

## DIRECTOR'S MESSAGE

In 2020, persons in Hong Kong with chronic illnesses reached about 1.8 million, representing about 24.1% of the total population<sup>^</sup>. Prevalence of chronic illnesses increases among middle-to-older adults. Nurses play an important role in supporting populations to maintain health, prevent disease, and manage health problems. With advance in health technologies, nurse researchers are taking up new roles to apply or develop e-platforms/devices for supporting nurses to empower patients taking charge of their health and managing their conditions through monitoring of e-health data and improving health literacy.

In this issue, we review the efforts of CGN's researchers in using mobile health technology to promote disease prevention and provide psychosocial support for family caregivers of persons with dementia. In the face of the COVID-19 challenges, our research team have innovated gerontological nursing education by integrating an on-line platform, enquiry-based learning (EBL), interactive group discussions, and gamified assessments. Our online EBL programme was proven to be effective in promoting students' online learning, and more importantly, to enhance positive attitude among nursing students toward older people.

I have been very impressed by the enthusiasm and creativity of our members in making good use of advanced technology to develop digital innovations for enhancing gerontological nursing education as well as health promotion and disease prevention. I expect more exciting work and research studies to come in the near future.

<sup>^</sup> Census and Statistics Department, (2021), Social data Collected via the General Household Survey: Special Topics Report - Report No.63 Persons with disabilities and chronic diseases.

Enjoy reading!

Justina Liu, PhD  
Director, CGN

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# RESEARCH and EDUCATIONAL ACTIVITIES

## Developing mobile apps to support health management

*Believing that mobile apps have opened new opportunities for nurses to support people to manage their health and psychosocial wellbeing, as well as prevent diseases, **Prof. Angela Leung** (Professor & Associate Head [Research]) and her teams have embarked on research journeys to develop mobile apps for people at pre-chronic disease status and family caregivers of persons with dementia. Evidence showed that the mobile apps were effective in supporting nurses to empower the users to change their lifestyle, hence, reduce the chance of onset or progression to chronic diseases. The app also provided a channel for caregivers to express their emotions and connect with others.*

## Mobile app lifestyle intervention for adults with metabolic syndrome

The number of young-old adults (aged 50 or above) with metabolic syndrome (MetS) is growing. A lifestyle intervention programme, supported by an e-health app, which allows continuous self-monitoring of health data and feedback on outcomes, could promote lifestyle modification to prevent Mets from deteriorating into other chronic conditions.

With the support of over HK\$ 1.1 million by the Health and Medical Research Fund, the Food and Health Bureau, our research team\* developed the MetS app (an app for metabolic syndrome) and examined the preliminary effect and acceptability of the app in supporting the delivery of a lifestyle intervention programme, as compared to the effect of a booklet.

After receiving an educational session about the risk factors of MetS and the importance of lifestyle modification by a nurse, seventy-seven research participants, recruited from two local community centers, were supplemented by either the MetS booklet with advice on lifestyle and diet management, or the MetS app. The MetS app provided features that supported exercise maintenance and self-monitoring of health records (such as records of body weight, blood pressure, optional blood glucose and lipid level).

The app group showed a significant reduction in body weight and body mass index, a greater amount of exercise, and improved exercise self-efficacy within 3 months. Our MetS App could be integrated into a lifestyle intervention programme delivered by nurses and promoted to the population on a larger scale to reduce MetS risks.

\* Co-investigator: Angela Leung, Professor. Members: Eliza Wong (currently an Associate Professor in the School of Nursing of Tung Wah College), Doris YP Leung (Associate Professor), Hon Lon Tam (PhD student), Kai Wang Yeung (Research Assistant, left the School in September, 2019), School of Nursing, PolyU; Qun Wang, School of Nursing, Shenzhen University, Shenzhen, Guangdong, Mainland China.

Click [here](#) to access the complete paper.

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## Mobile app changing the way we prevent diabetes

Diabetes was the tenth commonest cause of deaths in Hong Kong. According to the Population Health Survey (PHS) 2014/15 conducted by the Department of Health, the total prevalence of diabetes mellitus (DM) was 8.4% among persons aged 15-84, with 54.1% of them being undiagnosed before the PHS. The total prevalence of DM increased to 25.4% among those aged 65-84<sup>1</sup>. Early detection of individuals with undiagnosed diabetes and prediabetes (UDPD) makes early lifestyle modification interventions suggested by nurses possible to prevent or delay the onset of type 2 diabetes. To achieve this aim, our research team\*\* integrated the Finnish Diabetes Risk Score into a mobile app. This Diabetes Risk Score (DRS) mobile app, developed in 2014, was possibly the FIRST DRS app targeting at a Chinese population for diabetes risk self-assessment.

## RESEARCH and EDUCATIONAL ACTIVITIES

Statistical analyses were performed to determine the optimal cut-off value of the Diabetes Risk Score to identify app users with UDPD. The team's recommended cutoff points in this DRS app could help identify nearly 70% of persons at a high risk of diabetes. It was concluded that approximately 1 million of the Hong Kong population were not aware of their UDPD status.

The team identified the high-risk groups, estimated their chance of developing diabetes within two years and encouraged these participants using the DRS app to support their lifestyle changes. Significant improvement were seen among these high-risk app users in their daily intake of vegetables and physical activity in the follow-up period.

The DRS app was proven effective in supporting nurses to empower individuals at UDPD status to change their lifestyle, hence, reduce the chance of onset or progression to diabetes.

To identify the optimal way to use this DRS app in promoting pre-diabetic self-management, the team\*\*\* recruited over 2,000 persons aged 40 or above to use the app. Following a health assessment, telephone counselling sessions were given to persons at high risk of diabetes, to support them using the app to record their blood pressure, calories consumed, and diet pattern for lifestyle modification. The research findings indicated a high willingness and confidence of the participants in using the mobile app to self-assess and monitor their health-related parameters.

Prof. Angela Leung and the team's effort in developing and implementing the DRS app in a Chinese population have showed nurses dedication in embracing technology and creating innovations to support clients to maintain health and preventing diseases. The team earned the **Excellent Health Promotion Project Award from the Food and Health Bureau** last year, in recognition of their years of contribution in health promotion.



Led by Prof. Angela Leung, 'Changing the Way We Prevent Diabetes: The Use of Mobile Application', a research study funded by the Health Care and Promotion Fund (renamed as Health Care and Promotion Scheme), was given the Excellent Health Promotion Project Award 2021 by the Food and Health Bureau.

Click [1](#), [2](#) to access the complete papers.

1. Centre of Health Protection. (29 October 2021). Diabetes Mellitus. Retrieved from <https://www.chp.gov.hk/en/healthtopics/content/25/59.html>

\*\* Angela Leung & Xin Yi Xu, PolyU's School of Nursing; Pui Hing Chau, Daniel YT Fong, & Janet YH Wong, HKU's School of Nursing; Yee Tak Esther Yu, Carlos KH Wong & Cindy LK Lam, HKU's Department of Family Medicine and Primary Care; and Mike KT Cheung, Centre on Research and Advocacy, The Hong Kong Society for Rehabilitation.

\*\*\* Angela Leung, PolyU's School of Nursing; Esther Yee Tak Yu, HKU's Department of Family Medicine and Primary Care; Pui Hing Chau, HKU's School of Nursing.

# RESEARCH and EDUCATIONAL ACTIVITIES

## E-painting app for family caregivers of persons with dementia

Family caregivers of persons with dementia (FCPWD) are occupied with caregiving tasks, hence, reluctant to attend activities with longer duration. They experience a higher risk of distress but many of them do not have ways to free themselves from daily caring duties. Our project team<sup>+</sup> saw the need to engage FCPWD in a brief period of activity for alleviating their stress, thus, this first of its kind e-painting app was developed to provide psychosocial support to FCPWD.

The caregivers were involved to co-design and develop the E-painting app. During the 8-week intervention, briefing sessions were given to the caregivers to support them using their mobile phones to draw pictures and upload the pictures onto the cloud for sharing. Feasibility and acceptability of the app were evaluated.

The findings showed that the caregivers considered the e-painting mobile app to be a feasible and acceptable technology-based psychosocial platform as it provided an appropriate channel for them to express their emotions and connect with other caregivers. Although a larger sample size would be needed to further study the efficacy of this app on the psychosocial well-being of caregivers, our attempt in integrating technology and painting to provide stress alleviation has opened new opportunities for nurse researchers to create more exciting innovations for FCPWD.



Layout of the e-painting app



The selected painting on the topic 'A place I want to go when I am free'



The selected painting on the topic 'A plant I like'

Click [here](#) to access the complete paper.

<sup>+</sup> Angela Leung, Teris Cheung, Ivy Y. Zhao, PolyU's School of Nursing; Tommy K H Fong, HKU's Department of Psychiatry; Zarina N. Kabir, Department of Neurobiology, Care Sciences and Society, Karolinska Institute, Stockholm, Sweden.

## Research project received funding support

Following the success of the project that identified the secrets of healthy ageing among near-centenarians and centenarians in Hong Kong, **Dr Justina Liu** (Principal Investigator; Associate Professor & Director of CGN) and her team received another round of funding support from Sik Sik Yuen, with a sum of around HK\$ 57,000 for conducting a follow-up study to learn how well the near-centenarians/centenarians are ageing one year after the project.

## FEATURES

### Shaping nursing students' attitudes towards older people through online enquiry-based learning programme

Gerontological nursing education plays a key role in fostering the development of positive attitudes towards older adults<sup>1</sup>, and effective strategies targeting attitudinal changes should involve experiential learning<sup>2</sup>.

During the COVID-19 pandemic, clinical placements were suspended. Students had minimal exposure to and experience in working with older people<sup>3</sup>. Responding to this situation, **Dr Patrick Kor** (Assistant Professor; Project Leader) and **Dr Justina Liu<sup>^</sup>** developed an online self-regulated enquiry-based learning (EBL) programme to enhance the professional knowledge and skills of our students for identifying the health needs and implementing care plans for older people, and to promote positive attitudes towards older people.

Over 150 year-4 undergraduate nursing students participated in the online EBL programme. Five video-based scenarios simulating real life situations of older persons were given to the students for them to identify and explain the health problems, and propose solutions with evidence support. Interactive online workshops, a mind-map development exercise, group discussions and gamified assessments were conducted to support the students through their enquiry and learning journey.

Data were collected to evaluate nursing students' online learning experiences and the impact of the EBL programme. Attitudes towards older people were measured at baseline and one week after the course (post-test) using the 34-item Attitudes Towards Older People Scale. Information on self-regulated learning experiences, learning satisfaction and confidence in learning, collected at post-test, was analysed. Focus group interviews were conducted online to explore the quantitative findings.

Gerontological nursing courses should prepare students to be competent and caring practitioners who understand the needs of older people and are ready to provide holistic care. The results of this study showed a significant positive improvement in the students' attitude towards older people. High levels of metacognitive skills, persistence in online education, satisfaction and self-confidence in learning were found among the students during the course. 'Our innovative online EBL provides nursing faculties with an effective way to develop students' knowledge of gerontology and promote positive learning during the COVID-19 pandemic.' Dr Patrick Kor concluded.

Click [here](#) to access the complete paper.

1. Hovey, S., Dyck, M., Reese, C., & Kim, M. (2017). Nursing students' attitudes towards persons who are aged: an integrative review. *Nurse Education Today*, 49, 145–152.
2. Burbank, P.M., Dowling-Castronovo, A., Crowther, M.R., & Capezuti, E.A. (2006). Improving knowledge and attitudes towards older adults through innovative educational strategies. *Journal of Professional Nursing*, 22 (2), 91–97.
3. Martin-Delgado, L., Goni-Fuste, B., Alfonso-Arias, C., de Juan, M.A., Wennberg, L., Rodríguez, E., & Martin-Ferreres, M.L. (2021). Nursing students on the frontline: impact and personal and professional gains of joining the health care workforce during the COVID-19 pandemic in Spain. *Journal of Professional Nursing*, 37(3), 588–597.

<sup>^</sup> Research team member: Prof. Rick Kwan, Professor, School of Nursing, Tung Wah College.

## OUR PEOPLE

*Prof. Angela Leung* has been elected as a member of the Global Executive Board of International Union of Health Promotion and Education (IUHPE) for 2022-2025. IUHPE takes the lead in health promotion world-wide and it has been closely collaborating with international organisations (such as World Health Organization and United Nations) and governments of many countries. Click [here](#) to learn more about IUHPE.

## CURRENT ISSUES

### Adopted ICOPE framework to assess intrinsic capacity of older people

To promote and implement the WHO Guidelines on Integrated Care for Older People (ICOPE), **Prof. Angela Leung** and **Dr Jing Jing Su**<sup>#</sup> (Postdoctoral Fellow) carried out a cross-sectional study in 11 local community centers to assess intrinsic capacity of older people in the community using the WHO ICOPE framework.

The findings showed that the intrinsic capacity impairment in community-dwelling older adults are prevalent, in particular, in locomotor and cognitive capacity (Click [here](#) for details).

During the study, the research team recruited and trained our nursing students to assess older people in the community using the WHO ICOPE framework. Building on this experience, a training package on health assessment adopting the ICOPE approach has been developed. The research team recommended that more actions should be taken to slow or prevent the impairment, support self-care and social engagement in old age.

<sup>#</sup> Other team members: Elsa S H Lee, Hong Kong Sheng Kung Hui Welfare Council Ltd; Mr Jeff Fung, Clinical Associate & Prof. Alex Molassiotis, Head of the School, PolyU's School of Nursing.

### CGN at Greater Bay Area Symposium

Exploration on technology and healthy ageing continues. At the Greater Bay Area Symposium 'Promoting Health in Aging and Cancer Population with Nursing Innovations' held on 28 May, together with the CGN collaborator, Dr Zorina Nahar Kabir, Karolinska Institute, Sweden, and Dr Li Zhang, Foshan No. 7 People's Hospital, Mainland China, **Prof. Angela Leung** and **Dr Patrick Kor**, gave plenary speeches to raise the level of awareness and understanding on mobile health technology and e-biofeedback device for supporting people at pre-chronic disease status and family caregivers of people with dementia.



Prof. Angela Leung (top) spoke about opportunities and challenges of M-health technology.



Dr Patrick Kor shared his research findings on the use of acupressure and mindfulness for reducing stress among family caregivers of people with dementia.

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### Editorial Board

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