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Implementation of Yoga Breathing Exercise into Aging Education to Reduce Rural Health Inequity

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People worldwide live longer in the 21st century. As reported by World Health Organization (WHO) [1], the proportion of the world's population over 60 years will nearly double from 12% in 2015 to 22% in 2050. By 2020, the number of people aged 60 years and older outnumber children younger than 5 years. With the change of demographic structure, the big challenge now is how to help the older people keep healthy and prolong their active life expectancy. If the healthy elderly are motivated and willing to pursue new activities (such as further education or a new career), they may regain their values and contribute to families, communities, and society. The shift in distribution of a country's population towards older ages creates steering forces to change the life value of the old people in the 21st century. The immediate challenge of keeping the elderly healthy and active is to recognize and reduce the obstacles in their life. In fact, old people are so diverse. They have a broad age range (from 65 to more than 90 years old) and live in various socioeconomic conditions (including education and materials levels).

Those who have lower educational and socioeconomic conditions may suffer from unhealthy or harsh conditions, name the elderly health inequity [2]. In addition to healthy inequity in ageing, rural-urban disparity also exaggerates the supporting system to the old people. Particularly, the people older than 80-year-old who stay in underserved rural areas have higher incidence of multimorbidity, including mental disorder and frailty [3,4]. A WHO report "Aging and Health" in 2015 raises an important issue of the obstacle to maintain healthy aging. In addition to society's stereotypes of aging, insufficient policies, lack of access to facilities, inadequate or lack of planning or lack of services/consultation

create artificial barriers to hinder the accessibility of the old people to medical care [1]. When comparing with urban areas, rural areas own much fewer resources and face much more health problems, name rural health inequity. As suggested previously, the rural health inequity commonly result from three major causes (location, income, and education). In response to the causes, the potential solutions include the implementation of new policies to improve the accessibility to medical care and the development of a tailor-made aging education to empower self-regulatory capacity in health. However, the fast way of reducing rural health inequity is to enhance their self-awareness of health knowledge and behaviors through ageing education.

To design a package of ageing education for the elderly in the rural areas, we must identify the common health problems of the elderly in the areas. What are the common health problems in old people? As reported, the most common one is chronic diseases, such as diabetes and cardiovascular diseases [5]. The second one is geriatric syndrome often occurring in the normal aging process. Continuous decline of physiological metabolism leads to the reduction of body function and transformation of body structure. When the reduction of normal functions cannot be compensated by normal feedback system, occurrence of various clinical symptoms leads to functional ageing or disability. The main manifestations of geriatric syndrome include incontinence, falling, functional decline including instability, immobility, and frailty [6]. The third one is anxiety or depression, but they often express negative emotions such as frequent complaints. A WHO report in 2017 showed that 15% of old people over 60 suffer from mental disorders [7]. The elderly with daily mental dysfunction are more likely to develop

depression. In the elderly, depression is a risk factor for dementia [8]; anxiety is a risk factor for cognitive impairment [9].

According to characteristics of these three major health problems, a package of ageing education is designed and delivered. To motivate their learning, first of all, a series of health assessments will be conducted as a health check-up to help the elderly learn more about how physiological functions are assessed. The data allow us to determine if old people in the certain area show the elderly' specific problems such as hearing loss, cataracts and refractive errors, back and neck pain and osteoarthritis, chronic obstructive pulmonary disease, diabetes, depression, and dementia through various health examination tools. After sharing the analytical results with the elderly, the updated knowledge about the common problems identified will be presented as an interactive lecture. Various topics will be covered, including frailty, urinary incontinence, falls, or delirium. In addition to sharing the knowledge of how the health problems occur, the related information about how physical and social conditions affect their health is also covered. Hand-on exercises are also introduced, including eating a balanced diet, engaging in regular physical activity, and determining the risk of non-communicable diseases. The most challenge one is to implement cognitive exercise in ageing education and improve mental health of the elderly in the rural areas, in part, due to their lower health literacy.

Since Yoga breathing exercise is one of common exercises to delay dementia, it is plausible to implement Yoga breathing exercise into aging education. Sudarshan Kriya Yoga (SKY), a Yoga breathing exercise, includes slow, medium, and fast breathing. Many scientific reports have confirmed the effect of SKY on improving emotional disorders. When inhaling, activated sympathetic nerve in the sinus node of the heart increases the heart rate; when exhaling, the activated parasympathetic nerve decreases the heart rate [10]. Anxiety is positively correlated with the imbalance of sympathetic and parasympathetic activation. Yoga breathing exercise effectively reduce depression and anxiety symptoms in affective disorders [11]. Those people who regularly practice SKY for two months to several years show better balance between sympathetic and parasympathetic activation [12]. Current reports suggest a possible implementation of Yoga breathing exercise into the package of ageing education.

Both new knowledge and Yoga breathing skills allows the elderly to have experiences of the beneficial effect on anti-depression. After frequent practice of Yoga breathing exercise for months, the old people in the rural areas are invited to undergo health check-ups as a post-test to confirm their effort on health promotion. In summary,

the old people in the rural areas have lower education level. Therefore, the design of aging education is based on the theory of experience learning [13]. The elderly experiences health check-ups and Yoga breathing exercise. These experiences of joy and relaxing provide decent connection with related knowledge and further consolidates their health-related knowledge with skills. In other words, Yoga breathing exercise is no longer a tool to enhance mental exercise. It also provide a kinesiological link between new knowledge and mental happiness

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Conflict of Interest

No conflict of interest.

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