Asia-Pacific Region

Knowledge Event -

Health System and Community Resilience:

LESSONS

From The COVID-19 Pandemic

Poster Presentation Abstract

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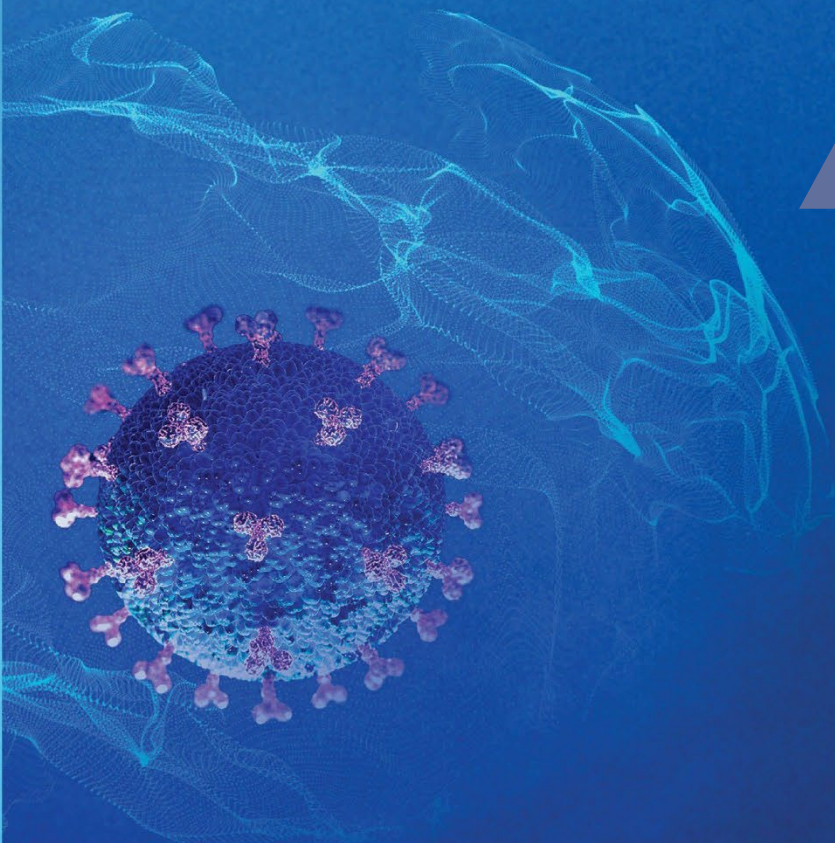
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ATTITUDES TOWARDS ORGANISATIONAL RESILIENCE FROM NURSES' PERSPECTIVE

Eng-Kiong Yeoh*[1,2], Eliza Lai-Yi Wong*[1,2], Annie Wai-Ling Cheung[1,2], Zoe Pui-Yee Tam[1,2]

1. Centre for Health Systems and Policy Research, JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR
2. JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR

*Co-first Author

Background: Organisational resilience is the capacity to foresee, prepare for, respond to, and adapt to challenges in managing risks effectively in dynamic environments. Resilient organizations seek to build strong relationships with different stakeholders, foster trust and cooperation to overcome shared challenges. As the world continues to be confronted by new infectious pandemics, examining and understanding the resilience of the healthcare organisation and the lessons learnt during the challenging time during the COVID-19 pandemic is critical. The knowledge generated formulated the development of stronger resilience and identify innovative solutions for future challenges.

Objectives: Cases of COVID-19 started to emerge in late January 2022 in Hong Kong (HK), and the subsequent community transmission overwhelmed the capacity of healthcare services. This study aimed to explore perspectives of organisational resilience in the three stages: preparedness, readiness, and responsiveness from nurses' perspectives during the COVID-19 pandemic in HK and insights for enhancing organisational resilience.

Methods: A qualitative study design was adopted to understand the experience of the nurses and their perspectives on the organisation's resilience in their work environment during the COVID-19 pandemic and in particular during the wave of Omicron. An in-depth individual interview was employed. To capture the breadth of diverse experience of the different roles of the staff and enrich the findings, a heterogenous sampling in terms of service provision in both public and private sectors was considered for the recruitment. The interviews were conducted by trained researchers and were guided by semi-structured discussion questions which were adopted from framework on the factors influencing organisational resilience from the literature review. The views on the experience and key factors influencing organisational resilience were explored. All interviews were audio-recorded and transcribed verbatim. Qualitative content analysis with an inductive approach was applied.

Results: A purposive sample of 22 nurses was recruited between March and June 2022. With the lesson learnt from the experience SARS pandemic in 2003, there were mixed views on the organisational resilience performance during the COVID-19 pandemic. The majority of respondents identified "preparedness and planning" as the main factor influencing the organisation's resilience, followed by "Material resources" and "Leadership practice". Most of the nurses acknowledged the "zero COVID-19" strategy was successful in protecting the HK population through the first few waves of the COVID-19 pandemic, but criticized their organizations for lacking contingency management plans to ensure the core healthcare services during the rapidly changing situations due to the impact of the wave of transmissions generated by

the Omicron sub-variant. Nurses reported that they also experienced a challenging time with inadequate isolation facilities, hospital beds and medical equipment when faced with the surge of infected patients. Regarding leadership practice, there were discrepancies in the implementation of the changing responses. The pre-existing evaluation plan for evolving needs was lacking. A few nurses emphasised the importance of adequate training for different roles in healthcare systems which would increase their capability of task-shifting during the pandemics.

Conclusion: The findings indicate the key challenges of organisational resilience that local healthcare organizations faced during the pandemic. It also provides insights for the management team in healthcare organisations to better rethink and redefine the risk management plan and how to contextualize the risk management plan to their organizations to ensure the effectiveness and continuity of the healthcare systems in disaster in future.

BUILDING COMMUNITY RESILIENCE INCLUSIVE OF DIVERSE ETHNICITIES IN HONG KONG – EXPERIENCE FROM RISK COMMUNICATION AND HEALTH PROMOTION DURING COVID-19 PANDEMIC

Dr Sam LI Wing Sum, Dr Sharmila GURUNG

Centre for Health Protection, Department of Health, the Government of Hong Kong SAR

Background: Ethnic minorities (EM) accounted for around 8% of the Hong Kong population, including Filipinos or Indonesians (60%), Indians (6%), Nepalese (4%) and Pakistanis (3%). Language and cultural barriers often prevent EM from accessing health information and services. Providing quality health education, as well as timely and accurate information on COVID-19 testing and vaccines for EM, are important measures to reduce health inequity. Among an array of publicity actions, the Centre for Health Protection (CHP) collaborated with a local non-governmental organization (NGO) to initiate the Health Promotion Project for Ethnic Minorities (HPPEM) in 2021, providing home visits for primarily Indian, Nepalese and Pakistani families in Hong Kong.

Objectives: To summarize the experience and identify gaps of CHP's strategies in promoting COVID-19 testing and vaccination to EM communities.

Methods: CHP's health promotion activities for EM during COVID-19 were summarized. An evaluation of home visits under the HPPEM was conducted using a logic model, project administrative data, survey data collected during home visits, and focus groups.

Results/ Findings: During the COVID-19 pandemic, CHP published multilingual health education materials (HEMs) online and disseminated health messages to relevant EM communities through various government departments, NGOs, Foreign Domestic Helpers (FDH) agencies, and foreign embassies. Risk communication strategies were formulated to alert members of a particular community and enable them to take protective measures, while avoiding perceived stigmatization. Challenges were encountered, especially at the early stage, in identifying the most suitable NGOs that could effectively reach the target populations.

Between March 2021 and May 2023, the HPPEM conducted 6,636 home visits covering 24,126 household members, distributed 13,226 COVID-19 testing kits, and made 896 vaccination bookings directly. From home visit survey (with 6438/6636 = 97% response rate), it was found that only 58% (3842/6636) of the clients were aware of the multilingual information already available on Government website. From evaluation questionnaire, over 90% of respondents were satisfied with the home visits in general. Other preferred means of obtaining health messages include social media and text messages. Nine focus groups were conducted, and participants opined that the health background and linguistic proficiency of HPPEM staff were important factors for effective home visits. The household members were able to ask questions and receive answers directly during home visit, possibly alleviating anxiety and hesitancy towards vaccines. Direct demonstration of health advice such as hand hygiene techniques was also made possible. Further research is needed to measure the long-term impact of home visits.

Conclusions: The experience of CHP during COVID-19 pandemic supported that an inclusive and

collaborative approach is crucial to effective risk communication and health promotion, thereby ensuring that EM communities are intrinsic to the overall community resilience. Apart from tackling language barriers, a community-based approach of health education such as home visits had high acceptability, and could introduce hard-to-reach communities to available resources.

REVIEW OF ARRIVAL TESTING AS BORDER CONTROL MEASURE DURING COVID-19 PANDEMIC IN HONG KONG

Cynthis YS Lam, YH Leung

Centre for Health Protection, Department of Health, HKSAR, China

Background: During the COVID-19 pandemic, the Hong Kong SAR Government adopted multiple draconian border control measures to guard against imported cases from spreading locally. The measures had been continuously monitored and timely adjusted in response to the pandemic evolvement. Amongst others, arrival COVID-19 polymerase chain reaction (PCR) testing requirement was imposed for inbound travellers arriving via the Hong Kong International Airport (HKIA). To implement this unprecedented measure, the Department of Health set up a new facility – the Temporary Specimen Collection Centre (TSCC), to collect specimens, conduct testing and manage travellers throughout the pandemic, from 2020 to 2022.

Objectives: To review the on-arrival PCR testing measure for inbound travellers.

Methods: We reviewed the development of the on-arrival PCR testing measure including the set-up, strategy, mode of operation, manpower, passenger waiting time and positive detection rate.

Results: The TSCC was set up at the AsiaWorld Expo on 26 March 2020 and relocated to the Midfield Concourse of the HKIA on 18 August 2020 which operated till 28 December 2022. Hundreds of staff were required to manage the facility and implement the measure. The on-arrival testing arrangement had been adjusted according to prevailing risk assessment and policy direction which required swift adaptation in workflow, logistics and manpower mix. It began as a voluntary offer for targeted inbound travellers who can leave after specimen collection ("Test & Go Strategy"). Subsequently, it became a mandatory requirement for all travellers and they need to wait until PCR testing results are available i.e. ("Test & Hold Strategy"). Only those who were tested negative were allowed to leave while those who were tested positive would be sent to public hospitals/community isolation facilities for further management. Mode of specimen collection changed from self-collected deep throat saliva to combined nasal and throat swab collected by trained staff since mid-December 2020 (to throat swab alone in early November 2022). The setting up of mobile laboratories inside the airport with the use of rapid PCR since mid-December 2020 reduced the waiting time from more than ten hours to less than two hours. There were more than 46,000 positive detection among the ~2.7 million specimens collected from inbound travellers arriving at the airport (positive rate: ~1.72%).

Conclusions: The measure has identified more than 46,000 positive cases among inbound travellers which reduced the risk of spreading the virus into the local community. The introduction of mobile laboratories inside the airport with PCR test of shorter turnaround time significantly reduced travellers' waiting time and improved their experience. Considerable resources including manpower are required to implement the measure. Successful implementation of border control measure with frequent changes hinged on preparedness, rapid and resilient response as well as surge capacity.

CHINA'S DIGITAL GOVERNANCE FOR EFFECTIVE COVID-19 MANAGEMENT

Yanna Mao; Dong Wang

School of Health Management, Southern Medical University, China

It explores China's notable leadership in viral control and management during the COVID-19 epidemic, with a focus on the crucial role played by the Communist Party of China (CPC). The People's Republic of China (PRC) emerged at the forefront of national endeavors, showcasing the effectiveness of digital governance strategies in navigating through the complexities of the pandemic. During the global health crisis, China's strategic use of digital technologies, particularly the development of monitoring apps by Alibaba, played a pivotal role. These apps facilitated real-time tracking of daily needs, ensuring the safety of citizens, and providing up-to-date information on the movement of the virus. Artificial Intelligence (AI) was leveraged for the efficient delivery of food and medicine across provinces, overcoming logistical challenges posed by the pandemic. China's commitment to safety measures included temperature checks at establishment entrances, quarantine enforcement, and innovative uses of technology such as drones and facial recognition software. While initially challenging to identify individuals wearing masks, Chinese big tech companies quickly adapted with new software, demonstrating the adaptability of technology to evolving circumstances. The national infectious disease early warning and surveillance system significantly contributed to the prevention and control of infectious diseases. QR codes became a cornerstone of China's strategy, serving multiple purposes, including COVID tests, travel, and access to public venues. The color-coded system helped identify infection status, manage quarantine periods, and monitor the rate of infections, providing a comprehensive approach to containment. In conclusion, this literature review highlights the effectiveness of China's digital governance strategies in managing the COVID-19 pandemic. The use of AI, big data, and telecommunication not only facilitated efficient diagnosis and treatment but also contributed to the quick and effective control of the virus. While opinions on the strictness of these measures vary, their impact on controlling the pandemic in China is undeniable.

SOCIAL SUPPORT, RESILIENCE, AND MENTAL HEALTH AMONG THREE HIGH-RISK GROUPS IN HONG KONG: A MEDIATION ANALYSIS

Eliza Lai-Yi Wong[1,2*], Hong Qiu[1,2], Kai-Sing Sun[1,2], Phoenix Kit-Han Mo[1,2], Angel Hor-Yan Lai[3], Carrie Ho-Kwan Yam[1,2], Ho-Yee Miao[1,2], Annie Wai-Ling Cheung[1,2], Eng-Kiong Yeoh[1,2]

1. Centre for Health Systems and Policy Research, JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR, China
2. JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR, China
3. Department of Applied Social Sciences, Faculty of Health and Social Sciences, The Hong Kong Polytechnic University, Hong Kong SAR, China

Background: Numerous mental health problems emerged during the COVID-19 pandemic, especially for people with a higher risk of exposure to SARS-CoV-2 infection such as healthcare workers, migrant workers, and those living in congregate settings. However, mental health problems and their association with social support and resilience for these vulnerable groups were underreported and not well studied.

Objective: The study aimed to compare mental health problems, resilience, and social support among nurses, foreign domestic workers (FDWs), and residents living in subdivided units (SDUs), and to examine the association of social support with mental health problems and the potential mediation effect of resilience.

Methods: The study was a cross-sectional survey. It was conducted from December 2021 to May 2022 with a convenience sampling of 1,014 nurses, 621 FDWs, and 651 SDU residents recruited in Hong Kong during the Omicron waves of the COVID-19 pandemic. The social support, resilience, depression, and anxiety scores of the participants were measured by the Multidimensional Scale of Perceived Social Support (MSPSS), the abbreviated 2-item version of the Connor–Davidson Resilience Scale (CD-RISC2), Patient Health Questionnaire 2-item (PHQ-2), and Generalized Anxiety Disorder 2-item (GAD-2). The multivariate binary logistic regression and causal mediation analysis were applied to examine the associations.

Results: We observed a prevalence of 17.7% in anxiety and 21.6% in depression which were the highest in SDU residents, followed by FDHs, and lowest in nurses. Social support was associated with increased resilience levels and decreased risks of anxiety/depression. The association of social support with mental health was partly mediated by resilience, accounting for 30.9% and 20.9% of the total effect of social support on anxiety and depression, respectively.

Conclusions: In these high-risk groups during the COVID-19 Omicron waves in Hong Kong, the protective effect of social support on decreased risk of anxiety and depression may partly be mediated by resilience. Public health strategies should target improving social support and providing resilience-promoting interventions to help reduce mental health problems, particularly in vulnerable groups during the pandemic.

HOW PSYCHOLOGICAL FLEXIBILITY IMPACT ON VACCINE BEHAVIOUR DURING THE COVID-19 PANDEMIC

Eliza Lai-Yi Wong[1,2,] Annie Wai-Ling Cheung[1,2], Amy Yuen-Kwan Wong[1,2]

1. Centre for Health Systems and Policy Research, JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR, China
2. JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR, China

Background: Influenza is a common respiratory tract infection that can cause mild to severe illness, and at times even to death. The confluence of coronavirus disease (COVID-19) and seasonal influenza can be resulted in considerable morbidity and mortality worldwide. In Hong Kong (HK), annual seasonal influenza vaccination is recommended for everyone at 6 months or older. Yet, influenza vaccine coverage in HK remains considerably low, including the working population which is important asset in the economy. Previous studies have shown that perceived susceptibility and psychological flexibility are positively associated to vaccination acceptance. While the COVID-19 situation remains severe, vaccine hesitancy is relatively high due to the uncertainty about the disease and newly developed vaccines.

Objectives: This study aims to investigate the socio-psychological impacts of exposure to COVID-19 that associated with low Influenza vaccine uptake rate to understand vaccination behaviour.

Methods: A cross-sectional online self-administered survey was conducted using a structured questionnaire between January 2023 and July 2023. Respondents were invited through invitation channel for stratified sampling by working population and including those high-risk population which was defined by scheduled premises as specified under Prevention and Control of Disease (Requirements and Directions) (Business and Premises) Regulation. Association between psychological inflexibility and non-vaccine behaviour was explored. Whether COVID-19 infection plays a role on Influenza vaccine uptake was also evaluated.

Results: A total of 1,101 working adults were recruited with 41.4% were male and 70.4% had tertiary or above educational attainment. More than half (56.0%) were classified as high-risk population and 55.8% had COVID-19 infection. The overall vaccine uptake rate for Influenza was 28.3% (312/1101). The vaccine uptake rate among high-risk population (33.4%, 206/617) was greater than those non-high-risk population (22.0%, 106/483). Significant associations were found between psychological inflexibility and non-vaccination (OR=1.0; 95% CI 1.0-1.0, p<0.01) indicating that experiential avoidance was associated to non-vaccine behaviour and sampling was also adjusted by high-risk population (OR=0.6; 95% CI 0.4-0.7, p<0.001). However, there was no significant association was found between COVID-19 infection and uptake of Influenza vaccination (OR=1.2; 95% CI 0.9-1.5).

Conclusions: Enhancing psychological flexibility might be a potential element to motivate vaccine acceptance while it is affected by the psychological experience in the context of infectious outbreak instead of COVID-19 infection per se. Further investigations to understand the association between psychological flexibility and vaccine acceptance, and a customised intervention should be explored. Unvaccinated individuals are experienced greater level of psychological outcomes; thus

this study therefore provides some important insights of socio-psychological impacts that associated with vaccine behaviour to improve vaccine coverage in Hong Kong.

RISK PROFILES FOR SMOKE BEHAVIOR IN COVID-19: A CLASSIFICATION AND REGRESSION TREE ANALYSIS APPROACH

Jiangyun CHEN[1]; Jiao YANG[2]; Siyuan LIU[3]; Haozheng ZHOU[3]; Xuanhao YIN[3]; Menglin LUO[3]; Yibo WU[4]; Jinghui CHANG[1]

1. School of Health Management, Southern Medical University, No.1023-1063 Shatai Road, Baiyun District, Guangzhou City, Guangdong Province, China
2. School of Public Health, Capital Medical University, 10 Xitoutiao, Youanmen,Beijing, China
3. School of Public Health, Southern Medical University, No.1023-1063 Shatai Road, Baiyun District, Guangzhou City, Guangdong Province, China
4. School of Public Health, Peking University, No.38 Xueyuan Road, Haidian District, Beijing City, China

Background: COVID-19 pandemic emerged worldwide at the end of 2019, causing a severe global public health threat, and smoking is closely related to COVID-19. Previous studies have reported changes in smoking behavior and influencing factors during the COVID-19 period, but none of them explored the main influencing factor and high-risk populations for smoking behavior during this period.

Methods: We conducted a nationwide survey and obtained 21,916 valid data. Logistic regression was used to examine the relationships between each potential influencing factor (sociodemographic characteristics, perceived social support, depression, anxiety, and self-efficacy) and smoking outcomes. Then, variables related to smoking behavior were included based on the results of the multiple logistic regression, and the classification and regression tree (CART) method was used to determine the high-risk population for increased smoking behavior during COVID-19 and the most profound influencing factors on smoking increase. Finally, we used accuracy to evaluate the performance of the tree.

Results: The strongest predictor of smoking behavior during the COVID-19 period is acceptance degree of passive smoking. The subgroup with a high acceptation degree of passive smoking, have no smokers smoked around, and a length of smoking of ≥30 years is identified as the highest smoking risk (34%). The accuracy of classification and regression tree is 87%.

Conclusion: The main influencing factor is acceptance degree of passive smoking. More knowledge about the harm of secondhand smoke should be promoted. For high-risk population who smoke, the "mask protection" effect during the COVID-19 pandemic should be fully utilized to encourage smoking cessation.

EVOLUTION AND CHANGES OF PROACTIVE HEALTH POLICY IN MAINLAND

Huang Lin[1]; Chichen Zhang[1]; Hong Zhu[2]

1. School of Health Management, Southern Medical University, Guangzhou, Guangdong, China
2. School of Public Health, Southern Medical University, Guangzhou, China; School of Health Management, Southern Medical University, Guangzhou, China; The First School of Clinical Medicine, Southern Medical University; Health Commission of Guangdong Province, Guangzhou, China

Background: There remains limited literature that systematically analyzes Proactive Health policies at all stages in mainland China.

Objective: This study aims to characterize all relevant policies and provide a theoretical basis for development and implementation of the Proactive Health (PH) policy through reviewing the changes to the policies in mainland China.

Methods: Policy documents were derived from the official database of China's State Council, the PKULAW.com (a website that collects Chinese laws, regulations, and policies), the Chinese Political Gazette Journal Literature Library, and other official government websites since 2008. Grounded theory, Nvivo12 and Gephi software was used to analyze the policies.

Results: A total of 557 policy documents were identified, while 358 were included after 3 rounds of screening. This study condensed 9 core categories from 1846 open codes, build a self-iteration *Proactive Health Policy Development Wheel,* and sorted out the development venation of PH policies on 5 elements of '*subjects, objects, capacity development, value objectives, and areas of cooperation*'.

Conclusion: China's proactive health policy network system has initially taken shape and achieved phased results. However, the targeted policy of proactive health has not yet been formalized, the government-level professional proactive health comprehensive group or related committees have not yet been established, there is an unclear division of labor, unequal distribution of resources, and other situations to be resolved urgently.
1) Establishing professional proactive health management agencies or committees, coordinating and cooperation among proactive health-related departments, and gradually building a "government-led, social participation, family support, individual responsibility" proactive health community governance pattern. 2) Coordinating the allocation of proactive health-related resources by government departments, and exploring and constructing a new mode of joint contribution and shared proactive health with Chinese characteristics. 3) Setting up a pool of experts on proactive health, creating a proactive health academic platform, and constructing a livable environment for proactive health to satisfy the people's common aspirations for health and to constantly realize the people's desire for the good.

ENHANCING COMMUNITY-BASED SURVEILLANCE FOR VACCINE-PREVENTABLE DISEASES: PRACTICES, CHALLENGES, AND FUTURE PROSPECTS

Likke Prawidya PUTRI[1,2]; Cici Permata RUSADI [2]; Galuh SITORUKMI[2]; Lutfan LAZUARDI [1,2]

1. Department of Health Policy and Management, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta Indonesia
2. Center for Health Policy and Management, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta Indonesia

Background: Community involvement in disease surveillance has demonstrated its benefits during the pandemic contexts by facilitating the more timely, representative, and acceptable early detection of COVID-19 cases. While the COVID-19 pandemic has reached its end, there looms a potential resurgence of other infectious diseases, one of which were the vaccine-preventable diseases. Implementation of community-based surveillance for these diseases is paramount to restore basic immunization coverage that had declined during the pandemic and anticipate outbreaks.

Objective: This study seeks to explore the practices, challenges, and future opportunities to develop a community-based surveillance program for vaccine preventable disease.

Method: We applied a desk review followed by semi-structured interviews with health workers in public community health centers and hospitals, community health volunteers, village and sub-district leaders, and key community leaders and members. The interviews were transcribed and subsequently coded to elucidate the key themes. Content analysis was employed, utilizing the framework by Guerra et al (2014), to assess the extent of community involvement in disease surveillance and its challenges.

Results: Total of twenty-four respondents were interviewed. The community have participated in reporting the suspected case of vaccine-preventable disease, but not in systematic way. While the procedure and information systems to report some of vaccine-preventable diseases, such as measles and diphtheria, from the health facilities to the authorities has been set, backed by regulation, and disseminated widely, neither standardized guidelines nor case definition was available to guide the procedure of reporting the suspected cases from the community to the health facilities. The training in disease surveillance for the community was limited tuberculosis, and this was mainly supported by a non-government organization. The key challenges in involving the community volunteers and members include lack of incentive, stigma, low motivation due to the non-urgency sense toward the diseases, and the high workload as community volunteers. While a user-friendly application system is important to develop the seamless disease reporting, many community volunteers had a limited access to a compatible gadget and capability to use such mobile- or web-based applications. Additionally, the presence of various electronic disease reporting systems have made the health workers overwhelmed carrying tasks in carrying out routine disease reporting and monitoring tasks.

Conclusion: To amplify the community's role in vaccine-preventable disease surveillance, it is imperative to develop procedures that include case definitions and workflows uses lay language, reinforced by reporting mechanisms adaptable for both manual and electronic use. Regulatory support from the local government and funding can boost community motivation to be involved in

surveillance. Pertaining to community health volunteers involvement, the establishment of professionalized volunteers with certified training programs is pivotal for executing surveillance-related tasks with expertise and efficacy.

HEALTH AND SOCIOECONOMIC DEMOGRAPHIC CHARACTERISTICS AS PREDICTORS OF POST-ACUTE SEQUELAE OF COVID-19 OVER A ONE-YEAR PERIOD AND THEIR ASSOCIATION WITH WELLBEING

Yee Lok LAI; Timothy Mitchell CHUE; Tsz Ching LAM; Ling TSUI; Steven WH CHAU

Department of Psychiatry, Chinese University of Hong Kong, Hong Kong SAR

Objective: Building upon previous findings regarding the predictive role of socioeconomic deprivation on persistent neuropsychiatric symptoms over a one-year period in individuals who contracted the pre-Omicron variant of SARS-CoV-2 virus, the current study aims to investigate whether similar associations could be observed in patients infected with the Omicron variant. Additionally, the study seeks to explore the relationship between demographic risk factors and chronic post-acute sequelae of COVID-19, as well as their impact on wellbeing and quality of life outcomes.

Methods: A community-based sample of 602 adult participants, who were infected with the Omicron variant of COVID-19 more than one year ago, was recruited using an online platform. Participants completed questionnaires via a mobile application, providing information on demographics, pre and post-COVID socioeconomic status, health status, well-being measures, and acute and chronic COVID-19 symptoms.

Results: The mean age of the participants was 38.4 years, with 65.6% being women. 73.3% of the participants had received tertiary education or higher. 5% of participants reported being diagnosed with psychiatric illnesses, and 15 % reported having one or more pre-existing medical conditions before contracting COVID-19. Multiple linear regression analyses revealed that being female, having pre-existing medical conditions, experiencing higher levels of financial deprivation, lacking a full-time job before the pandemic, and having a more severe acute COVID-19 infection were statistically significant predictors of chronic physical symptoms of COVID-19 lasting over one year. It is also reported that receiving a single dose of vaccination have a statistically significant protective effect against developing chronic physical symptoms of COVID-19.

Another multiple linear regression analysis indicated similarities and differences in the factors predicting chronic neuropsychiatric symptoms lasting over one year. All the aforementioned factors, except lacking a full-time job prior pandemic, statistically significantly predict neuropsychiatric symptoms. Additionally, a pre-existing psychiatric diagnosis before COVID-19 is a predictive factor for chronic neuropsychiatric symptoms. However, receiving a single dose of vaccination did not provide similar protective effect against the development of chronic neuropsychiatric symptoms.

In addition to reporting more chronic long COVID-19 symptoms, linear regressions also showed that higher levels of pre-COVID-19 financial deprivation predicted worse outcomes across all current mental health and quality of life measures, including scales assessing depression, anxiety, insomnia, post-traumatic stress, fatigue symptoms, and physical, psychological, social, and environmental quality of life.

Conclusion: Identifying demographic and socioecomonic risk factors associated with chronic post-acute sequelae of COVID-19 and wellbeing outcomes can inform policymakers and social sectors in

identifying vulnerable population groups. Additionally, the study highlights both the effectiveness and limitations of vaccinations. While receiving a single dose of vaccination prior to COVID infection reduces chronic physical aspects of post-acute sequelae of COVID-19, it does not have the same impact on the neuropsychiatric aspect. This understanding can guide resource allocation and the development of targeted health strategies aimed at supporting these vulnerable populations, and public health policy-making in general.

ENHANCING RISK COMMUNICATION WITH SOCIALLY MARGINALIZED ETHNIC MINORITIES IN HONG KONG DURING COVID-19

Dong, Dong[1]; Asim, Saba[1]; Nichini, Elena[1]; Hung, Chi-tim[1]; Ran, Wei[2]; Yeoh, Eng Kiong[1]

1. Centre for Health Systems and Policy Research (CHSPR), JCSPHPC
2. School of Communication, Hong Kong Baptist University

Background: Effective risk communication plays an integral role in public health emergency preparedness, response and recovery. It's particularly critical for ethnic minorities (EMs) who have been shown to be disproportionately affected. However EMs often face unique communication-related inequalities due to language barriers, limited access to information, and diverse cultural backgrounds that are likely to mediate the impact of risk communication strategies in complex ways. Hong Kong (HK) is an international city with a fast-growing ethnic population. Yet little is known about how the EM groups, especially those positioned at a more socially and economically disadvantaged position, can achieve effective risk communication during public health emergencies in HK.

Objectives: The objectives were to explore the origin, format and content of COVID-19 pandemic related messages received and perceived by the EMs in HK; to assess the (in)effectiveness of these messages among EMs in HK; to uncover social, cultural, economic and other barriers and facilitators to risk communication for EMs in HK; and to propose culturally tailored risk communication strategies that can facilitate the EM communities to form better preparedness and responses for COVID-19 pandemic and other public health emergencies in HK.

Methods: This qualitative study is part of a broader research project which employed a tripartite approach (systematic review, qualitative research and a quantitative survey) to address risk communication targeting EMs during COVID-19 pandemic in HK. Data was collected through individual semi-structured in-depth interviews with 47 EM participants from five ethnic groups and 11 key informant with experts from EM/social service, healthcare and policymaking. Interviews were conducted online either in English, Urdu, Nepalese or Cantonese, based on the participants' preference; were audio-recorded and lasted on average 1-1.5 hours. Data was analysed and summarized based on the theoretical framework developed by Goulbourne & Yanovitzky (2021) "The communication infrastructure as a social determinant of health", which acknowledges communication infrastructure as a link between information environment and communication and behavioural outcomes.

Results: This study identified barriers and facilitators at micro, meso and macro levels. Most importantly there was a miss-match between information supply and demand, as it was delayed and not tailored to EMs' needs that differ by age, gender and education. While ethnic populations resort to finding multiple alternative sources and channels when formal ones were perceived as lacking, yet individuals with low health and digital literacy faced challenges in accessing information. Trusted intermediaries such as EM youth, EM women, religious communities and community-serving organizations played a crucial role in connecting with and interpreting accurate health information. However there was marginal role of EMs in knowledge production and lack of systematic coordination among community based organizations. This resulted in uncertainty, fear,

worry, misinformation and lack of compliance in following the government's pandemic related guidelines.

Conclusions: A weak communication infrastructure among EMs in Hong Kong resulted in limited opportunities to connect with crucial health information, possibly leading to ineffective risk communication and adverse health outcomes. We suggested tailored risk communication strategies by engaging EM community through trusted intermediaries must be developed, this may require efforts of linking information across different stakeholders and messengers and of creating structured public occasions of dialogue and discussion.

PUBLIC SATISFACTION WITH HEALTH SYSTEM AFTER HEALTHCARE REFORM IN CHINA

Lili Kang[1], Tianyi Zhang[2], Bensong Xian[1], Changle Li[1*], M. Mahmud Khan[3]

1. Department of Health Economics, School of Health Management, Inner Mongolia Medical University, Hohhot, China
2. School of Basic Medical Sciences, Shandong University, Jinan, China
3. Department of Health Policy and Management, College of Public Health, University of Georgia, Athens, GA, USA

Introduction: Since the launch of China's comprehensive health system reform in 2009, the Chinese government has made considerable investments in primary care facilities and issued a series of new policies to expand insurance coverage, reforming the pharmaceutical market, and pilot-testing public hospital reforms. After nearly a decade since the reforms, the reforms have made many noteworthy gains. These policies should have improved public satisfaction with the health system as well but no significant increase in satisfaction was observed. In addition, given the importance of quality of care in improving health outcomes and well-being, it is assumed that improving the quality of health services ought to be a priority for any health system. However, evidence on associations between public satisfaction and perceived quality of care is limited. Therefore, this study analyzed the factors that influence public satisfaction and to examine the relationship between perceived quality of care and public satisfaction.

Methods: The data used in this study were obtained from the 2012-2020 China Family Panel Studies (CFPS). The final sample consisted of 145,843 observations from 47,397 adults across all five waves of the surveys. Public satisfaction with health system was defined as an ordinal dependent variable with values ranging from 0 to 10, 0 indicating completely dissatisfied and 10 indicating completely satisfied. Since the health care delivery system differs between urban and rural areas, the two-way fixed-effects ordered logistic model was used to analyze factors affecting public satisfaction stratified by urban-rural residence, which should help avoid potential bias created by differences between urban and rural health systems.

Results: The ordered logistic regression showed that perceived good quality of care was positively associated with pubic satisfaction in health system regardless of rural-urban residence. Older adults and individuals with more than three years of college education were less likely to be satisfied with the system in rural areas. Personal income and the density of medical professionals in the geographic area had positive effect on public satisfaction in rural areas. Having medical insurance coverage and fair or good self-rated health improved the probability of reporting public satisfaction in urban areas. Married people and individuals who lived in the West region were less likely to be satisfied with the health system in urban areas.

Conclusion: Knowledge and skills of healthcare providers or physical quality of facilities may not necessarily improve public satisfaction in health system. Policy-makers need to understand important factors affecting public perception of the system, This analysis identified several policy-amenable factors to improve public perception of the health system in rural and urban China. First, the health delivery system of China needs to be rebranded as the provider of high-quality healthcare

services. Second, the health system may consider improving access to healthcare services for patients from vulnerable population groups, such as the poor and the elderly in rural areas. Third, high out-of-pocket expenses and public satisfaction are related, and expanding medical insurance to achieve universal coverage with in-built protection from catastrophic health expenditure should improve public satisfaction significantly.

RURAL RESILIENCE THROUGH EMERGENCY VACCINATION: FOURTH-DOSE PROTECTS COUNTY HOSPITALS' NURSES AGAINST OMICRON IN CHINA

Lei Yang [1#], Lanyue Zhang [2#], Wuping Zhou[2], Weiyan Jian [2*]

1. Henan Honliv Hospital, Henan Province 453400, China
2. Department of Health Policy and Management, School of Public Health, Peking University, Beijing 100191, China

Background: County-level hospitals are the main providers of health services in rural China, acting as the frontline defense for rural areas against health threats. Given the weak healthcare systems with shortage of healthcare workers in rural areas, protecting their healthcare workers become paramount in ensuring uninterrupted health services and resilience. On the eve of the China government's plan to lift the Zero-COVID policy, a number of healthcare workers in county-level hospitals received emergency fourth-dose vaccination against COVID-19.

Objectives: This study aims to evaluate the extent to which these rapid emergency fourth-dose vaccination administered to county-level hospital nurses have provided protection against the Omicron infection wave affecting rural China, and expected to illuminate the critical role of proactive healthcare interventions in enhancing and maintaining rural community resilience during health crises.

Methods: A total of 3302 clinical nurses from 40 county-level hospitals in mainland China participated in this study. The control group was set to comprise nurses who had not received a fourth dose within the past month or indeed any dose of the COVID-19 vaccine within the previous 6 months. The intervention group was set to comprise nurses who received emergency fourth-dose vaccine doses within the month preceding the lifting of the Zero-COVID policy and those who had not received such a fourth-dose within the prior month but who had received a dose of the COVID-19 vaccine within the previous 6 months. Regression methods were used to analyze the factors associated with the probability of symptoms, duration, recovery time and hospitalization rates.

Results: About 13.1% of the nurses surveyed reported having received the emergency fourth-dose vaccination. It emerged that those nurses had a lower risk of developing clinical symptoms such as fever and diarrhea. Where they did experience symptoms, the duration of these tended to be shorter, with an accompanying and significant reduction in hospitalization rates. It was also found that emergency vaccination was associated with significantly shorter recovery time.

Conclusions: The emergency fourth-dose COVID-19 vaccination has had a significant protective effect for rural healthcare workers. At a broader level, quick implementation of preventive steps and reducing hesitancy towards booster shots are the key to protect the health of healthcare workers and thereby reducing the impact of the pandemic on the healthcare system and maintaining its resilience.

POST-PANDEMIC MENTAL HEALTH WELL-BEING OF SOUTH ASIANS IN HONG KONG AND THE BARRIERS TO HELP-SEEKING: A CROSS-SECTIONAL STUDY

Hussain Samara[1]; Tse, Janet Hiu Ching[1,2]; Wong, Paul Wai Ching[3]; Cheung, Muk Yan[4]; Chan, Rachel Ngan Yin[1,2]; Wing, Yun Kwok[1,2]; Chau, Steven Wai Ho[1,2]

1. Department of Psychiatry, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, Hong Kong SAR, China
2. Li Chiu Kong Family Sleep Assessment Unit, Department of Psychiatry, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, Hong Kong SAR, China
3. Department of Social Work and Social Administration, The University of Hong Kong, Hong Kong SAR, China
4. Hong Kong Christian Service

Introduction: The three-year long Covid-19 pandemic triggered an increase in mental health issues worldwide with ethnic minorities being the recipient of double-hit, but little is known about their mental health status in the post-pandemic period. The current study aims to explore the mental health well-being (namely anxiety, depression, and insomnia) of South and Southeast Asians in Hong Kong. Secondly, the study aims to identify differences in help-seeking barriers among low- versus high-risk individuals.

Methods: A convenience sample of 273 verified adults (87 males, 182 female, 4 prefered not to disclose; mean age: 32.8, ±10.7) completed an online survey in English (interpretation was provided if needed) from Jan to Aug 2023. The sample involved 110 full- or part-time workers, 45 students, 62 homemakers, 29 unemployed, 1 retired, and 7 preferred not to disclose. The online survey consisted of demographics, Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), Insomnia Severity Index (ISI), and help-seeking barrier questionnaire. High-risk group consisted of those reaching the clinical cutoff for either anxiety, depression, or insomnia while low-risk group consisted of individuals not reaching the cutoff for anxiety, depression, and insomnia.

Results: Using the cutoff of 10 for GAD-7 and PHQ-9, and 15 for ISI, 13.6% of the respondents had significant anxiety, 22.8% had moderate-to-severe depression, and 12.1% had clinical insomnia respectively. Age was negatively associated with anxiety, depression, and insomnia, while total score of barriers to mental health help-seeking (i.e., cultural/ language barriers, cost concerns, being too busy to seek help, and mental being considered as a shameful topic) was significantly positively linked with anxiety, depression and insomnia. High-risk group significantly scored higher on mental-health help-seeking barriers including believing cultural/ language barrier exists, having cost concerns, being too busy, and mental health being considered shameful in the family as compared to low-risk individuals.

Conclusion: Although the current sample reported a lower level of anxiety and insomnia compared to other local studies on ethnic minorities' mental health conducted during the pandemic, the level of depression remains similar. Barriers to mental health help-seeking have to be eased to reinforce high-risk individuals to seek help, and thereby to improve their mental health well-being. Culturally sensitive and language barrier free intervention is needed to match the mental health need of South and Southeast Asians in Hong Kong. Future research and implications are further discussed.

THE EXPERIENCE OF SUPPLY-DEMAND INTEGRATED PRIMARY HEALTH CARE MODEL IN THE MANAGEMENT OF CHRONIC DISEASES OF OLDER ADULTS DURING THE EPIDEMIC: A CASE STUDY OF CHANGFENG COMMUNITY IN SHANGHAI

Yanxin Zhou [1,2], Zheng Ye [3], Jianling Song [3], Mengyu Yan [1,2], Jing Li [1,2], Mei Sun [1,2,*]

1. School of Public Health, Fudan University, Shanghai, China
2. National Health Commission Key Laboratory of Health Technology Assessment(Fudan University), Shanghai, China
3. Changfeng Community Health Service Center, Putuo , Shanghai, China

Background: The COVID-19 pandemic was a serious threat to the health and well-being of older persons. Older adults may be more vulnerable to serious infections due to multimorbidity, weakened immunity and frailty. Various quarantine measures were implemented to control the spread of the novel coronavirus. However, such social distancing undermined routine health care practices and may affect access to medical services and long-term continuing care services. The health management of older adults with chronic diseases were severely affected by COVID-19. However, primary health care is the gatekeeper of health. The integrated primary health care model implemented by Shanghai Changfeng Community played an important role in the health management of older adults with chronic diseases during the epidemic.

Objective: By analyzing the practical cases of the supply-demand integrated primary health care service model in Changfeng Community in Shanghai, we summarize the experience of this model in the management of older adults with chronic diseases during the epidemic, and provide reference for the theory and practice of primary health care.

Methods: Conduct interviews with key figures in the practice of primary health care model in Changfeng Community, use the Rainbow Model of Integrated Care to analyze typical case studies of health management during the epidemic, and analyze the interview data through thematic analysis.

Results: Four themes were obtained through thematic analysis. The rainbow model analyzed individual cases and found that at the macro level, the policy environment emphasizes the management of chronic disease health for older adults. At the meso level, the Changfeng Community Health Service Center has formed an organizational integration model of "1 family doctor+1 district level hospital+1 city level hospital" for the supplier and "1 resident+1 family+1 community" for the demand side. During the epidemic, provide diversified and cross level health services to older adults with chronic diseases. At the micro level, during the epidemic, family doctors can still timely follow up on older adults with chronic diseases and intervene in their families, providing interdisciplinary and continuous management. At the level of supporting elements, effective online intervention was provided to older adults with chronic diseases through information platforms in a timely manner. In this model, family doctors, patients, and expert teams were highly satisfied with chronic management.

Conclusion: The Changfeng community primary health care model managed chronic diseases of the older adults efficiently and continuously during the epidemic. The practical experience of the supply-demand integrated primary health care model provides some enlightenment for the chronic disease management of the elderly in public health emergencies. There are certain shortcomings in the practice of this model, such as the need to improve the level of information interconnection and incomplete mechanism construction.

MODELLING THE FEASIBILITY OF CONTACT TRACING MEASURES FOR CONTROLLING INFECTIOUS DISEASE OUTBREAKS: LESSON LEARNT FROM COVID-19 OMICRON EPIDEMIC IN HONG KONG

Zihao Guo[1]**,** Ka Chun Chong[1,2], Eng Kiong Yeoh[1,2]

1. Jockey Club School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, Hong Kong, China
2. Centre for Health Systems and Policy Research, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, Hong Kong, China

Background: In Hong Kong, the contact tracing measures have been the backbone of outbreak containment during the first four waves of COVID-19 epidemics. However, it has been shown that the measure is less effective in response to the fifth wave, which was dominated by a much more transmissible variants of SARS-CoV-2– the Omicron variants. The feasibility of the contact tracing measures remains questionable in different situations.

Objective: This study aims to model the effectiveness of contact tracing measures considering different scenarios of capacity, delay, viral transmissibility (including super-spreading events), and self-adherence constraints, using the Omicron outbreak as a case study. We also assess the outbreak threshold under which the contact tracing measure would remain feasible.

Method: Individual-based branching process models parametrized by the epidemiological characteristics of the Omicron variants was used to model the observational process of infection towards isolation either by contact tracing or self-isolation. Given that factors including the individual adherence to the self-report of symptoms or self-isolation suggested by the public health officials, virus transmissibility as measured by the effective reproduction number (R_e, defined as the average number of cases generated by an infectious person), contact tracing capacity as measured by the proportion of contacts can be traced, and the delay in tracing (defined times from the confirmation of a case to the identification of the contact) could influence the effectiveness of contact tracing, various scenarios with different combination of assumptions on these factors have been investigated. The outcome was the probability of observing a large outbreak (a threshold of > 2000 cumulative cases was defined).

Results: After fitting the Omicron variants specific transmission characteristics into the branching process model, we found that the effectiveness of contact tracing measures remained modest in all test scenarios, with an up to 23% reduction in transmissibility observed in an optimistic context where the background R_e was 1.5 and the population adherence is high. When the R_e increase to 2.5, regardless of the level of tracing delay, the probability of observing a large outbreak remained high (> 80%) even with a high contact tracing coverage (80%) and a decent adherence. On the other hand, when the R_e was 1.5 the risk of a large outbreak decreased greatly if raising the contact tracing capacity. Moreover, we found an increase in outbreak threshold as the contact tracing coverage increased only in the context of higher population adherence, and that the contact tracing measure was infeasible to contain the epidemic when the transmissibility is relatively high - R_e is 2.5, regardless of the tracing speed or capacity.

Conclusions: The enhanced transmission characteristics of Omicron variants substantially hampered the effectiveness of contact tracing measures, which was largely dependent on the population adherence and disease transmissibility rather than the speed and capacity. Contact tracing would be more desirable to be implemented in settings in which the transmissibility was lowered by other measures such as physical distancing to maximize its efficacy.

CHANGES IN PHYSICAL ACTIVITIES AND DIETARY HABITS BEFORE, DURING, AND AFTER THE COVID-19 OMICRON OUTBREAK IN HONG KONG: A SERIAL CROSS-SECTIONAL STUDY

Conglu LI[1]; Jingxuan WANG[1]; Xiaoting JIANG[1]; Yuchen WEI[1]; Ka Chun CHONG[1,2,3;] Eng Kiong YEOH[1,2]

1. Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong Special Administrative Region, China
2. Centre for Health Systems and Policy Research, The Chinese University of Hong Kong, Hong Kong Special Administrative Region, China
3. Clinical Trials and Biostatistics Laboratory, Shenzhen Research Institute, The Chinese University of Hong Kong, Shenzhen, China

Background: During the Omicron outbreak in Hong Kong, a series of non-pharmaceutical measures were promptly tightened, such as the closure of public sports venues and catering businesses, inevitably influencing the residents' physical activities and dietary habits, which may be positive or negative. However, there are few studies revealing whether the changes in people's lifestyle habits would be carried over into their subsequent lives after the epidemic was well controlled and the social distancing measures were relaxed.

Objectives: This study aimed to assess temporal changes in physical activities and dietary habits before, during, and after the Omicron outbreak and identify sociodemographic factors associated with these changes.

Methods: This serial cross-sectional study conducted in Hong Kong consisted of three survey rounds: before the Omicron outbreak in 2020 (n=724), during the Omicron outbreak in the first half of 2022 (n=979), and after gradual relaxation of COVID-19 rules from mid-2022 onward (n=784). The questionnaire included 19 questions on three sections: sociodemographic characteristics, physical activities, and dietary habits. Dietary information was collected from respondents exclusively in the *Before Omicron* and *New Normal* periods. Temporal changes in physical activities and dietary habits were assessed using analysis of covariance with adjustment for sex and age. Multiple linear regression models were employed to identify independent factors associated with these changes across the study periods.

Results: During the *Omicron Outbreak* period, social distancing measures led to increased sitting or lying down time ($p < 0.001$) and reduced vigorous-intensity sports ($p < 0.001$), with a notable rise in moderate-intensity sports ($p = 0.002$). Even at the *New Normal* period when the government eased certain rules, the decrease in vigorous-intensity sports ($p < 0.001$) and the increase in moderate-intensity sports ($p = 0.007$) remained significant, whereas change in sedentary hours was no longer significant. Additionally, all items of diet habits showed significant differences between *Before Omicron* and *New Normal* periods. The frequency of dining out, ordering takeaways, sugary drink consumption, and fast food consumption (all $p < 0.001$) increased significantly, while the frequency of cooking at home ($p = 0.013$) and eating fruits ($p = 0.024$) and vegetables ($p < 0.001$) decreased. During the *Omicron Outbreak* period, married individuals were associated with reduced time spent sitting or lying down ($p = 0.003$) and an increased time spent on vigorous-intensity

sports ($p = 0.020$). Those with full-time or part-time job reduced vigorous-intensity sports more than the unemployed ($p = 0.003$). These observations persisted into the *New Normal* period. Moreover, younger or employed individuals were more likely to dine out, order takeaways, and consume fast food during the *New Normal* period.

Conclusions: Social distancing measures have made individuals less likely to engage in high-intensity physical activity and adopt less healthy dietary habits. Our findings suggest the importance of tailoring interventions to boost healthy eating and fitness towards unmarried, younger, and employed individuals.

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INVESTIGATING THE IMPACT OF CONCOMITANT STATIN USE WITH PAXLOVID ON COVID-19 SEVERITY

Huwen Wang, Yuchen Wei, Ka Chun Chong, Eng Kiong Yeoh

JC School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong Special Administrative Region, China

Background: Presently, paxlovid (nirmatrelvir/ritonavir) emerges as the foremost highly effective oral antiviral for combating COVID-19. It can potentially engage in clinically significant interactions with statins. While established guidelines recommend discontinuing statin usage when commencing paxlovid therapy, several studies have indicated the potential benefit of statins in improving the prognosis of severe SARS-CoV-2 infections. The objective of this study was to ascertain whether statins indeed exhibit drug-drug interactions with paxlovid, warranting their discontinuation during paxlovid therapy.

Methods: Data from the Hong Kong Hospital Authority were utilized to explore the effects of concurrent statin use alongside paxlovid on the severity of COVID-19 (i.e., inpatient death). 22,533 adult hospitalized COVID-19 patients were included, who received paxlovid prescriptions between 14 days before admission and their discharge during the period spanning March 16, 2022, to January 15, 2023. Prescription records of statins, including atorvastatin and rosuvastatin, which are not considered strong contraindicators, within the year preceding the paxlovid prescription were reviewed, to establish the potential co-use with paxlovid. Propensity score matching were employed to balance confounding factors between co-use and non-co-use groups, including age, gender, vaccination status, the date of the first paxlovid prescription, the use of molnupiravir and other COVID-related medications, and comorbidities.

Results: Through univariate and multivariable Cox proportional regression analysis, a protective effect of co-use on inpatient mortality was detected, albeit statistically insignificant. Crude and adjusted hazard ratios (95% confidence intervals) were 0.814 (0.670, 0.988) and 0.899 (0.738, 1.096) for atorvastatin, and 0.733 (0.460, 1.167) and 0.774 (0.482, 1.240) for rosuvastatin.

Conclusions: Based on the current findings, discontinuation of statin use during paxlovid treatment may not be imperative. However, it's important to underscore that further confirmation of these results requires a larger sample size.

COST ANALYSIS FOR CONTACT TRACING ON COVID 19 IN INDONESIA

Diah Ayu PUSPANDARI[1]; Andaru DAHESIHDEWI[2]; Vini ARISTIANTI[3]

1. Department of Health Policy and Management, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Indonesia
2. dr Sardjito Hospital, Yogyakarta, Indonesia
3. Center for Health Financing and Health Insurance Management, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Indonesia

In countries with more tough health systems, it appears that the COVID-19 pandemic is still a challenge to manage. The demographic and geographic of Indonesia became issues to prevent this pandemic. It was much worse because the equipment, infrastructure, drugs, and health facilities have limited human resources, budget, and information support systems. Efforts to prevent and control cases through contact tracing is essential.

The researchers wanted to see the relationship between the available funding and COVID-19 contact tracing in Indonesia. It will include discovering challenges and barriers at the central and regional levels, obtaining actual unit cost values, and finding the values needed to scale up COVID-19 tracing.

Cost analysis has been used to derive the unit cost of COVID 19 contact tracing. Cost components in contact tracing activities include tracer officer fees, transportation costs, and communication costs. Qualitative method was used to explore more on challenges and barriers based on officer's field experiences.

In 2020, COVID 19 contact tracing financing is still sourced from BNPB (Indonesian National Board for Disaster Management). In the Ministry of Health, there is no budgeting for contact tracing and it is still not ready because it was the first time facing the COVID-19 pandemic. The adjustment process did not take long because BNPB coordinated intensively with the Ministry of Health. In 2021, the tracing budget has been listed in the Ministry of Health 's Non-Physical Special Allocation Fund or Health Operational Assistance (BOK), which is directly transferred to local governments with implementation by the Puskesmas. The BOK fund tracing budget has not been maximally absorbed in the regions. This is because there is still resistance from the community to participate, because there is a negative stigma in people with COVID 19. Based on findings in the field, the unit cost of tracing ranges from IDR 14,794 to IDR 17,171. The cost was still very small when compared to real needs in the field, because it has not calculated the cost of transporting officers and other operational costs needed.

The source of tracing financing comes from various sources, namely the Central Government Budget, the Regional Government Budget. The amount of budget provided is not sufficient to carry out activities optimally. Small budget absorption requires massive educational efforts for the community to understand the importance of tracing and be able to actively participate in these activities.

ATTITUDE TOWARD ORGANIZATIONAL COMMUNICATIONS: A LONGITUDINAL SURVEY IN HONG KONG NURSES

Hong Qiu[*1,2], Eliza Lai-Yi Wong[*1,2], Annie Wai-Ling Cheung[1,2], Kai-Sing Sun[1,2], Carrie Ho-Kwan Yam[1,2], Ho-Yee Miao[1,2], Eng-Kiong Yeoh[1,2]

1. Centre for Health Systems and Policy Research, JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR, China
2. JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR, China

*Co-first Author

Background: Sufficient and effective communication between frontline medical staff and the management of healthcare settings is a critical ingredient for better inter-organizational relationships particularly during infectious outbreaks, resulting in increased staff engagement, strengthened staff motivation, and improved system efficiency, ultimately leading to better overall healthcare quality.

Objectives: We aimed to examine the prevalence of satisfaction/attitude of frontline nurses toward organizational communication and its trend pattern during and after the COVID-19 pandemic in Hong Kong.

Methods: We conducted a longitudinal study on nurses from the public and private sectors by self-administrated questionnaire surveys in Jan-Mar 2022 (during Omicron wave), Sep-Nov 2022 (post Omicron wave), and Apr-May 2023 (post COVID-19 pandemic), respectively, in Hong Kong. Social demographic information (age, gender, education, marital status, employment, family income, chronic diseases, religion, et al.) at baseline were collected. The domains of organizational communication included understanding staff difficulties faced (DI), sufficient communications (SC), effectively reflecting difficulties to management (RE), considering the reported opinions for improvement (OP), dealing with difficulties through internal coordination (IC), and adequate staff support (SU). The trend of the prevalence of satisfaction in each domain of organizational communication along the three rounds of the survey was examined by the Cochran-Armitage Test. We also applied the generalized linear mixed effect (GLME) model to test the trend after adjusting the social demographic factors.

Results: We recruited a total of 1,014 nurses at baseline, among which 561 (55.3%) were older than 35 years old and 870 (85.8%) were female. In the social demographic information collected, nurses of older ages, females, with an education of diploma or below, and no chronic diseases tended to be more satisfied with the organizational communications. During the follow-up, 865 (85.3%) nurses participated in the 2nd round and then 796 (78.5%) in the 3rd round of the survey. The prevalence of satisfaction for the DI domain was 52.5%, 52.4%, and 62.2% in the three rounds of the survey, respectively, showing an increasing trend from during the Omicron pandemic to the after-pandemic period. Meanwhile, the prevalence of satisfaction increased from 53.7% to 60.9% for the SC domain; from 55.0% to 63.4% for the RE domain; from 55.0% to 60.7% for the OP domain; from 70.4% to 76.4% for the IC domain; and from 56.1% to 62.4% for the SU domain. The domain of dealing with difficulties through internal coordination received the highest prevalence of satisfaction from nurses. Cochran-Armitage trend test and GLME model supported

the increased trend of better communications in this healthcare setting.

Conclusions: Medical staff only have a moderate prevalence of satisfaction toward the six domains of organizational communications though the trend is increasing. Improving communication is an ongoing process that requires commitment from both frontline staff and management. Healthcare organizations may enhance collaboration, foster a positive work environment to respond to emergency needs during infectious outbreaks, and ultimately improve healthcare quality.

GLOBAL HEALTH SYSTEM RESILIENCE DURING ENCOUNTERS WITH STRESSORS – LESSONS LEARNT FROM CANCER SERVICES DURING THE COVID-19 PANDEMIC

K. Yeoh,[1] Y. Wu,[2] S. Chakraborty,[3] G. Elhusseiny,[4] S. Gondhowiardjo,[5] N. Joseph,[6] A.W.M. Lee,[7] H.H. Loong,[8] S.C. Msadabwe-Chikuni,[9] B.F. Tan,[10] A.V. Ospina,[11] T. Roques,[12] H.M. Shum,[2] and E.K. Yeoh[2]

1. Faculty of Clinical Oncology, Royal College of Radiologists, London, UK
2. Nuffield Department of Medicine, University of Oxford, Oxford, UK
3. JC School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong SAR, China

Aims: The protracted COVID-19 pandemic has overwhelmed health systems globally, including many aspects of cancer control. This has underscored the multidimensional nature of cancer control, which requires a more comprehensive approach involving taking a wider perspective of health systems. Here, we investigated aspects of health system resilience in maintaining cancer services globally during the COVID-19 pandemic. This will allow for health systems to be resilient to different types of system stressors/shocks in the future, to allow cancer care to be maintained optimally.

Materials and methods: Using the World Health Organization health system framework (capturing aspects of service delivery, health workforce, information, medical products, vaccines and technologies, financing and governance and leadership), we carried out a comparative analysis of the impact of COVID-19 and the synthesis of the findings in responses in cancer care in 10 countries/jurisdictions across four continents comprising a wide diversity of health systems, geographical regions and socioeconomic status (China, Colombia, Egypt, Hong Kong SAR, Indonesia, India, Singapore, Sri Lanka, UK and Zambia). A combination of literature and document reviews and interviews with experts was used.

Results: Our study revealed that: (i) underlying weaknesses of health systems before the pandemic were exacerbated by the pandemic (e.g. economic issues in low- and middle-income countries led to greater shortage of medication and resource constraints compounded by inadequacies of public financing and issues of engagement with stakeholders and leadership/governance); (ii) no universal adaptive strategies were applicable to all the systems, highlighting the need for health systems to design emergency plans based on local context; (iii) despite the many differences between health systems, common issues were identified, such as the lack of contingency plan for pandemics, inadequate financial policies for cancer patients and lack of evidence-based approaches for competing priorities of cancer care/pandemic control.

Conclusion: We identified four key points/recommendations to enhance the resilient capacity of cancer care during the COVID-19 pandemic and other system stressors: (i) effective pandemic control approaches in general are essential to maintain the continuity of cancer care during the emergency health crises; (ii) strong health systems (with sufficient cancer care resources, e.g. health workforce, and universal health coverage) are fundamental to maintain quality care; (iii) the ability to develop response strategies and adapt to evolving evidence/circumstances is critical for health system resilience (including introducing systematic, consistent and evidence-based changes, national support and guidance in policy development and implementation); (iv) preparedness and

contingency plans for future public health emergencies, engaging the whole of society, to achieve health system resilience for future crises and to transform healthcare delivery beyond the pandemic.

SUSCEPTIBILITY MODEL FOR SPATIAL COVID-19 ACTIVITY IN HONG KONG

Kehang LI

JC School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong Special Administrative Region, China

Background: Developing long-term control strategies for COVID-19 is crucial due to the continuous emergence of SARS-CoV-2 variants and related recurrent outbreaks, particularly in Hong Kong, a highly populated metropolitan. Understanding the spatial dependence and differentiation of COVID-19 activity is a key step in designing and implementing effective measures that tailored to Hong Kong, thus addressing regional disparities and inequities in COVID-19 impact.

Purpose: We aim to analyze the spatial clustering and space-time clustering of COVID-19 risks and understand the main drivers of COVID-19 activity, accordingly, develop the robust model to predict the spatial and temporal transmission among tertiary planning units in Hong Kong.

Methods: The clusters with high COVID-19 risks were identified by a weighted indicator from multiple spatial statistics, including local Moran's I, Gi* statistic, SaTScan's spatial scan statistics. We conducted the regression analysis to explore the interactions between COVID-19 prevalence and factors (sociodemographic features, meteorological and environmental features, built environment features). Three models (geographically weighted regression (GWR), generalize estimating equations (GEE), and extreme gradient boosting (XGB)) were employed separately, using the data from January 01, 2022, to December 31, 2022.

Results: Results show the higher relative risks of COVID-19 infection in Hong Kong concentrated around Tsim Sha Tsui, Mong Kok, Central, Admiralty, and Kwun Tong. Spatial interactions between the variables in the GWR model showed the working and commuting pattern, as well as the income level, have major impacts to COVID-19 risks. GEE and XGB models showed the relative humidity, temperature and normalized difference vegetation index are more important to predict the COVID-19 spread temporally.

Asia-Pacific Region

Knowledge Event -
Health System and
Community Resilience:

LESSONS

From The COVID-19 Pandemic

Programme
& Abstract

Evaluation
Form

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