivism and privacy.

Additionally, it is agreed that the intention to use these applications before release does not predict the actual use of them. Scholars agreed that privacy protection, favourable attitudes of society, trust in private corporations, trust in government, transparency, open communication approaches, perceived health benefits, and values of collectivism favour uptake of DCT applications, but disagreed on the relationship between health awareness and use of such applications – while a majority found health awareness positively associated with the use of such applications, some found nil or negative association.

Conclusions:
Increasing the user base is critical to improving the effectiveness of DCT applications, thus causes of reservation ought to be identified and resolved. Literature recommends the regular repetition of these studies in different regions because conditions differ with cultural and social contexts, and the dynamic changes in public behaviour with current affairs, application updates, infection trends, and other public health measures.
Global history of digital contact tracing during the COVID-19 pandemic and ethical considerations for privacy in digital contact tracing apps

Ms Reika Shimomura¹, Ms Erin Greig²

¹Health Humanities Lab, Duke Kunshan University, China

Background:
After COVID-19 spread from China to other countries across the globe, quarantine regulations were supplemented by digital contact tracing (DCT) initiatives in the form of mobile applications and other surveillance. Not all countries took the same approach to contact tracing, and some continue to develop their methodologies to the date of writing this paper. This paper examines DCTs on a global scale using English privacy policy information from mobile DCT applications compared to guidelines on digital proximity tracing from the World Health Organization (WHO) published in May 2020.

Methods:
There were 42 DCT applications’ privacy policies published in English. Based on the guidelines, six criteria were created to evaluate the ethical development of DCT applications using privacy policies. The criteria were record/store Internet Protocol address, the use/sale of data for commercial purposes, share data with third parties, the time limitation for the data storage, track geolocation, and data can be deleted when withdrawing from the app. Each criterion was answered by yes, no, or not mentioned.

Results:
The most respected criterion was the purpose of using the data, where more than 85% of the applications specified not using them for commercial purposes and none of the policies stated its use for commercial purposes. A unique difference was the tracking of geolocation, where 66.7% of applications used Bluetooth while 21.4% relied on geolocation collection.

Conclusions:
The findings of this paper suggest that Bluetooth and QR codes created the lowest levels of privacy invasion, whereas GPS tracking software was most invasive. In order to protect the privacy of an individual, following the WHO regulations worldwide is recommended. In the case of the COVID-19 pandemic, the regulations encourage the use of QR codes and Bluetooth in DCTs. Learning from the COVID-19 DCT applications is an important step for ethical and effective future DCTs in pandemics.
SESSION 4.3

MENTAL HEALTH AMONG OLDER ADULTS

THURSDAY, 18 NOVEMBER 2021

10:50 – 11:50am (GMT+8)

VIRTUAL ROOM B3
Does post-disaster cooking class participation effect their eating behavior and perception?

Dr Ai Tashiro¹, Dr/MPH Kayako Sakisaka², Ms Yuriko Saito¹, Dr/MD Yoshiharu Fukuda²

¹Public Health, Tokushima University Graduate School of Biomedical Sciences, Japan, ²Public Health, Teikyo University Graduate School of Public Health, Japan, ³Post-disaster Reconstruction Support Project, The Ajinomoto Foundation, Japan

Background:
Natural disasters affect residents’ eating patterns and behaviors. However, post-disaster changes in residents’ eating patterns and behaviors have not been examined. Thus, we aimed to examine the association between eating patterns (solo dining or not) and healthy food awareness/behavioral change through post-disaster cooking class participation.

Methods:
We conducted a questionnaire-based survey in disaster-affected areas by the 2011 Great East Japan Earthquake and Tsunami (GEJET) in 2020. We applied Poisson regression models to a cross-sectional dataset of cooking class participants, examining their food awareness and cooking behavioral change by their eating pattern. Dependent variables were changes to (M1) cook more than before; (M2) be more conscious of nutritional balance; (M3) intake low salt; (M4) pay attention to hygiene, and; (M5) increase the opportunity to eat with families/friends. In each model, adjusted rate ratios (ARRs) were calculated by sociodemographic characteristics.

Results:
We applied 242 valid data. The mean age of the participants was 70yrs. and approximately 80% were aged 65 or older. 75% of participants were female and 18% of them ate alone. Poisson models showed positive behavioral changes among solo diners (M1: ARR, 1.62; 95% CI, 1.19-2.21; M2: ARR, 1.28; 95% CI, 1.07-1.53; M3: ARR, 1.15; 95% CI, 1.01-1.30; M4: ARR, 1.29; 95% CI, 1.07-1.55) (vs. not solo diners). Eating alone was not associated with M5 (p > 0.05). In contrast, the interaction effect of eating alone and living alone showed negative association with their behavioral changes (M1: ARR, 0.60; 95% CI, 0.36-1.01; M4: ARR, 0.61; 95% CI, 0.45-0.82; M5: ARR, 0.24; 95% CI, 0.08-0.62).

Conclusions:
This study suggests that cooking participation would be positively associated with solo diners’ healthy food behavioral change, but it may negatively affect those who live alone. We conclude the importance of re-establishing a post-disaster support system in cooking class activities for solo diners who live alone.
Ego integrity and adaptation of urban dwelling Filipino older adults amidst the COVID-19 pandemic

Ms Arlene Nera¹, Dr Agnes Raymundo¹, Ms Hannah Faith Martinez¹, Ms Clarisse Sy¹, Mr Ariel Moreno¹

¹College of Nursing, Manila Central University, Philippines

Background:
The coronavirus pandemic is a global public health threat that significantly affects the older adult population in developing countries such as the Philippines.

Methods:
The inquiry employed the descriptive-correlational, cross-sectional research design. The sample (N=30) consisted of Filipino older adults, residents of an urban community in the city of Caloocan, mentally capable and with sensory capacitation. They were selected utilizing a non-probability purposive sampling design. Self-report method was used in gathering the data. The self-administered questionnaires were adopted with permission from the Integrity Subscale of the Modified Eriksonian Psychosocial Inventory to assess the level of ego integrity of the participants and Brief COPE instrument to determine their extent of adaptation ability during the COVID-19 pandemic. Data collected were analyzed using descriptive statistics of mean and standard deviation. Hypotheses were tested using inferential statistics of Pearson chi-square and Phi and Cramer’s V. The research protocol was reviewed and approved by the ethics review board of a comprehensive university in Metro Manila.

Results:
Most study participants were male (57%), married (63%), and high-school graduates (50%). They had a moderate level of ego integrity and little extent of adaptation ability during the pandemic. Moreover, there was no significant relationship among the profile of the study participants and their level of ego integrity and extent of adaptation ability. However, there was a significant relationship between the participants’ level of ego integrity and their extent of adaptation ability.

Conclusions:
The balance and relationship between older adults’ ego integrity and adaptation ability are challenged and become more acute in recent times. It is therefore imperative that opportunities are created to promote healthy ageing during the pandemic. They must be amply supported in all aspects by strengthening the healthcare delivery system of the country.
Mental health status and coping ability among older Filipino adults in an institutional care facility

Mr Louie Jay Cruz1, Mr Doneal Andrei Decapia1, Mr Benedict Ignacio1, Mr John Edward Escote1, Dr Michael John Flores1

1College of Nursing, Manila Central University, Philippines

Background:
Older adults confined to care facilities may experience negative health impacts, especially during the pandemic. Less contact with loved ones can lead to depression, which is linked to the mental health status and coping skills of older adults. This study sought to determine the relationship between respondents' self-perceived mental health status and coping abilities.

Methods:
The study utilized a descriptive-correlational design and was conducted in a select institutional care facility located in Metro Manila. Purposive sampling was utilized for the selection of respondents. The sample (N=28) consists of 14 Filipino elders in an institutional care facility and 14 caregivers who provided care to the client, based on established criteria that are met. Data were collected through questionnaires along with an informed consent form; due to the pandemic, face-to-face interaction was restricted by the institution. Ethical principles were observed throughout this research. The study was approved by the ethics review board from a higher education institution in Metro Manila.

Results:
The level of mental health status (GWM=1.33) and coping ability (GWM=2.73) of respondents resulted in “poor” and “good” verbal interpretation respectively. There was a significant relationship between educational attainment and self-perceived level of coping ability (p-value=0.0004). Self-perceived level of mental health status and coping abilities showed a high level of significance (computed t-value=4.78). Both the self-perceived level of mental health status of the respondents and as perceived by caregivers, and the self-perceived level of coping abilities of the respondents and as perceived by caregivers showed no significant difference (computed t-value=0.47).

Conclusions:
The ‘poor’ mental health status of older adults and ‘good’ coping skills are outcomes relating to their admission to an institutional setting. Coping skills were related to the mental health issues of respondents. Hence, care facilities must prioritize the provision of adequate care for older adults, especially in times of pandemics.
Urbanisation, relocation and mental health of elderly farmers and the changes during the COVID-19 pandemic

Dr Ying Chang1,3, Dr Guibo Sun2,3, Mr Houhua Zhu1

1Design School, Department of Urban Planning and Design, Xi'an Jiaotong-Liverpool University, China, 2Faculty of Architecture, Department of Urban Planning and Design, The University of Hong Kong, China, 3Faculty of Architecture, Healthy High Density Cities Lab, The University of Hong Kong, China

Background:
Rapid urbanisation has caused a considerable elderly population to relocate from rural countryside to urban neighbourhoods. This study examines the impact of built environment change on their health and the inequality aggravated by living density and built environment configuration.

Methods:
The primary data is from a longitudinal study on urbanisation and health of relocated farmers in Suzhou, China. The baseline survey was conducted from June to November in 2019 from two groups, relocated farmers (N=1053) and the control group of farmers still living in the rural countryside (N=1597). A Follow-up survey (N=367) was undertaken from Oct to December 2020, with interviews to understand the impact of the COVID-19 pandemic on their health, perception, and lifestyle.

Results:
The results from the preliminary analysis showed that both depression and cognitive impairment rates were higher among rural farmers than relocated farmers and associated with the more inferior self-perceived overall health of rural farmers. Relocated farmers generally had an overall higher cognitive score, maybe because of the need for memory and information as essential abilities in city life. The pandemic saw an increase in the cognitive score of relocated farmers, likely because of intensive exposure to information from mass media. The follow-up survey did not find a significant increase in depression. Instead, interview findings showed the possible positive contribution of the pandemic to the perceived health of relocated farmers, because of the improved public health environment.

Conclusions:
This study found a mild impact of the COVID-19 pandemic on mental health but more significant lifestyle changes, including reduced time on daily walking, social activities, and social network, associated with increased time spent indoors, within neighbourhood, time on TV and mobile phone. These behaviours may aggregate obesity and mental illness in the long-term and should be prioritised in post-pandemic public health intervention measures.
SESSION 4.4

ACTIVE LIFESTYLES

THURSDAY, 18 NOVEMBER 2021

10:50 – 11:50am (GMT+8)

VIRTUAL ROOM B4
Descriptive epidemiology of adolescents’ active travel to school in 31 Asian countries

Ms Rizka Maulida1, Dr Erika Ikeda1, Dr Tolullah Oni2, Dr Esther van Sluijs1

1Centre for Diet and Activity Research (CEDAR) & MRC Epidemiology Unit, University of Cambridge, Cambridge, United Kingdom, 2MRC Epidemiology Unit, University of Cambridge, Cambridge, United Kingdom

Background:
Rapid urbanization and dynamically changing built environments in Asia pose a challenge for their ATS. Little is known about the prevalence of adolescent ATS in Asia. The purpose is to describe the epidemiology of adolescents’ active travel to school (ATS) in Asia.

Methods:
This cross-sectional study used Global School-based student Health Survey (GSHS) data from 154,920 13-17-year-old adolescents in 31 Asian countries. Country-specific weighted percentages of self-reported ATS (0 vs. 1-7 days) were calculated, and associations of ATS with age, sex and weight category were analysed using logistic regressions. Subsequently, summary prevalence and estimates were calculated using random-effects meta-analyses.

Results:
The overall prevalence of adolescent ATS in Asia was 55%, ranging from 18% (United Arab Emirates) to 84% (Myanmar). There was limited sub-regional variation: 47% in the Eastern Mediterranean Region (EMR), 56% in South East Asia Region, and 64% in the Western Pacific Region. Being an older adolescent (OR=1.08, 95%CI=1.00-1.16) was positively associated with ATS. This association was strongest in EMR countries. Females (0.79, 0.71-0.89) and adolescents with overweight/obesity (0.92, 0.86-0.99) were less likely to use ATS. Association with sex was strongest in EMR countries. Overall heterogeneity was considerable in all three meta-analyses.

Conclusions:
The prevalence of adolescent ATS in Asia varies substantially. Overall, older and male adolescents, and adolescents with normal and below normal weight are more likely to actively travel to school. However, the main contributor to the between-country variation remains unknown. There is substantial scope for improving ATS rates across Asia. However, any policy action should be sensitive to local conditions, such as built, social, and meteorological environments. Further evidence on active travel benefits versus air pollution risks due to worsening air quality in urban areas in these countries is needed.
Effects of different walking intensities on alleviating depression in older adults with major depressive disorder: A pilot randomized controlled trial

Mr Danny J. Yu¹, Mr Angus P. Yu¹, Mr Chit K. Leung¹, Mr Jacky M. Mo¹, Mr Joshua K. Bernal¹, Mr Edwin C. Chin¹, Mr Welton W. Leung¹, Ms Whitney W. Au¹, Dr Daniel Y. Fong², Dr Calvin P. Cheng³, Dr Parco M. Siu⁴

¹Division of Kinesiology, School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, ²School of Nursing, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, ³Department of Psychiatry, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR

Background:
The Global Burden of Disease Study 2017 reported that depression is a common global illness and over 264 million people are affected. WHO global physical activity recommendation suggests to older adults to perform 150-300 minutes moderate-intensity or 75-150 minutes vigorous-intensity physical activity to gain health benefits. Although physical activity has been demonstrated to be beneficial to patients with clinical depression, the optimal exercise intensity remains ascertained. This study aims to compare the effects of 12-week moderate- or vigorous-intensity walking exercise on alleviating depression in older depressed patients.

Methods:
Older adults aged ≥ 50 years diagnosed with depression were recruited from January 2019 to June 2021. Participants were randomly allocated to the control group (n=9), vigorous-intensity (6.5 metabolic equivalents) walking group (n=9), or moderate-intensity (3.25 metabolic equivalents) walking exercise group (n=9). The walking intervention lasted for 12 weeks, and the exercise frequency was thrice a week. Participants in the control group were instructed to maintain daily life routines during the intervention period. Beck depression inventory and generalized anxiety disorder 7 were used to measure the depression and anxiety levels, respectively, at baseline and post-intervention measurement. The treatment effects were assessed using a generalized estimated equation model.

Results:
Compared to the control group, depression level was significantly reduced in both walking intervention groups (p<0.001). There was 43.9% reduction in the depression score in the moderate-intensity walking group compared to the baseline, and 43.2% reduction in the vigorous-intensity walking group. There was no significant difference between the two walking groups. Similarly, compared to the control group, anxiety level significantly decreased in two walking intervention groups (p<0.001) and there was no significant difference between the two walking groups.

Conclusions:
Our results demonstrated that 12-week walking training at both vigorous- and moderate-intensity significantly alleviated depression and anxiety levels in older adults with clinical depression.

Clinical Trial Registration No. NCT04403373
The differences in the elderly’s travel behaviour during the COVID-19 pandemic: metro and health cohort study in Hong Kong

Dr Eun Yeong Choe¹, Ms Yao Du², Dr Guibo Sun³

¹Faculty of Architecture, The University of Hong Kong, China, ²Department of Urban Planning and Design, The University of Hong Kong, China, ³Department of Urban Planning and Design, The University of Hong Kong, China

Background:
The COVID-19 pandemic led to unprecedented changes in people's activities, travel behaviour, daily life and overall well-being. In particular, the absence of adequate movement and outside contact for the older people has become a hazard to serious public health concerns in Hong Kong.

Methods:
This study used longitudinal data from the Metro and Elderly Health in Hong Kong study, which is a natural experiment to investigate the impact of new MTR stations on elderly health. Baseline data were collected between May and December 2019 before the pandemic. In May 2020, we conducted a telephone-based survey of COVID-19's potential impact on the elderly’s travel behaviour. We compared the differences in overall active travel and public transport use between participants at baseline and follow-up surveys.

Results:
The results showed significant decline in the older people’s travel behaviour during the pandemic. Active travel declined significantly more among the older people with lower activity levels and less social networking. Another finding was that public transport use reduced more among the older people living in the higher perceived neighbourhood walkability area than those living in the lower perceived neighbourhood walkability area. It suggests that the older people of high walkable neighbourhoods tend to avoid using public transports and stay within walking distance in the neighbourhood area.

Conclusions:
This study highlights the difference of older people to change their travel behaviour in the face of the pandemic. The uneven impacts of COVID-19 on the elderly’s travel and public transport use could widen health inequalities in the older population. During the pandemic, addressing equity concerns on various changing policy instructions must be a priority for decision-makers in government.
Number of present healthy lifestyle habits and risk of colorectal cancer: A systematic review and meta-analysis

Ms Jiazhou Yu¹, Dr Qi Feng², Prof Jean H. Kim¹, Prof Yimin Zhu³

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Background:
The development of colorectal cancer (CRC) is related to a series of lifestyle factors such as diet, physical activity, body composition, alcohol intake, and smoking. This study aims to investigate the association and a dose-response relationship between the number of various present lifestyle habits and the risk of CRC.

Methods:
A systematic literature search was conducted in PubMed and EMBASE for studies linking multiple present lifestyle habits with CRC risk through June 2021 without restrictions on language or study design. Meta-analysis was performed to pool hazard ratios using random-effects models. Subgroup analyses were performed based on study characteristics and population characteristics. Random-effect dose-response analysis was conducted, including studies with the same construction for lifestyle factors.

Results:
A total of 20 eligible studies (15 cohort studies and five case-control studies) were included in this study. When comparing subjects with the healthiest lifestyle with those with the least healthy lifestyle, the pooled HR was statistically significant for CRC (0.53, 95% CI: 0.45-0.63, I²=86.2%), colon cancer (0.55, 95% CI: 0.46-0.66, I²=78.4%), and rectal cancer (0.55, 95% CI: 0.40-0.75, I²=44.6%). The pooled HR for CRC was 0.91 (95% CI: 0.88-0.94) per 1-unit increase in the number of healthy lifestyles. The inverse association between healthy lifestyle and risk for CRC was consistently observed in stratification on study characteristics and population characteristics (HR ranging from 0.30 to 0.72).

Conclusions:
A higher number of present healthy lifestyle habits are associated with lower risk of CRC. Healthy lifestyle could decrease the burden of CRC.
Poster Presentation
Effectiveness and sustainability of re-education on insulin injection technique in patients with Type 2 Diabetes Mellitus in a primary health clinic Malaysia

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Background:
Correct insulin storage and injection techniques are crucial for good glycaemic control in patients with Type 2 Diabetes Mellitus (T2DM). Lipohypertrophy (LH) is one of the general problems associated with poor insulin injection technique. Despite advancements in insulin pen technology, errors in the administration technique are still common among patients. The purpose of this study is to assess the insulin injection technique of patients and to evaluate if pharmacist-delivered re-education on insulin injection technique can improve haemoglobin A1C (HbA1C) over 6-month and 18-month interval in patients with poor control of T2DM.

Methods:
This is a prospective study which was carried out at Mahmoodiah Health Clinic in Johor Bahru, Malaysia from June 2018-January 2019. Participants were assessed on their insulin injection technique. Assessment of insulin injection technique is standardized based on the latest guidelines on medication counselling published by Pharmaceutical Services Division of MOH Malaysia in 2014. Participants’ injection technique and HbA1c were assessed at baseline, 6 months and 18 months afterward.

Results:
A total of 100 patients were recruited and all patients had been treated with insulin for 5.62±4.39 years (mean±SD). Inappropriate insulin injection technique is common, with about one-quarter of the patients not mixing their cloudy insulin before injection and up to 68% of the patients reuse needles >3 times. One-fifth of the patients were found to have lipohypertrophy. Significant difference for mean (SD) HbA1c was detected between baseline and 6-month follow-up which decreased from 9.93% (1.57) to 8.81% (1.60), resulting in a mean reduction of 1.11% (1.57). However, the significant HbA1c reduction decreased to 0.42% (1.96) when comparing baseline and 18-month follow-up measurements.

Conclusions:
The findings from this study implied that re-education on insulin injection technique is necessary during follow up as it improves the glycaemic control among patients with T2DM.
Acute changes in knee cartilage and meniscus following long-distance running in habituate runners: A systematic review on studies using quantitative magnetic resonance imaging

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Background:
Running has become a popular recreational activity, but the changes of cartilage or meniscus in a short time after running have not been determined. The purpose of this study was to systematically review the acute changes in knee cartilage and meniscus detected by quantitative magnetic resonance imaging in habituate runners following long-distance running.

Methods:
A literature search was performed on databases of Medline, Cochrane, Embase, ScienceDirect and Web of Science to retrieve relevant studies.

Results:
We screened 1427 articles and finally included 14 articles in this review. 6 studies quantitatively measured the changes in volume of the knee cartilage or meniscus. Most studies suggested that the volume decreased after running, and returned to the baseline in minutes to 1 hour, and then kept increasing for a period of time. 10 studies quantitatively measured magnetic resonance imaging functional sequences of knee cartilage or meniscus. Among them, 8 studies related to T2 value, 1 study related to T2 * value and 4 studies related to T1ρ value. T2 (T2 *) decreased after running and returned to the baseline about 30 minutes; T1ρ value decreased after running and returned to baseline about 24 hours. Long follow-up study suggested T1ρ value continued to increase after 3 months.

Conclusions:
Healthy runners without known risk factors of knee injuries could experience transient changes in the volume and signal of knee cartilage and meniscus after running. We revealed a liquid exchange period in cartilage and meniscus in a short time after running, and described the different material changes represented by different magnetic resonance imaging signals.
Leadership and governance for occupational health and safety in the Philippines

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Background:
Leadership and governance are important element in the national occupational health and safety (OHS) system of any country. According to the International Labour Organization (ILO), the four elements of leadership and governance include: (1) legislations; (2) lead agencies for the development of policies, programs, and services; (3) mechanisms for tripartite collaboration; and (4) mechanisms for the enforcement of OHS standards. This study aims to determine the presence of these elements in the Philippine OHS system, and to identify gaps as compared to the ILO standard.

Methods:
A review of secondary data was employed, and key-informant interviews with key stakeholders for OHS in the Philippines are also done to triangulate the findings of the secondary data review.

Results:
With the presence of an available database of legislations for OHS in the country, almost all elements of the leadership and governance system are supplied for, except for some rights of workers’ representatives in the conduct of their roles and responsibilities for OHS. Despite this, there are still gaps in the functioning of each of these elements, which are mainly due to OHS not being a priority in the national agenda as well as the lack of coordination among the lead agencies for OHS.

Conclusions:
All necessary elements to support the leadership and governance framework for OHS in the country are supplied by the effort of the lead agencies in the field. However, there is still much room for improvement regarding how these elements should be implemented and sustained. Strengthening of awareness-raising campaigns for OHS in the country and of the collaboration and coordination networks among these lead agencies can be a detrimental step in the improvement of leadership and governance for OHS in the Philippines.
Seroprevalence of COVID-19 among healthcare workers in Hong Kong: A longitudinal cohort study

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Background:
Hong Kong has invested heavily in hospital infection control and pandemic preparedness after the severe acute respiratory syndrome (SARS) epidemic in 2003. However, healthcare workers remain a high-risk group for emerging infectious diseases due to occupational exposure to patients and potentially contaminated environments. This study aims to estimate the cumulative incidence or seroprevalence of COVID-19 among healthcare workers, who are at elevated risk of contracting the disease due to occupational exposures to patients.

Methods:
We conducted a longitudinal cohort study of 761 healthcare workers with varying exposures to COVID-19 patients and collected blood samples between June and October 2020 to estimate the cumulative incidence or seroprevalence of COVID-19 in HCWs in Hong Kong. Seroprevalence was defined as the proportion of blood samples that were positive for antibodies against the SARS-CoV-2 virus measured by the plaque reduction neutralization test (PRNT).

Results:
The median age of our cohort was 34 years (range: 21, 65), and 35% were male. Most HCWs in our study worked in public hospitals and clinics, and more than half of them worked in clinical departments. Almost all (751) participants in our cohort reported at least occasional contact with patients or potentially contaminated areas in the workplace. Despite heavy exposure to the SARS-CoV-2 virus, only 18 (2.4%) serum samples were positive by enzyme-linked immunosorbent assay (ELISA) and none of the blood samples were seropositive for antibodies to the SARS-CoV-2 virus by plaque reduction neutralization assay (PRNT). This translates into an estimated seroprevalence of 0% (95% CI: 0%, 0.5%) for the first 10 months of the pandemic.

Conclusions:
Despite the significant community spread of COVID-19 in Hong Kong, seroprevalence among healthcare workers in Hong Kong is low. Our findings support the effectiveness of infection control precautions in healthcare workers locally.
The indirect impact of COVID-19 pandemic on chronic disease care in Hong Kong

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Background:
The COVID-19 pandemic has disrupted routine health services for people with chronic diseases.

Methods:
We conducted 15 cross-sectional telephone surveys among adults in Hong Kong on alternate weeks from June 09 until December 30, 2020. Data on respondents’ socioeconomic characteristics, including age, occupation, education, and household income were collected. Calls were made using random digit dialling to landline and mobile numbers (1:1 ratio) during working and non-working hours to avoid over-representation of non-working groups. We performed multivariable logistic regression to assess factors associated with difficulty in accessing health care or medications.

Results:
Among 1,828 respondents, 54.1% of participants had hypertension and 23.4% had diabetes. The proportion of participants who reported increased difficulty in accessing health care or medication was 8%. Among participants with chronic disease, 11% reported difficulty accessing treatment and 9% experienced worsening chronic disease symptoms. Older age groups were less likely to experience difficulty in accessing care or medications during the COVID-19 pandemic (odds ratio: 0.40, 95% confidence interval: 0.16, 0.98). Loss of income (odds ratio: 1.13, 95% confidence interval: 0.69-1.83) and low household income (odds ratio: 1.16, 95% confidence interval: 0.73, 1.84) were associated with increased difficulty in accessing care, while receiving government financial support seemed to be protective (odds ratio 0.90, 95% confidence interval: 0.5-1.5).

Conclusions:
Younger (working age) people were more likely to report difficulty in accessing care demonstrating the widespread impact of the pandemic and control measures beyond traditionally vulnerable groups.
Evaluating the patient experience in telemedicine: A systematic review

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Background:
As the COVID-19 pandemic and advancements in technology bring telemedicine to the forefront of clinical practice, a comprehensive evaluation of this intervention is warranted. While most telemedicine studies measure clinical outcomes, data on evaluating patient experience is scarce.

Methods:
A systematic review to evaluate patients’ experiences during telemedicine consultations was conducted. PubMed, Scopus, CINAHL and grey literature were searched from June 2011 to June 2021. Studies with a focus on patient experience and with telemedicine consultations described as encounters that are between patient and doctor, conducted via video or voice, synchronous, and pertaining to medical services were included. A thematic synthesis approach was adopted to analyse results.

Results:
Across the 19 included studies, patients were generally satisfied with telemedicine. Reasons for consultations varied tremendously, including chronic conditions, acute conditions, mental health issues and administrative episodes. Overall, three themes emerged. In terms of accessibility and convenience, patients appreciated lower cost burdens, reduced travel time and the ability to connect from their homes; however, technological issues made telemedicine inconvenient for a few. Secondly, with regard to interpersonal engagement, telepresence facilitated positive patient experience while lack of a human factor and inability to conduct physical exams for certain conditions diminished user experience. Finally, for perceived quality of care, patients were happy they could spend more time with attending doctors but few were concerned about privacy and data protection. The heterogeneity in patients’ experiences may have been driven by the mode and ease of using telemedicine as well as the type and severity of patients’ diseases.

Conclusions:
As health systems transform to be more responsive to patients, patient views should be considered for the successful implementation of telemedicine. This can inform the design of telemedicine interventions that are more patient-centric, have higher adoption rates, and provide enhanced quality of care.
Development of an intervention platform for a school-based salt-reduction programme in China

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Background:
Reducing population salt consumption is considered as one of “best-buy” preventive strategies. Previously, school-based health education programmes have been shown to be effective in reducing salt intake of both children and adults. However, the development process and features of such programmes are usually complex and less likely to be clearly reported. As a result, it is common that the intervention development study is treated as a “black box” to a certain degree. This study aimed to elaborate the development of an intervention platform for a school-based salt-reduction programme in China (EduSaltS), so as to facilitate the implementation to a larger scale.

Methods:
The development process of EduSaltS platform was followed by four steps with close community engagement and involvement run through the whole process, including 1) design of overall framework of the EduSaltS platform based on past experience, the WHO conceptual framework, and local context 2) outlining specific intervention components, activities, and features based on behaviour change theories, and past qualitative findings 3) development of the component materials supporting online mHealth system and offline activities 4) conducting a pilot study and refining the intervention platform.

Results:
The output was an innovative mHealth-based health education system, called “The EduSaltS platform”, targeting primary school students and their families. Facilitated by a WeChat application, it provided standard and flexible support on healthy school environment, home health education curriculum, practice, performance evaluation and governance.

Conclusions:
This study has revealed the development process of a school-based health education programme, which was considered as the “black box”. In the pilot study, this platform has achieved a high degree of satisfaction among participants because of its creativity and flexibility. This platform is expected to achieve a higher compliance and effectiveness during the phase of national-wide promotion.
Protocol for school-based education programme to reduce salt: Scaling-up in China (EduSaltS)

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**Background:**
Excessive dietary salt consumption is one of the risk factors for raised blood pressure and other non-communicable diseases. Population salt reduction is considered as one of the best-buy preventive strategies. In China, salt intake is extremely high with an average intake of 12 g, and mainly comes from daily cooking added by consumers themselves. Previous studies have shown the effectiveness of school-based education programs, but the large-scale implementation has not yet taken place in the real world. This programme aims to develop a feasible, sustainable and adaptable intervention service package for salt reduction education targeting primary school students and their families and incorporate the intervention package into the existing school health education system in China.

**Methods:**
This programme will be implemented stepwise from 2019 to 2023, by following four phases: preparation, pilot study, scaling-up and the national roll-out and sustainment. As a scaling-up programme, effect evaluation will be carried out to evaluate the results of EduSaltS. Process evaluation will use both quantitative data and Qualitative data to monitor the programme. Economic evaluation will evaluate both short-term and long-term effects related to direct and indirect costs.

**Results:**
Currently, the team has completed one of the study pilots as planned and refined the intervention materials. The final intervention platform was much more comprehensive and flexible compared to previous studies, including intervention & management WeChat Mini programmes, a data management website platform, and supportive strategies to support the implementation of the programme.

**Conclusions:**
Although the programme is underway, the results of the pilot study are encouraging. Educating children via WeChat mini program about the harmful effects of excessive salt intake is expected to improve health habits and change the health beliefs of children and affect their families, thereby reducing the incidence of CVD in the long term.
The influences of adolescents’ mental-emotional health risk factors

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Background:
Adolescence is a period of rapid development of biological, psychological and social aspects, which results in various disharmony. Every teenager is expected to be able to adapt with their peers. The prevalence of mental-emotional disorders among adolescents above 15 years based on 2018 National data is 9.8%. Based on National Health regulation, mental-emotional health screening for young students could be done annually at the beginning of the school year. The purpose of this study is to explore the risks of contributing factors to the mental emotional problem among adolescents.

Methods:
A cross-sectional study was conducted in June-September 2019 involving 956 students from 3 Senior High Schools at Jagakarsa district, South Jakarta Indonesia. The data was collected by using Strengths and Difficulties Questionnaire (SDQ) containing variable difficulties consisting of emotional, behaviour, hyperactivities and peer-review; and prosocial as strength variable. Simple and Multiple linear regression tests were used to analyse the data.

Results:
The mean age was 16±0.7 years, significant influences of difficulties (p=0.000) were found in emotional, behaviour, hyperactivity, and peer relationships except prosocial (p>0.05). Based on the multiple equation model, it was found that the mental-emotional risks among adolescents in this senior high school was influenced by Y=0.87+0.266emotional+0.183behaviour+0.234hyperactivity+0.203peer+0.021prosocial.

Conclusions:
Early detection needs to be carried out to find out an initial problem. It is hoped that the teacher will recognize the level of difficulties and strength of the students and to be able to provide positive interventions.
Low-frequency aerobic exercise and stretching improves exercise self-efficacy in inactive older adults with chronic insomnia and depressive symptoms

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Background:
Physical activity and exercise have been shown to induce considerable improvements in insomniac and depressive populations with long-term exercise adherence required to maintain its positive benefits. However, studies investigating the role of low-frequency aerobic exercise in inducing improvements in exercise self-efficacy, a predictor of long-term exercise adherence, are lacking. This study examined the effects of low-frequency moderate and vigorous-intensity aerobic exercise on exercise self-efficacy and outcome expectations in inactive older adults with chronic insomnia and depressive symptoms.

Methods:
Twenty-one inactive older adults (age: 65.52±6.42) with chronic insomnia and depressive symptoms were allocated into three groups, which respectively received 6 weeks of the following training: 1) moderate-intensity aerobic exercise performed once a week (MIE×1/wk, n=7), 2) vigorous-intensity aerobic exercise performed once a week (VIE×1/wk, n=7), or-3) stretching exercise performed once a week (CON, n=7). Exercise self-efficacy and outcome expectations were examined at baseline and week 6.

Results:
Stretching, moderate-intensity aerobic exercise, and vigorous-intensity aerobic exercise demonstrated an increase of 10%, 57% and 17% respectively in exercise self-efficacy when compared to baseline. Exercise self-efficacy significantly improved in all three groups when compared to baseline (P<0.05), however, there was no significant difference between groups (P>0.05). Exercise outcome expectations were not significantly different between groups (P>0.05) or when compared to baseline (P>0.05).

Conclusions:
The results reveal that all three groups improved exercise self-efficacy when compared to baseline with moderate-intensity aerobic exercise exhibiting the greatest improvement. Less intensive exercises, such as stretching and moderate-intensity aerobic exercise have fewer exercise barriers and require less exercise capacity to perform. This implies that less intensive exercises, such as moderate-intensity aerobic exercise may be more suitable for improving exercise self-efficacy in inactive older adults with chronic insomnia and depressive symptoms, subsequently enhancing their long-term exercise adherence.
Effects of moderate and vigorous exercise on cognitive performance in older adults with mild cognitive impairment: A pilot study

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Background:
Exercise can lead to significant improvements in cognitive performance. However, it is not clear whether exercise intensity influences the effect of exercise on cognition. Therefore, we aimed to investigate the effects of moderate and vigorous-intensity exercise on parameters of cognitive performance in older adults with mild cognitive impairment (MCI).

Methods:
Twenty older adults with MCI were randomly allocated to 1) vigorous exercise (VIG, n=7); 2) moderate exercise (MOD, n=6); or 3) control group (CON, n=7) for 12 weeks. Participants in the VIG group performed three 25-min sessions of high-intensity walking per week, while participants in the MOD group engaged in three 50-min walking sessions at moderate intensity every week. The control group performed stretching exercises for 75 minutes every week. The weekly volumes of exercise in VIG and MOD were matched. The primary outcome was the language domain of cognition, measured with the verbal fluency test. The secondary outcome was the attention domain, measured with the Stroop test. General estimating equations were used to analyze data. A significant group-time interaction indicated a difference among interventions. Pairwise comparison was performed using a closed test procedure.

Results:
There was a significant time-group interaction in verbal fluency (P<0.001). Pairwise comparisons showed significant improvements of both VIG and MOD when compared to CON (P<0.001), however no differences between VIG and MOD were found (P=0.956). Analysis of secondary outcomes revealed no significant differences among the interventions.

Conclusions:
Twelve weeks of both vigorous and moderate intensity walking exercises are similarly effective in improving outcomes of verbal cognition in older adults with mild cognitive impairment. These improvements were not reflected in the attention domain, suggesting that exercise might differently affect various domains of cognition.
Validating pharmaceutical pictograms for Hong Kong’s elderly, carer and Urdu speaking ethnic minority

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Background:
Hong Kong medication labels are regulated to show comprehensive information. However, the layout of the label is not patient-centric: the fonts are too small for the elderly. The information is too wordy. The instructions are too complicated and not inclusive for patients with limited literacy skills and language proficiency.

Making global reference, we have developed a set of culturally sensitive drug icons (www.drugicon.cc) with education kit (leaflets and videos) in creative commons license to facilitate a wider adoption and co-creation in academic and commercial use.

Methods:
We have partnered with 10 community care services teams providing community pharmacy services, outreach nursing services, drug education and advisory support, elderly centers, carer supporting organizations and ethnic minorities support teams. We have conducted workshops on the usage of the education kit which contains a pre-printed pictogram pillbox, pictogram stickers and a summary sheet in their native languages (i.e. Chinese, English and Urdu). We conducted 2-level of study with service providers and end-users through focus groups and surveys for 4 months from June to October 2021.

Results:
Although the study is still in progress, we have identified some preliminary findings: All providers recognize the education kit with videos to be very helpful in their service delivery as it helps open the dialogue with patients and conduct the education in medication usage. Ethnic minority users are engaged as they find the tool very considerate to them and it helps raise their awareness and understanding of medication usage.

In addition, statistically, we find the higher the age, the lower understanding, and no difference in understanding between healthcare professional and general users.

Conclusions:
With the well-received preliminary findings, we are working on the qualitative data to enhance the pictograms for better communication and to expand our language sets to cover Indonesian Bahasa and Nepali in late 2021.
Serum micronutrients and prostate cancer risk: The Singapore prostate cancer study

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Background:
Micronutrients refer to nutrients required by the body in trace amounts. Previous studies on the role of micronutrients in prostate cancer have focused on associations with vitamin A, carotenoids, and vitamin E. However, evidence remains inconclusive, and little is known regarding effect modification and the mixture effect of micronutrients. The purpose is to evaluate the associations between serum micronutrient levels, both individually and in groups, and prostate cancer risk.

Methods:
In this case-control study of 162 prostate cancer cases and 124 controls, we measured serum levels of 15 micronutrients (retinol, lutein, zeaxanthin, α-cryptoxanthin, β-cryptoxanthin, α-carotene, β-carotene, lycopene, ubiquinone, δ-tocopherol, γ-tocopherol, α-tocopherol, δ-tocotrienol, γ-tocotrienol, α-tocotrienol) using liquid chromatography/tandem mass spectrometry. Logistic regression was used to estimate the odds ratio (OR) and 95% confidence interval (CI) of prostate cancer risk for each micronutrient, adjusting for potential confounders. Analyses were stratified by smoking and alcohol consumption status. Using weighted quantile sum regression, the combined effect of each micronutrient group (vitamin A and carotenoids, and vitamin E) were evaluated.

Results:
Higher levels of retinol, lutein, α-carotene, β-carotene, ubiquinone, α-tocopherol, δ-tocotrienol, γ-tocotrienol, α-tocotrienol were significantly and directly associated with prostate cancer risk. Among smokers, associations were stronger for lutein, β-cryptoxanthin and β-carotene, as compared to non-smokers (p-interaction <0.05). Similarly, associations were stronger for lutein, β-cryptoxanthin, ubiquinone and α-tocotrienol, among alcohol drinkers compared to non-drinkers (p-interaction <0.05). For γ-tocotrienol, the association was stronger in non-drinkers compared to alcohol consumers. Retinol (weight = 38%) and α-tocotrienol (weight = 34%) contributed most to the vitamin A and carotenoids index and vitamin E index associations, respectively.

Conclusions:
Several serum micronutrients were associated with prostate cancer risk, with significant effect modification by smoking and alcohol consumption status. Specific forms of vitamin A or E were more strongly associated with prostate cancer risk. Our findings may shed light on prostate cancer etiology.
Older adults who exercise habitually are less susceptible to false memory than their sedentary counterparts: Ancillary study of a pilot randomized trial

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Background:
Previous studies on younger adults have shown that acute moderate-intensity aerobic exercise can enhance episodic memory function and thus minimize memory distortions, as measured by the Deese-Roediger-McDermott false memory paradigm. The present study aimed to extend this line of research to older adults.

Methods:
Recruited from our pilot randomized trial, older adults with mild cognitive impairment who had received a 24-week brisk walking and muscle conditioning exercise intervention (n=6, 3 females, mean age and standard deviation: 64.2, 7.8) and passive controls (n=6, 6 females, mean age and standard deviation: 66.3, 4.5) volunteered to complete memory assessments using their personal computers once before and once after a 60-minute bout of supervised exercise and no intervention respectively. We assessed memory performance with 18 Deese-Roediger-McDermott word lists and old/new recognition tests that we developed, and further analyzed recognition memory performance with signal detection analysis using sensitivity and response criterion indices. Unpaired t-tests and generalized estimating equations were used to compare pre- and post-performance across groups.

Results:
There were no significant differences in false positives to related lures and true positives between groups at either time points. Compared with the control group, the exercise group made less false positives to list word controls at baseline (p=0.049) and less false positives to unrelated lures at both time points (p<0.001). Compared with the exercise group, the control group’s recognition accuracy was just below chance level at baseline (p=0.056) and they adopted a more liberal response bias for critical lures at both time points (p<0.001).

Conclusions:
Although false recognition of related lures prevailed in both groups, participants’ physical activity status may explain the observed differences in the memory performance. Randomized studies with comparable samples are needed to verify these findings.
The application of an innovative health education and training technological framework for improving the health education on physical and mental health for the aging population

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Background:
The purpose of this research is to study the use of an Innovative Health Technological Framework for improving physical and mental health education of the aging population in Hong Kong. In Hong Kong, there are around 1.3 million elderly adults (aged 65 or over), which is around 15.7% of the total population in 2021. According to Elderly Commission (2021), 75% of local people aged 65 or over are suffering from one or more chronic diseases, such as diabetes, heart disease and chronic bronchitis. Depression and dementia are the two most common mental conditions that deserve greater attention amongst elderly. With effective health education and promotion, many of these diseases are preventable. The promotion of elderly health education as a concept and as a practice among the Hong Kong community is therefore important and worthwhile, both from an individual and societal perspective.

Methods:
Tsui et al. (2020) and Tsui et al. (2015) have built an innovative technological framework for improving health education and quality of life of the ageing population. Different innovative technologies (such as mobile technologies, online health platforms, social media and networks, videoconferencing, and online medical consultative services) are applied for communication, collaboration, training and education of different involved parties and learners.

Results:
This framework has been successfully applied in the course ‘Live Nutritiously Regimen and Technology’ run by the Elder Academy of a local university and was proven to improve the health education of the elderly. According to the Biopsychosocial and Lifestyle Model for treatments, this framework could guide the processes of physical, psychological, social and lifestyle treatments to elderly.

Conclusions:
The research findings can be applied across a range of public health and education stakeholders for improving the health education as well as the health of ageing population in Hong Kong.
Effects of intensity and frequency of walking exercise on cardiorespiratory fitness among older adults with insomnia: A pilot study

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Background:
Previous studies have found an inverse association between insomnia and cardiorespiratory fitness. However, limited longitudinal studies have examined the effects of exercise intensity and frequency of physical activities on improving cardiorespiratory fitness. Therefore, this study aims to compare the effectiveness of different aerobic exercise frequencies (i.e., regular exercise pattern vs. weekend warrior) and intensities (i.e., moderate-intensity vs. vigorous-intensity) on improving cardiorespiratory fitness among insomniac older adults.

Methods:
Thirty-five older adults age 50 or above were allocated into five groups: 1) three sessions of 50-minutes moderate-intensity aerobic exercise weekly, n=7), 2) one session of 150-minutes moderate-intensity aerobic exercise weekly, n=7), 3) three sessions of 25-minutes vigorous-intensity aerobic exercise weekly (n=8), and 4) one session of 75-minutes vigorous-intensity aerobic exercise weekly n=8), and 5) 75 minutes of stretching exercise performed one session weekly as an attention control group (n=6). The total exercise volume was matched in all exercise groups. Cardiorespiratory fitness was assessed by maximal oxygen consumption obtained during the maximal exercise test before and after the 12-week of the intervention.

Results:
Our generalized estimated equation analyses indicated a significant group-by-time interaction effect on cardiorespiratory fitness. Based on the post hoc analysis, moderate-intensity exercise thrice weekly, vigorous-intensity exercise thrice weekly, and vigorous-intensity exercise once weekly showed a significantly higher value of maximal oxygen consumption than the attention control group after 12 weeks of intervention. However, no significant difference was detected between one session weekly of moderate-intensity exercise and the attention control group at 12-week.

Conclusions:
This pilot study showed that three sessions of aerobic exercise weekly could improve cardiovascular fitness among older adults with insomnia regardless of intensity. However, our data revealed that one session of aerobic exercise weekly only improved cardiovascular fitness under vigorous intensity.
Effects of exercise training intensity on objective and subjective cognitive performance in older adults with mild cognitive impairment: A pilot study

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Background:
Exercise is known to improve cognitive performance. However, studies investigating the effects of exercise intensity on cognitive performance are scarce. This study examined the effects of moderate and vigorous-intensity exercise on objective and subjective cognitive performance in older adults with mild cognitive impairment.

Methods:
Twenty older adults aged 50 years or above with mild cognitive impairment were allocated into three groups, namely vigorous exercise group (n=7, 12-week, vigorous walking exercise comprising three 25-minute sessions per week), moderate exercise group (n=7, 12-week moderate walking exercise comprising three 50-minute sessions per week) and control group (n=6, 12-week stretching exercise comprising one 75-minute session per week). The weekly exercise volumes of vigorous exercise and moderate exercise groups were identical whereas the weekly exercise duration of the control group was equivalent to the vigorous exercise group. The objective and subjective cognitive performance were assessed by the Hong Kong version of the Montreal Cognitive Assessment and Cognitive Self-report Questionnaire respectively. Data were analyzed by generalized estimating equations. Differences among groups in any given outcome were indicated by a significant group-by-time interaction. Pairwise comparison was performed using a closed test procedure.

Results:
No significant group-by-time interaction in objective cognitive performance was observed. However, a significant time effect (P<0.001) suggested that all the groups exhibited a significant improvement in objective cognitive performance compared with baseline. There was a significant group-by-time interaction in subjective cognitive performance (P=0.005). Pairwise comparison indicated that both exercise groups induced a larger improvement in subjective cognitive performance (both P<0.05) than the control group, although the differences between the two exercise groups did not differ significantly.

Conclusions:
Both moderate and vigorous walking exercises were equally efficacious in improving subjective cognitive performance. Moreover, the magnitudes at which the same exercise intervention improves objective and subjective cognitive performance may differ regardless of the prescribed intensities.
A comparison of effectiveness of non-pharmaceutical interventions against COVID-19 in Hong Kong and Seoul

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Background:
Hong Kong and Seoul, two densely populated Asian metropolises, have restricted the spread of the coronavirus disease 2019 (COVID-19) using nonpharmaceutical interventions. However, as the highly contagious variants of COVID-19 spread rapidly around the world, it is necessary to reassess their effectiveness. This study aims to observe and compare the evolution of Hong Kong and Seoul governments' nonpharmaceutical interventions and evaluate their contributions to local outbreaks over time, considering public compliance trends.

Methods:
First, I described the characteristics of Hong Kong and Seoul epidemic curves and categorized phases of non-pharmaceutical intervention implementations in Hong Kong and Seoul. Then, I estimated time-varying effective reproduction numbers with 7-day sliding windows, using daily incidence available from 30 January 2020 to 30 April 2021 and serial interval distribution parameters from existing studies. Finally, considering incidence, effective reproduction number estimates, and public mobility trends, the effectiveness of nonpharmaceutical interventions in Hong Kong and Seoul were evaluated.

Results:
I observed a synchronized decrease in all non-residential activities for Hong Kong and Seoul with nonpharmaceutical interventions during the first year of the epidemic. However, from early 2021, there were gradual but apparent upward trends in all non-residential activities in both cities even with tightened measures, suggesting decreasing public compliance. Nonetheless, effective reproduction number remained relatively stable during this period when both governments have established a similar package of nonpharmaceutical interventions containing social distancing with mandatory testing on high-risk groups.

Conclusions:
Both governments have optimized their COVID-19 management strategies as decreasing public compliance can undermine the impact of interventions. Prevailing lessons from Hong Kong and Seoul’s responses to the COVID-19 imply that public health officials are recommended to reassess the best practice of nonpharmaceutical interventions as the epidemic progresses with increasing variants and decreasing public compliance.
Effects of different aerobic exercise frequencies and intensities on objective sleep parameters among older adults with insomnia: A pilot study

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Background:
Insomnia is highly prevalent among older adults. Exercise is an effective approach to improve sleep, yet how different intensities and frequencies of aerobic exercise affect objective sleep parameters is largely unclear. The purpose of this study is to compare the effect of various exercise frequencies and intensities on improving sleep among older adults with insomnia using actigraphy-based objective measurements.

Methods:
Participants aged fifty years or older (age: 62.2±4.8yrs) with chronic insomnia were allocated into five groups: 1) 50 minutes of moderate-intensity walking performed three sessions weekly (n=7), 2) 150 minutes of moderate-intensity walking performed one session weekly (n=7), 3) 25 minutes of vigorous-intensity walking performed three sessions weekly (n=8), and 4) 75 minutes of vigorous-intensity walking performed one session weekly (n=8), and 5) 75 minutes of stretching exercise performed one session weekly as the attention control group (n=6). 7-day wrist actigraphy was used to objectively assess the sleep parameters (sleep efficiency, wake time after sleep onset, number of awakenings per night, sleep onset latency, total sleep time, and average wake time per awakening) before and after the 12-week intervention. Data analysis was performed using generalized estimated equations.

Results:
No significant group-by-time interaction was observed in all objective sleep parameters. Notably, the average wake time per awakening tended to be reduced in groups that performed moderate-intensity walking for three sessions weekly, vigorous-intensity walking for three sessions weekly, and vigorous-intensity walking for one session weekly, but the group-by-time interactions did not reach statistical significance (interaction effect: p=0.087).

Conclusions:
Although there is a trend of differences in the average wake time per awakening across groups, the differences between the attention control group and aerobic exercise groups did not reach statistical significance. Further studies with larger sample sizes are warranted to confirm the intervention effects.
Antipsychotic drugs and risk of breast cancer: A systematic review protocol

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Background:
Antipsychotic medications have been suggested to increase the risk of breast cancer. The blocking of dopamine 2 receptor (D2R) elevates prolactin level, which stimulates breast cell proliferation and tumour vascularization. The prolactin-Janus kinase 2 (JAK2)-signal transducer and activator of transcription 5 (STAT5) induce cell differentiation and suppress apoptosis, which are mechanisms that trigger tumour development of precancerous cells. However, existing epidemiological evidence on the association between antipsychotic medication and breast cancer is inconclusive. The aims of this planned systematic review and meta-analysis are (1) to determine whether exposure to antipsychotic medication is associated with increased risk of breast cancer and (2) to establish mediating factors that govern the relationship between antipsychotics and breast cancer.

Methods:
Electronic bibliographic databases, including PubMed, Medline, and Embase, will be searched using predefined search terms to identify relevant studies that include empirical findings on the association between antipsychotic medication and diagnosis records of breast cancer. Only primary observational studies with cross-sectional, prospective or retrospective cohort, and case-control design will be included. The methodological quality of the included studies will be assessed based on the Strengthening of Reporting of observational studies in Epidemiology (STROBE) guidelines. A random-effects meta-analysis will be conducted with the statistical software R (version 4.1.0). A detailed flow chart that illustrates the review procedures will be presented.

Results: No results are available yet.

Conclusions:
This review and meta-analysis are among the first to systematically integrate the available evidence on the association between exposure to antipsychotic drugs and breast cancer, and the mediating factors governing this association. By summarizing information about potential factors explaining how antipsychotic drugs may be associated with breast cancer, the findings from this study will provide directions for future research and provide practitioners with an understanding of the nature and consequences of antipsychotic prescriptions that are contributable to the safety profile for such interventions.
Multimorbidity in randomized controlled trials of serotonin reuptake inhibitors: A systematic review protocol

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Background:
The population with multimorbidity has increased globally over the years, yet randomized controlled trials (RCTs) are prone to exclude subjects with multiple chronic illnesses, substantially limiting their generalizability. Serotonin reuptake inhibitors (SSRIs) are common antidepressants used to treat neuropsychiatric disorders. While the efficacy of SSRIs on depression is well-established, a comprehensive review of consideration of multimorbidity in these RCTs has never been conducted. The aim of this systematic review is to determine the frequency with which participants with multimorbidity are represented in RCTs looking at the use of SSRI as an intervention for depressed patients, published between 2011–2021.

Methods:
PubMed, PsycINFO, Embase, and Cochrane Central will be searched from 2011 to 2021 to identify RCTs examining any type of SSRIs as the intervention on treating major depressive disorder with multimorbidity. Two independent reviewers will extract information according to the eligibility criteria and evaluate the reporting and consideration of multimorbidity in RCT analyses. The risk of bias will be assessed using the Cochrane Collaboration Risk of Bias Tool.

Results: No results are available yet.

Conclusions:
This systematic review will be among the first to systematically summarize the handling of multimorbidity in published RCTs of SSRI in the past decade. The results of this systematic review will provide important information on the generalizability of the extant RCTs examining the efficacy of SSRIs. Given the scarce evidence and the public health relevance, this work not only provide significant insights for clinicians in prescription practices, but also highlight the potential necessity to enhance the consideration of multimorbidity in future SSRI clinical trial research.
Cardiovascular safety of dextroamphetamine in patients with treatment-resistant depression: A retrospective cohort study

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Background:
Dextroamphetamine (D-AMP) is one of the most commonly used psychostimulants for treatment-resistant depression (TRD) due to its facilitating effect on dopaminergic neurotransmission and prevention of catecholamine reuptake. Similar to other psychostimulants, however, D-AMP intake has been noted to increase the risk of cardiovascular disease (CVD). Given that depression is associated with increased risk of CVD-related outcomes, whether D-AMP imposes a further escalation of these risks is unclear. Using data from a population-based cohort in the UK, this study aims to examine whether the use of D-AMP is associated with escalated CVD risks among patients with TRD.

Methods:
Data from a retrospective longitudinal cohort will be extracted using The Health Improvement Network (THIN) database incorporating adults with TRD with no history of CVD at baseline. Patients who were diagnosed with major depressive episodes and had been prescribed three types of antidepressants of at least a 28-day duration for the first two types respectively will be defined as the TRD cohort. Data on sociodemographic, clinical characteristics, and treatment will also be extracted for propensity score matching. Morbidities data will be identified using Read codes. A Cox proportional-hazards model will be performed to determine the escalated risks of CVD outcomes related to the use of dextroamphetamine after adjusting for pre-specified covariates. Sensitivity analysis will be performed to assess the robustness of the model.

Results: No results are available yet.

Conclusions:
The cardiovascular safety research of dextroamphetamine has been primarily focused on patients with attention deficit hyperactivity disorder. If D-AMP is shown to be efficacious in controlling TRD symptoms, it is important to consummate its safety profile among the target patients. Using population-based cohort data, the results of this study will provide evidence to practitioners and policymakers in the usage of D-AMP by assessing the marginal increase of CVD risk of D-AMP intake on TRD patients.
Utilization of dental services amidst new protocols during the COVID-19 pandemic among residents of selected communities

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Background:
This study aimed to determine how people respond to new protocols regarding access and utilization of dental services. It sought to answer what makes people decide to utilize or not the dental services along with identified areas of utilization, including: frequency of dental visit, type of dental care facility, type of service availed of, and accessibility.

Methods:
An online survey questionnaire to determine the status of utilization of dental services amidst the pandemic among residents of selected communities was used. The chi-square test was used to determine the dependency relation between the independent variables and the moderator variable of the community. There were 740 respondents that met the inclusion criteria.

Results:
Most of the respondents never visited a dental care facility during the pandemic. The top-ranking dental facility visited or preferred is was the private clinic. Among those who availed of services, first in rank was oral prophylaxis and next was consultation. A higher percentage used private transportation to go to the dental facility and most of them got there within 10 to 30 minutes. Lockdown was a reason not to go to the dental facility. Cost was also a factor not to avail of dental services. Most of the respondents still opted to visit the dental facility, if needed, regardless of new protocols. The majority of the respondents considered the COVID-19 pandemic a general reason to not avail of dental services.

Conclusions:
There is a dependency relation between areas/indicators of utilization and the variable of community. Residents of the selected communities take into consideration the situations brought about by the pandemic in their decision to utilize/avail dental services.
‘Healthy Mind, Healthy Mom for Baby (HM2 for Baby)’: A randomized control trial to determine effect on maternal competency and perinatal depression among first time pregnant women

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Background:
Depression during pregnancy and postpartum is a major public health challenge. Programs globally to address perinatal depression generally provide significant support to the mother and the child. This study was implemented in the Philippine setting and the program was titled Healthy Mind, Healthy Mom (HM2) for Baby.

Methods:
Pregnant women aged 18-34 who received prenatal services in Antipolo, Rizal health center participated in the study. Those who fell within the Anxiety and Depression Scale cut-off score were blinded and randomly assigned to the experimental (HM2 for Baby) and control (routine care). Effect on maternal competency and perinatal depression was the primary outcome.

Results:
Fifty pregnant women received the HM2 for Baby while 45 received the routine care. The duration of the study was one year. Final multiple linear regression results showed the change in the anxiety scores increases by 2.16 points among those who were included in the HM2 intervention; maternal competency scores decrease by 0.026 points for every score increase in self-efficacy chance, competency increases by 0.29 points for every score increase in self-efficacy powerful, holding other significant factors constant. Themes that control perinatal depression and enhance maternal competency were explored. No untoward events happened during the conduct of the study.

Conclusions:
Further study is needed to conclude if HM2 for Baby had an effect on perinatal depression and maternal competency. This study has an Ethics Registration Code: 0484/C/N/17/143. Funding was obtained from the University of the East Ramon Magsaysay Memorial Medical Center, Inc. and the Commission of Higher Education.
Knowledge, attitude and practice towards Hepatitis B infection among midwives in Khartoum Bahri Midwifery School in Khartoum, Sudan 2019

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Background:
Health workers are at risk of exposure to blood-borne diseases like hepatitis B, the leading cause of liver failure. Midwives are an important part of healthcare workers, therefore the knowledge, attitude and practice of midwives don’t reflect only their health risks towards hepatitis B but indicate the possibility of their families and patients’ exposure to the disease. The goal of this study is to measure the level of knowledge, attitude and evaluate practices among midwives in Khartoum Bahri Midwifery School, Khartoum State, Sudan.

Methods:
As part of a vaccination campaign organized by the National Center of GIT and Liver Diseases and Khartoum Medical Students Association, a cross-sectional descriptive study was conducted among midwives at Khartoum Bahri midwifery school, Khartoum state, Sudan. A pre-tested and pre-validated questionnaire was implemented to examine knowledge, attitude and practice towards hepatitis B prevention. SPSS version 23.0 was used to conduct statistical analysis. Chi-square testing was used to determine the relationship between categorical variables.

Results:
A total of 39 midwives participated in the study. The results demonstrated that 94.8% had moderate knowledge, 94.8% had a moderate attitude, especially among the married participants in this study who achieved higher attitude scores in comparison to single midwives. Only 41.0% of the participants had a moderate practice. Moreover, 56.4% had a history of needlestick injuries, while only 23.1% completed hepatitis B vaccination.

Conclusions:
The majority of midwives at Khartoum Bahri Midwifery School were aware of their risk of hepatitis B infection. However, approximately three quarters mentioned that HBV is transmissible through coughing and sneezing. All midwives were vaccinated against hepatitis B, but only 23.1% were fully vaccinated. 56.4% had a history of needle stick injury. Training programs, screening and vaccination campaigns among midwives are recommended.
Barriers and facilitators of increasing physical activity levels in urban sub-Saharan Africa: A qualitative case study of Nairobi, Kenya

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Background:
Noncommunicable diseases are on the rise in sub-Saharan Africa (SSA) and prevention measures are urgently needed. Physical inactivity is one of the risk factors and could be contributing to increased prevalence of noncommunicable diseases especially in urban settings where physical activity levels may be declining. This study, therefore, aimed to use Nairobi as a case study of urban settings in SSA to explore the barriers and facilitators of increasing physical activity levels.

Methods:
Participants were recruited from one low-income community (n=15, 7 female) and one middle-income community (n=14, 6 female). In-depth interviews were audio recorded, translated (if conducted in Swahili) and transcribed verbatim. Thematic analysis was used to identify barriers and facilitators of increasing physical activity levels.

Results:
The barriers were low knowledge on recommended levels, lack of interests and value in physical activity, negative social influences (e.g., inactive friends, association of exercise with the young), unavailability of physical activity facilities and infrastructure (mainly in the low-income community), limited affordability to access facilities (e.g., gymnasiums) and limited safety of pedestrians while using roads (in the low-income community). The facilitators included exercising together (e.g., in a team), active travel, perceived benefits of physical activity, and engagement in physical activity at an early age.

Conclusions:
Interventions to increase physical activity levels should educate people on recommended levels and increase an understanding of the benefits of physical activity for people of all ages. Further, there is a need to facilitate exercising together (such as through community teams) and exposure to physical activity from childhood. Finally, active travel and leisure-time physical activity should be facilitated through increased availability, affordability, or safety in physical activity facilities and/or infrastructure.
The resilience interventions for smoking cessation study: A randomized controlled trial protocol

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Background:
Smoking prevalence in low socioeconomic status populations remains stubbornly high. A Nominal Group Technique study with this population reached consensus that interventions based on mindfulness training and setting realistic goals were socially appropriate and feasible. These findings informed the Resilience Interventions for Smoking Cessation study, an 18-month parallel-group randomized controlled trial examining the effectiveness and health-cost benefits of interventions, to enhance resilience and smoking cessation prevalence.

Methods:
The inclusion criteria for participants in this Australia-wide online study include adults currently smoking 1 or more cigarettes/day for 2 years or more, planning to quit cigarettes, household income <=$457/adult/week or receiving Australian government social security benefits, access to a smartphone and internet. Participants will be randomized to one of 4 groups: Mindfulness-integrated Cognitive Behavioural Therapy, Mindfulness, Setting Realistic Goals, or control. Blinding will not be applied. Intervention group participants undertake 3 phases: Technique learning (months 1-6); Peer-support (months 7-12); Maintenance (months 13-18). The primary outcome of smoking cessation is defined as no cigarette consumption for 14 consecutive days. Secondary aims assess resilience and cost-effectiveness. A sample size of 812 provides 80% power to observe a difference in smoking prevalence between intervention and control groups of 11.6%. A Primary analysis will be performed using intention-to-treat principles to assess effectiveness. A secondary per-protocol analysis will assess treatment efficacy.

Results:
Since recruitment opened, 1246 individuals have been assessed for eligibility. Of these, 175 were eligible, consented to participate and randomized as follows: Mindfulness-integrated Cognitive Behavioural Therapy n=40, Mindfulness n=41, Setting Realistic Goals n=37 and control n=57. Recruitment is currently open.

Conclusions:
Considering the broad adoption of mobile phones throughout high and middle to low-income settings, these novel interventions may offer a cost-effective adjunct therapy to existing smoking cessation approaches and can be delivered completely online.

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An investigation of the physical activity and mental health for PhD candidates

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Background:
Currently, there is an increasing case of suicide among Ph.D. candidates globally. It has become a critical issue for higher education as well as modern society. Various factors may contribute to the psychological disorders of Ph.D. students. Substantial previous research has warranted the positive benefits of Physical activity to mental health. Consequently, this study investigated the status of physical activity and mental health for Ph.D. candidates.

Methods:
A questionnaire was formulated by the researcher to investigate the physical activity and mental health for PhD students. The questionnaire consisted of 12 items, including demographics, self-report of mental health items, physical activity status, and sources of pressure. The questionnaire was conducted through Wenjuanxin, a popular app for questionnaires in China.

Results:
A total of 103 eligible questionnaires were collected. 65% of respondents were female, and 60% were under 29 years old. More the half of candidates argued they suffer huge pressure, anxiety, and even 2% of students showed extremely severe depression which often included suicidality. Only 5% of respondents claimed to have no pressure and anxiety. The most popular sports were yoga, dance, aerobic, and martial arts. Only 22% of candidates met the requirements of exercise guidelines. Academic and graduation ranked as the most common pressure sources, followed by economic and peer pressures.

Conclusions:
More than half of Ph.D. candidates suffer moderate mental disorder symptoms, and around 5% of them reported extreme psychological problems. Only one fifth of Ph.D. students met the standard of the exercise guide. Academics and graduation produce the most pressures to them.
A descriptive survey on risk perception, preparedness and response related to COVID-19 among individuals residing within Angeles City, Philippines: A basis for community health action plan

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Background:
The waves of coronavirus disease 2019 (COVID-19) are still being dealt with in the Philippines. As cases arise, it is vigorous that the population are well-informed particularly its upshot to the communities. The study aimed to determine the risk perception and preparedness and response to COVID-19 among residents of Angeles City, Philippines. More so, the result of the study provides a basis and execution of a community health action plan.

Methods:
The study utilized a descriptive survey research design to determine the community’s risk perception, and preparedness and response related to COVID-19. Through purposive snowball sampling, the researchers collected 273 respondents who are at least 18 years of age and are residents of Angeles City. COVID-19 Risk Perception Assessment Scale (5 items), and World Health Organization Preparedness and Response Rapid Quantitative Assessment tool (19 items) were utilized in assessing the respondents’ risk perception, preparedness and response, respectively. Additionally, frequency and percentage distribution were used to describe the variables. The study underwent ethical committee review approval from one of the universities in Angeles City.

Results:
Risk perception related to COVID-19, revealed that 134 (49.1%) of the respondents perceived the probability of being infected with the virus as low. In preparedness and response, 195 (71.4%) respondents perceived that the coronavirus risk is very dangerous and 269 (98.5%) respondents considered that it is important to take actions to prevent transmission of coronavirus in the community.

Conclusions:
Most respondents are unaware if they will become affected or sick with COVID-19, however, the respondents desire to be more familiar about the treatment of COVID-19 and necessary actions to take when symptoms manifest, valuing the community health action plan. It advocates the significance of the community health action plan; tool execution by increasing the community’s awareness of COVID-19.
Global health and humanitarian services preparatory course for medical students

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Background:
Li Ka Shing Faculty of Medicine offers students in their EY a unique opportunity to enhance their learning experience through self-tailored learning activities in following categories: (1) research, (2) intercalation or (3) humanitarian services. Students selecting humanitarian services are required to pass the preparatory course to ensure their readiness to embark on their journey for the benefit of communities. The main objective of the study was to design and evaluate the Global Health course aiming to prepare medical students for their humanitarian services during Year 3 Enrichment Year (EY).

Methods:
The course was designed according to the recommendations of the Consortium of Universities for Global Health, Medical Council of Hong Kong, and HKU educational aims. Innovative teaching methods and interdisciplinary collaboration strategies were adopted to support students’ learning. A mixed method study was used for the course evaluation. Marking scores using grade descriptors and students’ course evaluation questionnaires were analysed quantitatively using frequency analysis and a 2-tailed t-test to evaluate course effectiveness. The qualitative analysis of student focus groups (N=15) was used to analyse the main criteria important for gaining GH competencies.

Results:
Students’ evaluation showed the highest satisfaction with tutors’ guidance (mean 3.74, p<0.001), interactive workshops, and overall course quality (mean 3.71 and 3.55 respectively, p<.001). All students (N=34) passed the course (≥ 60% of the total score). The lowest sub-scores were obtained in a project assessing population needs (average score 63%) and in a quiz (average score 68%) where 8.8% of students failed. The highest sub-scores (average 79%) were obtained in problem base case studies.

Conclusions:
The course was effective in developing students’ main GH competencies to pursue humanitarian work. Careful planning of learning activities and assessment strategies is necessary to ensure students’ improvement in knowledge and skills before commencing humanitarian activities.
Oral hygiene routine of dentistry students during the COVID-19 quarantine

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Background:
Oral hygiene as a self-care approach during the pandemic is very important. As future oral health caregivers, the role of dentistry students as role models should not be overlooked. This posed the need to assess the oral hygiene routine of dentistry students. The oral hygiene routine of students during the COVID-19 quarantine was determined through: oral hygiene measures used, oral hygiene products used, frequency of brushing, time of day they make sure to brush, time of day they prefer to floss, frequency of mouth rinsing, and perceived presence of changes in oral hygiene routine during the quarantine. The oral hygiene routine of the students was also compared by gender.

Methods:
This descriptive survey utilized an online questionnaire distributed to dentistry students who were enrolled during the COVID-19 quarantine. Frequency counts and percentage were used to present and interpret the data. Chi-square test was used to compare the oral hygiene routine of the male and female dentistry students.

Results:
The majority of the students practiced “tooth brushing” as their main oral hygiene measure during the pandemic and they practiced “mouth rinsing” and “flossing” to supplement toothbrushing. They used toothbrushes, toothpaste, floss, mouthwash, and tongue cleaner. The majority of the students brushed twice a day and believed in the principle of brushing before bedtime. The majority also preferred to floss after brushing in the evening and used mouth rinse once or twice a day.

Conclusions:
Dentistry students have maintained their oral hygiene routine even though there has been changes in their general environment and study methods due to the pandemic. A higher percentage of females brush twice a day compared to males. For the other variables, there was no significant difference according to gender.
Towards the development of educational innovative programs for pharmacy assistants and pharmacists in the community and hospital settings

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Background:
The majority of countries have expanded the responsibilities of pharmacists to patient-centered roles and resulted in increased workforce demand and supply. The Philippines has already adopted the patient-centered roles, but the development of the advanced frameworks for implementing the pharmacy profession is still underway. The study aims to determine the level of willingness of the pharmacy assistants and pharmacists to undergo educational innovative programs in a local university in the community and hospital settings.

Methods:
The researchers developed tools both for pharmacy assistants and pharmacists that underwent content validation and pilot testing. The researchers also conducted interviews whereby extracted statements were used to validate the quantitative data collected.

Results:
Regardless of age, area of specialization, educational attainment and length of experience, pharmacy assistants and pharmacists had the same level of willingness, therefore, were not considered as factors to undergo educational innovative programs. The most common barriers include financial capability, time, family constraints and heavy workload. They were motivated and encouraged to undergo innovative programs if one institution was offering lecture or live learning interaction, online learning, practical learning and modular learning.

Conclusion:
The possible innovative programs that they recommended are CPD programs, TESDA programs, Associate of Applied Science in Pharmacy Technology, Baccalaureate Program for Pharmacy Assistants, Master of Science in Pharmacy and Doctor of Pharmacy. Overall, pharmacy assistants and pharmacists are willing to undergo educational innovative programs.
Impact of COVID-19 on seeking dental care

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Background:
The COVID-19 pandemic greatly affected people's lives as it forced a halt to the sources of their livelihood including the closure of some businesses, leading to unemployment. It also obstructed people's access to oral care. The pandemic has changed people's priorities, which resulted in an impact to dental institutions, and the possibility of contracting the virus brought fear to families and health care workers in the dental field. The researchers investigated the extent of changes caused by the pandemic and if people view seeking oral health services as important, even as the economic recession hit the country. Maslow’s Hierarchy of Needs was used to present the level of priority dental care belongs to, and to discern if people will then prioritize oral health after learning its necessity.

Methods:
The descriptive survey research design was utilized in this study. This quantitative study utilized a validated questionnaire as a gathering tool as a form which was distributed among the chosen respondents through email.

Results:
The frequency of visits to the dentist or dental facility decreased during the pandemic, indicating a moderate negative impact of COVID-19 on seeking dental care. Respondents demonstrated awareness of the importance of going to the dentist and of undergoing regular dental check-ups during the pandemic, despite the economic recession. However, they were hampered by fear of the risks of COVID-19 as well as financial problems.

Conclusions:
The risk of COVID-19 infection and the financial situation are responsible for the moderate negative impact of the pandemic on seeking dental care.
Feasibility of publicly supported World Health Organization’s “Best Buys” alcohol harms reduction strategies in Hong Kong: Qualitative interviews with workers involved in alcohol sale and distribution

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Background:
In response to the burden caused by alcohol use, the World Health Organization (WHO) recommended three “Best Buys” strategies to reduce alcohol-related harms: increased alcohol taxation, alcohol availability restriction, and comprehensive advertisement bans. Despite the increasing drinking prevalence and alcohol-related problems, there are few alcohol control policies implemented in Hong Kong. Evaluating the view of workers involved in the sale and distribution of alcohol is important for decision making. Building upon a 2018 population-based study that examined the public acceptability of WHO-recommended strategies in Hong Kong, this study aims to assess the perceived feasibility and potential impacts of the publicly supported WHO “Best Buys” strategies among workers involved in food and beverage services and alcohol retail sales in Hong Kong.

Methods:
Using the results from a population-based survey, semi-structured interviews were conducted with food and beverage workers (n=4) and alcohol retailers (n=4) in early 2019. Qualitative thematic analysis was used to identify consensus on the most and least feasible policies among the five most publicly endorsed alcohol control strategies from the survey, and to find underlying contextualized interpretations.

Results:
Among the discussed strategies, ID checks for alcohol purchases were perceived the most feasible given its ease of implementation. Restricting alcohol serving hours in bars was considered the least feasible, considering the potential public backlash, counterproductive effects, and harms on local business and tourism. Interviewees had the most differing views on moderate (5-10%) beer and wine taxes. Education was constantly mentioned as an alternative strategy. Freedom of choice was foregrounded to oppose the policy options focusing on restricting sales.

Conclusions:
ID checks on sales should be strictly enforced to mitigate alcohol harm among young drinkers. Alcohol availability restriction and taxation, which have been widely adopted elsewhere, may encounter barriers if implemented in Hong Kong, especially in alcohol sales and distribution.
Clinical and chest CT findings among COVID-19 patients in Bangladesh

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Background:
Currently Bangladesh has been experiencing the pathogen's spike afresh the worst period of the third wave of the COVID-19 pandemic. We aimed to investigate chest CT and clinical findings of COVID-19 patients in the current context of Bangladesh.

Methods:
This is a single centered cross-sectional study conducted at Chittagong Ma O Shishu Hospital. 246 COVID-19 patients were recruited during March 2021 to June 2021, from a tertiary hospital located in Chittagong, Bangladesh.

Results:
Majority of the patients presented with fever (90%, n=224) and cough 74.7% (n=186). Only a few patients had dyspnoea 13.3% (n=33), body ache (3.6%), sore throat (0.4%), fatigue (0.8%), diarrhoea (1.2%), headache (2%), and anosmia (2%). In the CT examination of 249 patients, majority of the patients had abnormal CT image findings 90.4% (n=225) patients and 8.4%(n=21) patients’ chest image was normal. CT scan image findings revealed 89.6% had bilateral lung patchy opacities, 84.3% had ground glass opacities and crazy paving appearance, 29.3% had consolidation, and 16.9% had traction bronchiectasis. Out of 225, only 2 patients exhibited atypical unilateral lung involvement. Clinical features i.e., fever (92.4%), dyspnoea (13.8%), cough (77.8%), sore throat (0.4%), fatigue (1.8%), diarrhoea (1.3%), and anosmia (2.2%) were significantly more common (P<0.05) among the patients with positive radiological findings compared to those with negative radiological findings. However, we found patients with negative radiological findings more likely to have body ache (4.8%) compared to those with positive radiological findings (P=0.012). There was no statistically significant difference in the demographic and patient’s comorbidities or chronic illness factors between these two radiological groups.

Conclusions:
The majority of our patients had lung involvement. We found radiological findings have no association irrespective of co-morbidities. CT scan is a good radiological modality for screening and detecting the progression of COVID-19, in both high risk and low risk groups.
The effect of a new tax incentive policy on the uptake of voluntary individual private health insurance: A systematic review of studies with pre-post analysis

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Background:
Many countries in the Pacific Rim have a sizable private healthcare sector in urban areas. To reduce the burden on the public sector, tax incentives (TI) have been offered for purchasing voluntary individual private health insurance (VIPHI) in many countries. However, it appears that the effect of launching a new TI policy on VPHI uptake has not been clearly established. There is no empirical guidance for policymakers on the magnitude of TI needed to achieve their policy objectives, considering the particularities of a healthcare ecosystem. This review examines the status of this discussion.

Methods:
PubMed, CNKI (China), CiNii (Japan), KISS (Korea) and Latin American Repository Network were searched for studies about the effect of a new TI policy on its target population’s uptake of VIPHI. We included studies using pre-post analyses with proper control groups. We extracted these explanatory variables from included studies if available: demographics, eligibility for public insurance or universal healthcare, types of TI-eligible plans, public sector’s market share, and TI as a percentage of average income, income tax and insurance premium. Response variables are the absolute and relative increases in VIPHI uptake.

Results:
291 studies were screened, and two met the inclusion criteria. A US study evaluated a TI in 1991 for low-income citizens eligible for Medicaid, to purchase any commercial plan. TI as 2% of average income or 26% of premium led to 3.6% absolute or 11% relative increase in VIPHI. A Chinese study found a TI in 2016 for residents (covered by public insurance) in pilot cities significantly increased VIPHI uptake, although the actual numbers were not reported.

Conclusions:
High-quality studies on the effect of TI are urgently needed to inform policymaking in each distinctive healthcare ecosystem, as TI is criticized for being not self-financing and detrimental to equality.
Anemia, poor health, and socioeconomic status among older adults in the study on global ageing and adult health (SAGE)

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Background:
Research has primarily focused on anemia in young children and pregnant women, however, anemia raises considerable health concerns for older adults. Anemia can often be easily identified and treated, yet anemia affects large populations in low- and middle-income countries. Understanding anemia rates and associated factors in different countries will help public health officials to target this disorder more effectively.

Methods:
Hemoglobin levels and survey data from 14,659 adults 50 years and older in South Africa, China, and Mexico were collected as a part of the World Health Organization's (WHO) Study on global AGEing and adult health (SAGE). Data were analyzed to describe anemia rates and test relationships among socioeconomic status, age, and anemia across the three countries.

Results:
For South Africa, China, and Mexico the rates of anemia in older adults were found to be 91%, 28%, and 24%, respectively. As indicated by the WHO, these numbers represent moderate to high public health significance. Furthermore, this study found low wealth was associated with a higher prevalence of anemia across all countries. Age was associated with a higher prevalence of anemia in Mexico, while the prevalence of anemia in China was more common among less educated, males, those suffering from poor health, and those in urban areas.

Conclusions:
Overall, this study highlights the global burden of anemia in older adults. Additionally, it documents a consistent relationship between socioeconomic status and anemia rates, which can help target public health interventions.
Impact of climate change, generational divide and human migration on sustainability and future of global health development

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Background:
The rising impact of non-traditional threats to the sustainability of upward healthcare revamp is the epitome of the new global sphere of human led and science based future world direction, one where lives and health of humanity have never been more institutionalised. With greater devastations to the local and regional economies, socio-development capacities and interventional resources as a result of climate induced natural disasters and anomalies, systemic immediate and long-term consequences on the strained healthcare services and early mitigation on health issues will be further compounded by the under investment and structural weaknesses in internal governance mechanism. Systems that are already buckling under these limitations are influenced further by the speed and depth of knowledge and human capital migration, whether induced or coerced. The unrestrained flight and mobility of talents, labour, migrants, refugees and others brought forth by chained globalisation and interdependence as well as a direct and indirect implication of global conflicts and the climate crisis will intensify both the depth of the enhancement and degradation of the health service capacities and global health development of the communities as a whole.

Methods:
Qualitative and analytical observation and interpretation.

Results:
Current and past adaptive and accommodative structural readiness in coping with the gigantic opening of movements and the impact of crises in creating the sheer volume of the people involved have failed. They underwent rapid and unprecedented changes that leaped beyond the sustainable capacity of nations and communities to avoid systemic lack of scope and resilience in coping with the changes and future demands of the changing demographic patterns and the rise of new socio-economic and health settings. The ferocity and depth of the new threats and changes in the form of unrestrained migration of threats and challenges and internal.

Conclusions:
New demands, perspectives and supply of differences in approach and reactive responses brought forth by the widening generational divide, return of hybrid threats and rise of a digitalised and cross-cultural generation with less emphasis on conventional and archaic limitations and factors will both affect the global and national health direction and policy and the prospects of a new humanity based and value pillared global and public health policy in a systemic and structural framework.
Impacts of the pandemic on the waste management practices in a low-cost apartment in Selangor, Malaysia

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Background:
A typical Malaysian household produces an average of 1.64 kg of solid waste per day. However, since the beginning of the pandemic in March 2020 and with the implemented strict standard operating procedures and movement control orders nationwide, it is a fair conjecture that this number would increase over the stay-at-home period. Therefore, this study aims to assess practices and perceptions of solid wastes disposal among residents residing in a low-cost flat in Selangor, Malaysia during the pandemic. The common problems associated with waste management of this type of housing include the inefficiency of garbage collectors, inadequate paraphernalia for waste collection, and lack of proper planning and execution from both authority and inhabitants.

Methods:
A waste mapping survey and interviews with residents of a low-cost apartment were done from March to April 2021 to establish baseline data of waste management practices. Due to the movement control order, only 42 participants aged 18 and above were interviewed face-to-face. We also conducted a systematic case study analysis to evaluate the physical conditions of waste facilities and amenities in the study area.

Results:
Results showed that the majority of the residents were not satisfied with the waste management practices during the pandemic. This was further supported by the waste mapping exercise where the garbage was spilling over the bins which were in poor condition. The most frequently discovered trash included bulky products and domestic wastes, as well as COVID-19 waste, such as face masks. Additionally, observation revealed that some waste was not properly disposed of in the designated area.

Conclusions:
Our data revealed a significant effect of the pandemic on waste management and practices in low-cost flats. Therefore, policymakers must intervene to improve waste management practices in low-cost apartments, particularly during lockdown time.
The association between weight misperception, health status and health related behaviour among the older adults: Evidence from the Singapore life panel

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Background:
Obesity is widely known as a risk factor for many chronic diseases along with the aging process. An individual’s biased perception of body weight could exacerbate such negative health outcomes. This study examined: 1) the prevalence of weight misperception among older adults; 2) the effect of weight misperception on health status and health-related behaviours.

Methods:
We analysed data of 7,693 community-based participants aged 50 years and above from the Singapore Life Panel® surveyed in 2017. Weight misperception was defined as the discrepancy between self-perceived body weight and body mass index (BMI), yielding three categories: underestimate, concordant and overestimate. Negative binomial regression was used to estimate the association between weight misperception and self-reported health status. Probability linear regression was used to assess health-related behaviours, i.e., smoking, alcohol consumption, physical activity and healthcare utilization associated with weight misperception.

Results:
43.19% of the respondents had a misperception on their body weight compared to BMI, among whom 7.84% overestimated, and 35.55% underestimated their weight. Weight misperception was more prevalent among respondents with underweight and overweight BMI scores. Weight misperception was not associated with more alcohol consumption, being a current smoker and regular physical activity. However, misperceived weight was significantly associated with less doctor visit (coefficient = -0.06, 95% confidence intervals (CI) = -0.09, -0.02 for overestimated respondents; coefficient = -0.03, 95% confidence intervals (CI) = -0.05, -0.005 for underestimated respondents). Respondents who underestimated their weight were associated with better self-reported health status (coefficient = -0.03, 95% confidence intervals (CI) = -0.04, -0.01 for overestimated respondents).

Conclusions:
The present results show the existing mismatch between perceived weight and BMI among the older adults. This study highlights the need to improve the awareness of healthy weight and proper weight management to reduce potential risk factors for further developing chronic diseases among the community-based elderly in Singapore.
The evolution of mobile health (mHealth) application in weight management among overweight/obese population in China: A systematic review

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Background:
China has experienced an alarming rise in obesity in the past decades. The rising rates of obesity and the number of people affected, as well as the related health and economic consequences, place a huge burden on China’s healthcare system. Mobile health (mHealth) provides promising options for low-cost and effective health promotion. This study aimed to describe the evolution of the application of mHealth in weight management in China and to examine the effectiveness of mHealth interventions for obesity treatment among the Chinese population.

Methods:
We searched studies conducted among the overweight/obese Chinese population via six online databases up to July 1, 2021. All the selected studies employed Randomized Control Trials with weight-related health measures (i.e., body mass index and waist circumference) or physical activity and dietary outcomes. Three independent reviewers screened studies and extracted data.

Results:
A total of 21 studies met the selection criteria, among which three were conducted among the elderly population. Four studies (19%) focused on the traditional mHealth interventions including short message services and telephone follow-ups. The remaining 17 studies (81%) evaluated intelligent services including social media-based mobile apps, self-management mobile apps, website-based platforms, and wearable devices. All the interventions except one web-based study showed significant effects on weight loss (BMI decreased ranging from 0.06 to 5.6 kg/m²; waist circumference decreased ranging from 1.55 to 8.18 cm). Intelligent mHealth interventions exhibited a significant advantage in weight loss and treatment adherence, compared to the traditional ones.

Conclusions:
Mobile Health using intelligent services seemed to be more effective in weight loss, compared to the traditional mHealth interventions. More studies examining the effects of mHealth in weight management among vulnerable and elderly populations are needed.
Nowcasting and forecasting the local real-time effective reproductive number (Rt) of COVID-19 In Hong Kong using mass transit railway data

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Background:
The real-time effective reproductive number is an integral part of monitoring the spread of COVID-19. However, computing this metric requires the use of epidemiological case data, which is plagued by a delay between infection and reporting of around 10 days. Here, we use aggregated public transportation data as a proxy for population mixing to model the spread of the epidemic, thereby circumventing the delay.

Methods:
We used anonymized daily railway transit data to elucidate real-time trends in population movement and mixing patterns. We used epidemiological data to estimate the local real-time effective reproductive number of Hong Kong using a deconvolution-based method. We examined the correlation between railway transit data and the real-time effective reproductive number. We developed predictive models to nowcast and forecast the real-time effective reproductive number using railway transit data. We evaluated the predictive performance of our models by comparing our results with epidemiological data.

Results:
Our analysis show that mass transit railway mobility data are highly correlated with the real-time effective reproductive number. For individual railway stations, the Pearson’s Correlation Coefficient ranged from 0.29 to 0.78, compared to 0.55 for the entire railway system. Mobility data of railway stations closest to the third-wave COVID-19 clusters showed stronger correlations when compared to the system-wide correlation. Our predictive model showed that fitting longer periods of data, the presence of a sustained period of COVID-19 transmission and the appearance of multiple clusters within the same geographical region resulted in more accurate predictions of the real-time effective reproductive number.

Conclusions:
Our findings show that accurate nowcast and forecast of COVID-19 epidemics can be achieved by using mass transit railway data. Our method opens the possibility for other urban centers with well-developed public transportation networks to use aggregated mobility data in modelling the spread of the epidemic.
2021 Global Health Student Poster Contest
11 Systematic Review: Overview of Occupational Safety and Health on Fishermen
Putri Ayuni Alayyannur¹, Doni Hikmat Ramdhan²
¹ Universitas Indonesia

18 Participatory Approach in 2021 Tokyo Olympic – A Mission to Combat COVID-19 Pandemic
Li Hei Long Jackie¹
¹ The University of Hong Kong

21 Effects of Vaccination and Non-pharmaceutical Interventions and Their Lag Times on the COVID-19 Pandemic: Comparison of Eight Countries
Hao Li¹, Luqi Wang¹, Mengxi Zhang¹, Yihan Lu¹, Weibing Wang¹
¹ Fudan University

26 The Cost-effectiveness of Starting Pneumococcal and Influenza Vaccination at 50 Vs. 65 Years: A Comparative Modelling Study
Hanyue Ding¹, Junjie Huang¹, Chun Ho Ngai¹, Qingjie Sun¹, Kin-on Kwok¹, Harry HX Wang², Marc Chong¹, Martin CS Wong¹
¹ The Chinese University of Hong Kong, ² Sun Yat-Sen University

35 Public Acceptability of Alcohol Marketing Regulation in Hong Kong: A Population-Based Study
Rufina H.W. Chan¹, Jiazhou Yu¹, Tim Sumerlin¹, Samuel Y.S. Wong¹, Ben H.K. Yip¹, Vincent C.H. Chung¹, Jean H. Kim¹
¹ The Chinese University of Hong Kong

37 Intravenous Immunoglobulins and Corticosteroids for Sepsis: A Systematic Review and Network Meta-analysis
Wang Leong Kevin So¹, Ka Chung Abraham Wai¹, Carlos King Ho Wong¹
¹ The University of Hong Kong
40
Status of E-Learning at University Level in Bangladesh: Opportunities and Limitations
Naima Halim Tushi¹, Tasdidaa Shamsi², Sehely Aman³
¹University of Malaya, Bangladesh, ²Independent Public Health Researcher, Bangladesh, ³Independent Researcher, Bangladesh

45
Investigating the Development of Perceptions towards People Living with Human Immunodeficiency Virus among Pre-clinical Medical Students in A Malaysian Public University
Calvin Fernandez¹, Wei Han Hong¹, Chan Choong Foong¹
¹University of Malaya

57
Genetic Proxies for Calcium Channel Blockers and Cancer: A Mendelian Randomization Study
Bohan Fan¹, C Mary Schooling¹,², Jie Zhao¹
¹The University of Hong Kong, ²City University of New York

58
Gender Differences in Risk Perception and Mental Illness in the COVID-19 Pandemic: A Comparison in Four Major Cities Around the World
Matsunaga L.¹, Aoki T.¹, Aldrich D.², Aida J.³, Faiad C.⁴, Tseng P.⁵
¹Tohoku University, ²Northeastern University, ³Tokyo Medical and Dental University, Japan, ⁴University of Brasilia, ⁵National Taiwan Ocean University

65
Association between Family History and Lung Cancer Risk among Chinese Women in Singapore
Xin Yin¹, Cheryl Pui Yi Chan², Adeline Seow¹, Wai-Ping Yau², Wei Jie Seow¹
¹University of Singapore and National University Health System, Singapore, ²National University of Singapore

67
A Shared Vision Worldwide: Keeping Our Minds Healthy in the Urban World
Mak Chiu Ki Astor¹
¹The University of Hong Kong
70

Understanding Contact Dynamics in High-density Accommodation in Singapore
Yinxiaohe Sun, Joel Koo, Borame Dickens, Alex R Cook
National University of Singapore and National University Health System, Singapore

74

Antipsychotic Use and Subsequent Major Depressive Disorder in Patients with Generalized Anxiety Disorder: A Retrospective Cohort Study
Mandy M. Choi, Dora W.Y. Ng, Rebecca L. Huang, Edward W. W. Chan, Francisco T. T. Lai
The University of Hong Kong

88

Participation of General Practitioners in Continuous Professional Development: Why Should I Participate?
Kenneth Low Kien Yong, Foong Chan Choong
Universiti Malaya

99

A Cross-sectional Study on The Sleep Quality and Excessive Daytime Sleepiness of Filipino Medical Students in A State-run University During the Coronavirus Disease (COVID-19) Pandemic
Raphael Ian Velasco, Rafael Lorenzo G. Valenzuela, Manuel Peter Paul Jorge II
University of the Philippines

105

Activities of Daily Living and Self-care Agency of Middle-aged Adult COVID-19 Survivors: A Mixed Methods Design
Kawai Aiki G., Cabral Joanna Marianne D., Catalan Joanna H., Raymundo Agnes V.
Manila Central University

113

The Effect of ALDH2 Gene Polymorphism and Alcohol Intake on the Risk of Cancers: A Systematic Review and Meta-analysis
Ong Xin Jiong, Carmen S Ng, Minnie Au, Jianchao Quan
The University of Hong Kong
117
Intermittent Fasting Alters Urine Proteins Associated With O-linked Glycosylation Pathway
Mohammed R. A. Elhag1, Jinglei Yu2, Mariasole Da Boit2, Parvez. I. Haris1, Abu-Bakr Abu-Median1
1De Montfort University, 2University of Birmingham

137
Adaptation of Chronically Ill Elderly in Tublay, Benguet During the COVID-19 Pandemic
Aquisio, R.1, Gay-as, M1, Cunning, Y1, Felix, A.1, Semilla, K.1, Calama, E.1
1College of Nursing, Benguet State University, Philippines

146
A Machine Learning-based Knee Osteoarthritis Prognostic Model for Imaging-free Screening at Community
Ho Hin Toby Li1, Lok Chun Chan1, Chunyi Wen1
1The Hong Kong Polytechnic University

154
Knowledge, Skills, Attitude, and Compliance of Staff Nurses on Infection Control Protocol: A Sequential Explanatory Design
Camille Mae C. Laguinlin1, Rodalyn L. Esquivel1, Angela Danielle DC. Bosito1, Michael John V. Flores1
1Manila Central University

156
Association between Body Composition Parameters and Hip Fracture Risk in an Elderly Female Population
Linh T.T. Nguyen1,2, Huy G. Nguyen2, Thao P. Ho-le2, Thach S. Tran2, Rebecca Ivers1, Tuan V. Nguyen1,2
1The University of New South Wales, Sydney, 2Garvan Institute of Medical Research

157
Estimation of the Latent Period Distribution of SARS-CoV-2 in China, a Retrospectively Study
Xin Hualei1
1The University of Hong Kong
162
The Effects of Health Promotion Interventions via Social Media on Overweight/Obesity in China: A Systematic Review and Meta-analysis
Yutong Jiang¹, Meifang Chen¹, Fei Wu¹, Yang Pei¹, Xiaoyu Duan¹, Yijia Liu¹
¹Duke Kunshan University

168
The Effectiveness of Pre- and During-pregnancy Weight Management Interventions on During- and After-Pregnancy Obesity in China: A Systematic Review
Yang Pei¹, Meifang Chen¹, Yijia Liu¹, Fei Wu¹, Xiaoyu Duan¹, Jiaqi Liu³, Xuening Peng¹, Yutong Zhang¹
¹Duke Kunshan University

170
The Association between Romantic Relationship and Obesity among Adults: A Systematic Review
Fei Wu¹, Xiaoyu Duan¹, Yang Pei¹, Yijia Liu¹, Yutong Jiang¹, Meifang Chen¹
¹Duke Kunshan University

177
Prevalence and Risk Factors of First-hand and Second-hand Alcohol-related Harms among Young Adults in Hong Kong
Jiazhou Yu¹, Timothy S. Sumerlin³, Roger Y.at-York Chung¹, Benjamin H. Yip¹, Jean H. Kim¹
¹The Chinese University of Hong Kong

178
F1KDaysWithU App: Development and Pilot Testing of an Android Mobile Application on the First 1000 Days of Life to Improve Maternal and Infant Nutrition
Christian Aaron R. Ordas¹, Vianca Clarisse D. Baligaya¹, Ezekiel V. Custodio¹, Joan Faith C. Mendoza³, Pamela Irish A. Razon¹, Florimae E. Paimalan¹, Daniel G. Salunga¹
¹University of Santo Tomas

180
Trends in Tuberculosis Directly Observed Treatment Short-course (DOTS) Availment During the COVID-19 Pandemic in Metro Manila, Philippines
Vincent Schubert R. Malbas¹,²
¹University of the Philippines – Open University, Philippines, ²Soliksik, Inc., Philippines
181

Lived Experiences of Medical ICU Nurses Caring For COVID-19 Patients in Metro Manila
Julian Tyrell Glen C. Ayangco¹, Kay Athena N. Cabilao¹, Gabriele Ellaine Caicdoy¹, Darlene Faith B. Candelaria¹, Vivien E. Torrecampo¹, Miriam Bartolay¹
¹Manila Tytana Colleges

183

Student Nurses’ Motivation and Online Engagement on Skill-Based Courses and Their Influence on Self-Reported Confidence in Future Clinical Exposure
Aline O. Ambag¹, Eunice Catherine G. Coronel¹, Margarita Janna G. Del Rosario¹, Bissette Maize G. Domingo¹, Alyssa Marie R. Makasilang¹, Jose Edwin N. Manansala Jr.¹, Micelle C. Panlilio¹, Karen D. Sembrano¹, Jude Rene G. Sumang¹
¹Angeles University Foundation

184

Multi-drug Resistant Pathogens are Associated with Higher Risks of Mortality in Patients Admitted with Acute Exacerbations of COPD: A Territory Wide Study with Propensity Score Analysis
Li Yan Kiu¹, Wai Abraham¹, Chu Owen¹
¹The University of Hong Kong

185

Efficacy and Safety of Oral Pharmacologic Treatments for Chronic Prostatitis/Chronic Pelvic Pain Syndrome: A Systematic Review and Network Meta-analysis
Zongshi Qin¹, Chao Zhang², Jianbo Guo³, Jiani Wu³, J.Curtis Nickel⁴
¹The University of Hong Kong, ²Hubei University of Medicine, ³China Academy of Chinese Medical Sciences, ⁴Queen’s University

186

Malaysian Adults’ Views and Experiences on Behaviour Change Strategies in Mobile App for Diet Monitoring and Weight Management: A Qualitative Study
Bur Melissa Binti Abdul Khalil¹, Fadzilah Hanum Mohd Mydin¹, Moy Fooong Ming¹
¹Universiti Malaya
187

Associations of Hearing and Dual Sensory Loss with Mortality: A Systematic Review and Meta-analysis
Faye Yu Ci Ng¹, Benjamin Jye Jyn Tan¹, Harris Jun Jie Muhammad Danial Song¹, Nicole Kye Wen Tan¹, Li Shia Ng¹, Woei Shyang Loh¹,²
¹National University of Singapore, ²National University Health System, Singapore

188

Opening Pandora’s Loot Box: Weak Links with Problem Gambling and Player Opinions on Probability Disclosures in China
Leon Y. Xiao¹,², Tullia C. Fraser³, Philip W. S. Newall⁴
¹City, University of London, ²The Honourable Society of Lincoln’s Inn, ³Independent Researcher, ⁴CQUUniversity

189

The Correlation of Public Hospital Nurses’ Occupational Stress to their Quality of Life and Caring Behaviors during the COVID-19 Pandemic
Besas, Jannel S.¹, David, Maria Hadyline C.¹, Fabian, Inigo von M.¹, Galvan, Danica S.¹, Lumanog, Makaella Pauline D.¹, Quiambao, Rona M.¹, Musni, Triziah Mae Nicole E.¹, Quizon, Gloria Nicole P.¹, Monieno, Christine Leandro S.¹
¹Angeles University Foundation

190

Barriers to Parents-Adolescent Communication on Sexual and Reproductive Health to Prevent Premarital Sexual Behaviour: Meta-Ethnography
Putri Eka Sejati¹, Nita Dwi Astikasari²
¹Mahidol University, ²Universitas Sebelas Maret (UNS)

192

MyDietCam: A Food Recognition Integrated Dietary Assessment Smartphone Application
Nadine Alvina Kong¹, Moy Foong Ming¹, Ong Shu Hwa², Ghalib Ahmed Tahir¹, Loo Chu Kiong¹
¹University of Malaya, ²International Medical University

193

An Assessment on the Risk of Burnout among Medical Technologists at a Public Tertiary Hospital in Bulacan Amidst COVID-19
Gabrielle Alexandra L. Aguilar¹, Sunny Boy M. Balinas Jr.¹, Kenneth Carl V. Bautista¹, Marc Louie B. Belgira¹, Isabel Maria F. Garcia¹, Jocelle Hui Xing T. Khoo¹, Maria Mikaela B. Ordonia¹, Maria Luisa R. Olano¹
¹University of Santo Tomas
195
Tailor-fitting COVID-19 Health Information Through Nursing Artificial Intelligence
Trisha Mangahas¹, Angela Manimtim¹, Stephen Marasigan¹, Qjiel Mariano¹, Zysha Marquez¹, Ivan Martinez¹, Katrina Martinez¹, Angelica Mercado¹, Miguel Mirabueno¹, Kirk Nicolas¹, Anne Novales¹, Gian Carlo Torres¹, Sarah Salazar¹
¹University of Santo Tomas

196
Therapeutic Value of Using Probiotics in Diabetic Patients with Periodontal Diseases: A Systematic Review and Meta-analysis
Yuxin Yang¹, Cynthia Kar Yung Yiu¹, Hai Ming Wong¹
¹The University of Hong Kong

197
Determination of the Levels of Depression, Anxiety and Stress Symptoms and COVID-19 Stress amongst Filipino Pharmacy Students
Dorothy Ellinor Paez¹, Jame Jamille Ignacio¹, Deomarie Magdalyn Lim¹, Shyna Hazen Mabanag¹, Sheila Mae Talagtág¹, Czharina Yap¹, Angelita Rodriguez¹
¹Our Lady of Fatima University

198
Perception and Attitude of Patients with Diabetes on the Use of Telehealth Medication System for Patients’ Health Care in Cabiao, Nueva Ecija
Alliah Kay C. Prudencio¹, Cherilyn A. Bulamabo¹, Jonathan B. De Guzman¹, Angelica R. Dela Cruz¹, Justine Angeline M. Dionisio¹, Angelica S. Bautista¹, Angelita A. Rodriguez¹, Ma. Racquel R. Guino-o¹
¹Our Lady of Fatima University

199
Cyberchondria as Predictor of Unverified Online Health Information Sharing during the COVID-19 Pandemic
Tenisha Akela Malonzo¹, Kristine Angeli Baral¹, Angel Cunanan¹, Rodeanne Mae Dialogo¹, Trisha Jane Lacson¹, Kathleen Lazo¹, Aaron Paul Liwanag¹, Jonas Amiel Sula¹, Rhocette Sn Agustin¹
¹Angeles University Foundation

200
Long COVID-19 Syndrome: Its Effect on Various Organ Systems and Recommendation on Rehabilitation Plans
Zhipeng Yan¹, Ming Yang¹, Wing-Sze Yuen¹, Dennis Tse-Wah Law¹, Ching-Lung Lai¹
¹The University of Hong Kong
201

Ethics, Integrity and Retributions of Digital Detection Surveillance Systems on Infectious Diseases: Systematic Literature Review
Ma YX1, Zhao IY2, Yu CMW1, Liu J3, Dong WN1, Pang Q1, Lu XQ5, Molassiotis A2, Holroyd E6, Wong WCW1
1The University of Hong Kong, 2The Hong Kong Polytechnic University, 3Chinese Academy of Sciences, 4University of Hong Kong-Shenzhen Hospital, 5Capital Medical University, 6Auchland University of Technology

202

Vaccination and Health Protocol Implementation as Prevention Against COVID-19 Outbreak in Pondok Pesantren (Islamic Boarding-Based Education) in Yogyakarta, Indonesia
Ichlasul Amalia1, Intan Noor Hanifa2
1Universitas Gadjah Mada, 2Sunan Kalijaga Public Hospital

203

Physical Activity and Factors Affecting It among Malaysian Breast Cancer Survivors
Lee Yi Lin1,2, Tania Islam1, Mohmoud Danaee3, Nur Aishah Taib1
1University of Malaya, 2Hospital Ampang

205

Community Telehealth Service: Lowering Barriers to Health Monitoring Technologies from the Ground-up
Yichi Zhang1, Michelle Cheok Yien Law1, Soon Keong Wee1, Benjamin Sian Teck Lee1, Bing Liang Alvin Chew1
1Nanyang Technological University

206

Knowledge and Utilization of Ten DOH-approved Herbal Medicines Among Parents in the City of Dasmariñas, Cavite
Barona, Jennielyn Y.1, Ligot Nerilyn B.1, Ultra, Jasper A.1, Ycoy, Lovely Angel C.1
1Cavite State University

207

TeleNutrition: Development, Pre-Testing, and Pilot Testing of Telehealth Website for Nutrition Counseling of Registered Nutritionist-Dietitians in a Tertiary Level Hospital in Lipa City, Batangas, Philippines
Jasper John P. Jariel1, Marifa Louise C. Macaraeg1, Dwight Angelo T. Polintan1, Ryabelle Jesusa C. Sanchez1, Maria Feliz C. Sastre1, Daniel G. Salunga1
1University of Santo Tomas
208
Unfavorable Serum Uric Acid Level Change Is Associated with The Progression of Cardiometabolic Multimorbidity Among Chinese Middle-aged and Elderly Adults
Duanhui Li, Danyang Wang, Xiaolin Xu
1Zhejiang University of Medicine

209
Adaptive Leadership among Nurses for the VUCA World as Inputs to Quality Improvement and Proposed Framework
Contemprato, Alexandrea, Decena, Ivy, Dimanlig, Clarisse, Ebio, Pamela, Legarde, Roella
1Manila Tytana Colleges

210
What Are You Waiting For? Young Adults' perspective on COVID-19 vaccination in Hong Kong
Yau Siu Wah, Pauline Luk
1The University of Hong Kong

211
Picky Behavior on COVID-19 Vaccine in Indonesia: A Contradictory to Accelerating Vaccination Coverage
Enos Wahyu Octamunnuel, Bonardo Prayogo Hasiholan
1Universitas Indonesia

212
Increased Screen Time: A Red Alert Situation
Akshaj Mehta
1University College of Medical Sciences

213
Investigating Mental Health-related Searches Across Southeast Asia During COVID-19: An Infodemiology Study
Charles Kevin Tiu, Putri Azzahra Nur Azrina, Mathew Siu Chun Chow, Leonard Thomas Sy Lim, Natnicha Manaboriboon, Elaine Tan Su Yin
1National University of Singapore, 2YARSI University, 3The University of Hong Kong, 4University of the Philippines, 5Siriraj Hospital, Mahidol University, 6Zhejiang University
214
Biobank Research Regulations and Guidelines for Low- and Middle-income Countries in Southeast Asia: A Scoping Review
Chin Kuen Yei¹, Mohammad Firdaus Bin Abdul Aziz¹, Ng Kee Seong¹
¹University of Malaya

215
Is BMIC a Useful Biomarker in Assessing Maternal and Infant Iodine Status: A Systematic Review
Shuchang Liu¹,², Andrew Sharp², Elmer Villanueva³, Zheng Feei Ma¹
¹Xi’an Jiaotong-Liverpool University, ²University of Liverpool

216
Knock-on Effects of COVID-19 on Essential Chronic Care and Ways to Foster Health System Resilience to Support Vulnerable Non-COVID Patients: A Multistakeholder Study
Hendra Goh¹,²
¹The University of Hong Kong, ²Duke NUS Medical School

217
A Three-dimensional, Spatially-explicit Agent-based Model to Evaluate the Effectiveness of Non-pharmacological Interventions of COVID-19 in Hong Kong Using Secondary Data
Ken Ka Chung Tang¹, Peter K. Koh¹
¹The University of Hong Kong

218
The Impacts of COVID-19 on Physical Activity, Dietary Changes and Health Awareness of University Students in Hong Kong: A Cross-Sectional study
Yuqi Mi², Victoria A. Yeo¹, Elkie Y. K. Chan¹, T. K. Wong¹, Sigmund Luey¹, L. Y. Chan¹, K. T. Kwok¹, Aditya Prasad¹
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