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| <b>University:</b> The University of Hong Kong (HKU)  |
| <b>Unit of Assessment (UoA):</b> N/A  |
| <b>Faculty:</b> School of Public Health, LKS Faculty of Medicine  |
| <b>Title of case study:</b><br>A Health and Wellbeing Barometer for Hong Kong: Translational Impact Attained over a Decade and Counting   |
| <b>Has this case study been submitted for RAE 2020? (Y/N) [N]</b>   |
| <b>Will this case study be submitted for RAE 2026? (Y/N) [N]</b>  |
| <b>Is this case study <u>continued</u> from a case study submitted in RAE 2020? (Y/N)</b><br>(if yes, please provide clear evidence of the manner and extent to which the development of the impact expands its scope beyond that presented in the previously submitted impact case study in RAE 2020.) [N]   |
| <b>1. Summary of the impact</b> (indicative maximum 100 words)<br><br>The FAMILY Cohort has documented the evolution of physical, mental and social wellbeing in Hong Kong since 2009 to inform policymaking, health services planning and interventions locally, nationally, and internationally. First, our data helped guide the establishment of District Health Centres – a new mode of primary care that is now introduced in all 18 districts. Second, our work demonstrating how Hong Kong became the world's longest-living population provided support for legislation of tobacco control policies. Third, we conducted real-time monitoring of wellbeing during population shocks, which was translated into impact by informing policies, mobilising resources, and enhancing support and care.   |
| <b>2. Underpinning research</b> (indicative maximum 500 words)<br><br>A comprehensive and rigorous health needs assessment is the first step needed to guide and effect change for any major health challenge. This is because policymakers, service planners and health care professionals must know the magnitude of needs and vulnerable groups to guide priority setting, resource allocation, and intervention design. This translational impact has been precisely achieved by the FAMILY Cohort for some of the most pressing health challenges over the past decade.<br><br>The FAMILY Cohort is a fully HKU-led research programme that comprehensively assesses and promotes physical, mental, and social wellbeing. The FAMILY Cohort (n=20,000 households and 46,000 participants) represents around 1% of all households in HK and covers 99.8% of its neighbourhoods [R3]. Since 2009, we have completed several large follow-ups and multiple impactful studies - totalling over 250,000 interviews. Given the scope and granularity of our longitudinal data, the FAMILY Cohort is the largest population-representative cohort in Hong Kong and is the best available barometer for population health and wellbeing. A few case studies with local, national and international significance that have also been published in the journal ranked first in medicine (The Lancet; Impact Factor 98.4) and the world-leading public health journal (The Lancet Public Health): |

- i. Conducted the largest and longest prospective cohort study globally on collective actions and mental health. We observed pervasive declines in population mental health during recent major population shocks (i.e. the social unrest). Our paper published in *The Lancet* has defined the epidemiology of depression and PTSD during major collective actions and remains the most comprehensive account. Our work has opened up and pioneered a new field of inquiry, and has been widely cited and adopted around the world to assess the mental health impact of COVID-19 and social phenomena.[R1]
- ii. Hong Kong's attainment of the world's highest life expectancy – a key measure of population health – has motivated international calls to understand and emulate its success. Yet the reasons for Hong Kong's longevity were unknown, with a Perspective from the US National Academy of Medicine stating that "*there could not be a more important puzzle to solve for the rest of the world*". We therefore conducted the largest and most comprehensive study by comparing 263 million deaths from Hong Kong and 20 high-income countries, which was published in *The Lancet Public Health*. For the first time, we showed that successful tobacco control is the single most important reason for Hong Kong's longevity.[R2]
- iii. However, Hong Kong has experienced a fundamental disconnect in its population wellbeing. Despite attaining the longest life expectancy, Hong Kong also has ranked the worst globally for mental wellbeing. We therefore conducted the first study to identify determinants that could simultaneously improve physical, mental and social wellbeing, which has important implications to policymaking and interventions.[R4]
- iv. We also detected that a third of the Hong Kong population had hypertension, of which the majority were undiagnosed. [R3] Among those being treated, less than half attained satisfactory blood pressure control. As such, these findings have directly informed clinical guidelines and public health interventions [S8]

### 3. Period when the underpinning research was undertaken: 2009 – 2024 ongoing

#### 4. References to the research (indicative maximum of six references)

(\* = corresponding author)

1. Ni MY\*, Yao XI, Leung KS, et al. Depression and post-traumatic stress during major social unrest in Hong Kong: a ten-year prospective cohort. *The Lancet* 2021 Jan; 395(10220):273-284 [IF 202.731 (2021), rank 1/172]
2. Ni MY\*, Canudas-Romo V, Shi J, et al. Understanding longevity in Hong Kong: a comparative study with long-living, high-income countries. *The Lancet Public Health* 2021 Dec; 6(12):E919-E931 [IF 72.427 (2021), rank 1/210]
3. Leung GM, Ni MY\*, Wong PTK, et al. Cohort Profile FAMILY Cohort. *International Journal of Epidemiology* 2017 Apr;46(2):e1 [IF 9.685 (2021), rank 16/210]
4. Ni MY\*, Yao XI, Cheung F, et al. Determinants of Physical, Mental, and Social Well-Being: A Longitudinal Environment-Wide Association Study. *International Journal of Epidemiology* 2020 Apr;49(2):380-389 [IF 9.685 (2021), rank 16/210]
5. Ni MY\*, Leung CMC, Leung GM. The epidemiology of population mental wellbeing in China. *The Lancet Public Health* 2020 Dec; 5(12):E631-E632 [IF 72.427 (2021), rank 1/210]
6. Wu JT\*, Leung K, Lam TTY, Ni MY, et al. Nowcasting epidemics of novel pathogens: lessons from COVID-19. *Nature Medicine* 2021 Mar;27(3):388-95. [IF 87.241 (2021), rank 1/296]

#### 5. Details of the impact (indicative maximum 750 words)

The FAMILY Cohort's translational impact is achieved via two functions. First, it serves as a barometer for health and wellbeing in Hong Kong. Second, we drive and effect change by guiding legislation, resource allocation, health services planning, public health interventions, and policymaking at the highest levels of government.

*(I) Formulation of the District Health Centres as a new mode of primary care*

We were invited by the then Secretary of Food and Health to help guide primary healthcare reform in Hong Kong by identifying district-level health needs. Our findings were cited in the 2018 Policy Address and the Legislative Council briefing paper as the "most relevant" and the only non-governmental source adopted for decision-making.[S2, S3] This led to the launch of District Health Centres (DHC) and DHC Expresses in all 18 districts. Leveraging our track record in informing policy and health services planning, we have been commissioned to provide updated district health profiles for guiding service delivery by District Health Centres.

*(II) Instrumental support for the legislation of Smoking (Public Health) (Amendment) Bill 2021*

Our study provided the most comprehensive explanation of Hong Kong's world-leading longevity, showing tobacco control as the primary reason for Hong Kong's survival advantage.[R2, S7] The study provided "strong support" to successfully passing the Smoking (Public Health) (Amendment) Bill 2021 – the then Secretary for Food and Health emphasized our work as "indispensable" in Hong Kong's "tobacco endgame" and a "major milestone in tobacco control history". The 'State of the Faculty Address 2021' recognised its lifesaving impact to prevent future tobacco-related deaths. It serves as a roadmap for life expectancy gains in China and informs the Healthy China 2030 agenda (Sun QF et al. *Lancet Public Health* 2022), and regarded as a "useful and pragmatic framework" for replication in other jurisdictions (Gong JQ et al. *Lancet Public Health* 2022).

*(III) A rapid response to a new epidemic in depression and post-traumatic stress*

Our discovery of a territory-wide epidemic of depression and post-traumatic stress during major social events in Hong Kong was swiftly disseminated to the public [R1, S6]. This timely alert to health professionals, service planners, legislators, and policymakers enabled rapid mobilization of resources to support the mental health emergency [S1, S4, S6]. In the 2020 Policy and Budget Address, the then Chief Executive and Financial Secretary referenced findings on the mental health impact of population events to allocate resources to enhance mental health services and support for those affected.[S5] The then Chairman of the Advisory Committee on Mental Health cited our work in the Legislative Council, shaping the Government's long-term manpower and service planning. Our research also has global implications, as Professor Ichiro Kawachi (Harvard University) stated: "In a world of increasing unrest, findings of Michael's work have important translational implications for the entire globe".

Given our track record in translational impact, we have been commissioned to conduct a large-scale community outreach program addressing the epidemic of youth suicidality and mental disorders.[S10] The programme will provide mental health assessments and education for ~1% of all Hong Kong's youths and their parents.

*(IV) Real-time health monitoring to guide policymaking and decision-making*

Commissioned by the Health Bureau, we provided real-time population data during COVID-19 for policymaking and pandemic response. We alerted the public in January 2021 (prior to the vaccine rollout) that vaccine confidence was lower than other jurisdictions. By intensively monitoring the FAMILY Cohort panel, we provided unique nowcasting of population mental

health throughout the pandemic. Our findings were cited by a government advisor following the peak of the Hong Kong's largest wave of COVID-19 (5<sup>th</sup> wave), stating that anti-epidemic policies “must consider the mental (ill) health of the Hong Kong people”, “lies a much larger set of subclinical mental health issues requiring urgent attention”, “Indefinitely prolonging Public Health and Social Measures through a series of ‘suppress and lift’ cycles may exacerbate the emotional wellbeing of the population” [S9]. Subsequently, the Government relaxed pandemic restrictions citing the need to consider emotional wellbeing of the population.

*(V) Knowledge exchange for the FAMILY Cohort repository*

The FAMILY Cohort have made 38 summary reports from the FAMILY Cohort data publicly available including a territory-wide data and district-specific data covering all 18 districts in Hong Kong. These reports were shared with district councils, government bureaus, NGOs, legislators, and policymakers. We also established an open-access Geographic Information System to visualise and analyse data from over 100 variables for 46,000 participants.

**6. Sources to corroborate the impact** (indicative maximum of 10 references)

S1. Wong YL. 黃仁龍主席 Live 同你講. 2020.

<https://www.facebook.com/1668729386702915/videos/3153929721395827/>

S2. Legislative Council of The Hong Kong Special Administrative Region of The People's Republic of China. LC Paper No. CB(2)1787/17-18(01). 2018. Available from:

<https://www.legco.gov.hk/yr17-18/english/panels/hs/papers/hs20180716cb2-1787-1-e.pdf>

S3. HKSAR Government. The Chief Executive's 2018 Policy Address. 2018. Available from:

<https://www.policyaddress.gov.hk/2018/chi/tv.html>

S4. Legislative Council of The Hong Kong Special Administrative Region of The People's Republic of China. LC Paper No. CB(2)1389/19-20. 2020. Available from:

<https://www.legco.gov.hk/yr19-20/english/panels/hs/minutes/hs20200110.pdf>

S5. HKSAR Government. The 2020-21 Budget Address. 2020. Available from:

[https://www.budget.gov.hk/2020/eng/pdf/e\\_budget\\_speech\\_2020-21.pdf](https://www.budget.gov.hk/2020/eng/pdf/e_budget_speech_2020-21.pdf)

S6. Cheung E. City suffering an 'epidemic' of mental health problems. South China Morning Post. 2019. Available from: <https://www.scmp.com/news/hong-kong/health-environment/article/3018237/nearly-1-10-people-hong-kong-likely-have>

<https://www.scmp.com/news/hong-kong/health-environment/article/3018237/nearly-1-10-people-hong-kong-likely-have>

S7. Li L., Kao S. Hong Kong has the world's highest life expectancy, here's why. South China Morning Post. 2021. Available from: <https://www.scmp.com/video/scmp-originals/3154653/hong-kong-has-worlds-highest-life-expectancy-heres-why>

<https://www.scmp.com/video/scmp-originals/3154653/hong-kong-has-worlds-highest-life-expectancy-heres-why>

S8. Centre for Health Protection, HKSAR Government. Letters to Doctors: “World Health Day 2013: Is your blood pressure normal? – High blood pressure kills but it's preventable and treatable.” Published March 20, 2013. Available from:

[https://www.chp.gov.hk/files/pdf/whd2013letters\\_to\\_doctors.pdf](https://www.chp.gov.hk/files/pdf/whd2013letters_to_doctors.pdf)

S9. Forward planning after Hong Kong's fifth wave of Omicron BA.2.

[https://www.med.hku.hk/en/news/press/-/media/HKU-Med-Fac/News/slides/20220322-sims\\_wave\\_5\\_omicron\\_2022\\_03\\_21\\_final.ashx2022](https://www.med.hku.hk/en/news/press/-/media/HKU-Med-Fac/News/slides/20220322-sims_wave_5_omicron_2022_03_21_final.ashx2022)

S10. Hong Kong Jockey Club sets aside HK\$790 million to support 8 mental health drives, with over 154,000 people set to benefit. Published February 23, 2024. Available from:

<https://www.scmp.com/news/hong-kong/health-environment/article/3253050/hong-kong-jockey-club-sets-aside-hk790-million-support-8-mental-health-drives-over-154000-people-set>