



Review Article

Traditional and complementary medicine for promoting healthy ageing in WHO Western Pacific Region: Policy implications from utilization patterns and current evidence

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ABSTRACT

Background: With increasing burden of chronic non-communicable diseases (NCD), ageing becomes a global public health concern, and the World Health Organization Western Pacific Region has no exception. To address the NCD challenge, priority should be given to promote healthy ageing across the life-course. As traditional and complementary medicine (T&CM) is popular within the Region, it is of policy interest to explore possibilities of applying T&CM for promoting healthy ageing.

Methods: We first summarized sources of clinical evidence supporting the use of T&CM. We then searched publications through MEDLINE from its inception to April 2020 to identify studies focusing on the perception of T&CM among older people. Finally, taking current evidence base and patient choice into account, we generated policy recommendations for of integrating T&CM into health systems.

Result: Experiences from countries with different income levels suggested that promoting evidence-based T&CM as self-care modalities would be the most efficient way of maximizing impact among the older population, especially via a train the trainer approach. Meanwhile, popularity of natural products in the Region mandates policy makers to implement appropriate regulation and quality assurance, and to establish pharmacovigilance to detect potential harm. The role of pharmacists in advising patients on self-medication using natural products needs to be strengthened.

Conclusion: Policy-makers will benefit from continued global dialogue and sharing of experience in T&CM policy development and implementation. Harmonizing regulatory frameworks for natural products at regional and global levels, including mutual recognition of regulatory approval, to improve standards and protect patients could be a priority.

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Background

Population ageing is one of the major global health challenges and Member States within the World Health Organization (WHO) Western Pacific Region (abbreviated as *Region* hereafter) are rapidly ageing. By 2050, the world's population aged 60 years and older is expected to total 2 billion.¹ In 2019, more than 290 million people aged 60 years and older lived in the Region.² One of the greatest threats posed by population ageing is the increasing burden of chronic non-communicable diseases (NCD), a major cause of

morbidity and mortality for people aged 60 years and over.³ Cardiovascular disease, cancer and respiratory disease are the leading conditions contributing to mortality and morbidity among older people in the Region. Besides these three disease groups, diabetes, stroke, depression, anxiety, dementia and musculoskeletal disorders also contribute to the major burden of morbidity.⁴ In this review, older people are defined as those who aged 60 or above.

Evidence-based prevention, as well as age-friendly models of care for delivering effective health services at community and primary care settings, are priorities for formulating policies for ageing.⁵ These priorities are reflected in the *Regional Framework for Action on Ageing and Health in the Western Pacific 2014–2019* which laid out the pillars of action for ageing and health in the Region.⁶ One of the pillars included taking a life course approach to address-

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ing the challenge of NCDs in order to prevent or at least delay functional decline and disease among older people. Health systems are encouraged to increase access to proven, effective interventions for health promotion and disease prevention, targeted to specific conditions. Traditional and complementary medicine (T&CM) has a role to play, as evidence-based modalities can address functional decline and frailty among older people and reduce the burden of morbidity as well as mortality.⁷ The use of T&CM is common in many countries globally. According to the *Regional Strategy for Traditional Medicine in the Western Pacific 2011–2020*, over 60% of the population in Australia, China and Republic of Korea were using T&CM, while the figures were higher than 30% in Brunei Darussalam, Malaysia, New Zealand, Singapore and Viet Nam.⁸

In a comprehensive healthcare system, individuals will choose whether they use public or private services or whether they use conventional medicine or T&CM services separately or together for any given health need. In response to this, the WHO Western Pacific Regional Office (WPRO) launched the *Regional Strategy for Traditional Medicine in the Western Pacific 2011–2020*.⁸ Promoting safe and effective use of T&CM is a key objective in this Strategy,⁸ and this direction is reinforced in the *WHO Traditional Medicine Strategy 2014–2023*, in which Member States are encouraged to capitalize on the potential contribution of T&CM for improving health outcomes.⁹

The heavier NCD burden associated with ageing and the increasing recognition of the contribution of T&CM to health care creates a prime opportunity for exploring the potential of T&CM in promoting healthy ageing.⁹ To unleash this potential, specific T&CM modalities need to be chosen based on the strength of the evidence related to their safety and effectiveness. Appropriate T&CM community dissemination models and regulatory measures need to be developed in accordance with older people's needs and expectations.

This paper provides policy-makers with a review of the three key issues:

• Sources of clinical evidence supporting the use of T&CM

Promoting the use of T&CM based on evidence of its safety and effectiveness is recommended by both the *Regional Strategy for Traditional Medicine in the Western Pacific 2011–2020* and the *Regional Framework for Action on Ageing and Health in the Western Pacific 2014–2019*. The first section of this review introduces sources of clinical evidence to support the use of T&CM for common NCD. Sources focus on meta-analyses (MA) and randomized controlled trials (RCT), which provide high quality evidence on effectiveness.^{10,11}

• Perception of T&CM among older people

The next question confronting policy-makers is how to promote wider use T&CM in the community. To ensure that the evidence is taken into account and the safety of products is ensured, decisions will be needed on regulatory models, particularly for natural products, that are responsive to the expectations of older people. The second section of this review discusses how older people living in the Region perceive the role of T&CM, including its strengths and weaknesses, and their concerns about the use of T&CM.

• People-centered policies for integrating T&CM into health systems

The third section of this review condenses international policy experiences of integrating T&CM into health systems, particularly in these two aspects: i) facilitating T&CM as self-care in community settings, as well as ii) regulating natural products and

implementing pharmacovigilance, which are deemed to be crucial for promoting wider use of T&CM for healthy ageing.

Main text

Sources of clinical evidence supporting the use of T&CM

Definition and categorization of T&CM

According to the *WHO Traditional Medicine Strategy 2014–2023*, traditional medicine (TM) is defined as “the sum total of the knowledge, skill and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.”¹² Whereas complementary medicine (CM) refers to “a broad set of health care practices that are not part of the country's own tradition or conventional medicine and are not fully integrated into the dominant health-care system”.¹² The term CM is sometimes used interchangeably with TM in some countries. T&CM “merges the terms TM and CM, encompassing products, practices and practitioners”.¹² Dr. Margaret Chan, the immediate past Director-General of the WHO, has stated the nature of integrating T&CM into health system: “Within the context of primary health care, they (T&CM and conventional medicine) can blend together in a beneficial harmony, using the best features of each system, and compensating for certain weaknesses in each.”¹³ The integration of T&CM with conventional medicine is of important relevance to older people with NCD and in health promotion.

Clinical evidence supporting the use of T&CM

The current number of published MA and RCT is growing exponentially.¹⁴ High quality clinical evidence is being published which can inform decision-making. This evidence will help clinicians to resolve uncertainty on safety and effectiveness of T&CM modalities, which is a major concern among policy-makers, clinicians, and older people within the Western Pacific Region. This approach echoes the goal of identifying, documenting and sharing of information on best buys and good practice for promoting healthy ageing, as stipulated in the *Regional Framework for Action on Ageing and Health in the Western Pacific 2014–2019*.⁶ Also, it responds to the call to identify sources of evidence on T&CM which is highlighted in both the *Regional Strategy for Traditional Medicine in the Western Pacific 2011–2020* and the *WHO Traditional Medicine Strategy 2014–2023*.^{8,12} Current evidence on T&CM, focusing on MA results, is presented in both full report and synopses format (plain language summaries) on the Cochrane Complementary Medicine website.¹⁵

As shown in the evidence presented in Cochrane Complementary Medicine website,¹⁵ support for effectiveness of T&CM treatment is promising for many conditions, but further research on T&CM's potential role in prevention is needed. In addition, developing appropriate strategies for implementing effective T&CM services within health systems will require appropriate knowledge translation effort and operational research.¹² Boxes 1 and 2 provide examples on how T&CM could address the effectiveness gaps of conventional medical care for reducing blood pressure among patients with hypertension or prehypertension, as well as improving cognitive function among healthy older people. Since older people often experience several chronic conditions simultaneously, future research can investigate how T&CM can contribute to the management of co-morbidity.^{3,16}

When considering the adoption of T&CM modalities presented in clinical research publications, clinicians should carefully consider the applicability of study results to their local populations. Key similarities and differences between populations included in

Box 1: Effectiveness of massage therapy in reducing blood pressure among patients with hypertension and prehypertension

Hypertension is an important risk factor for cardiovascular diseases and mortality and its prevalence is particularly high among older people.¹⁷ Massage therapy is one of the most commonly used T&CM modalities. A recent systematic review has highlighted that massage therapy significantly reduced both systolic blood pressure and diastolic blood pressure with no reported adverse effects among patients with hypertension and prehypertension when compared with control groups which included the use of placebo, no treatment, standard care, or any active treatment unrelated to massage therapy.¹⁸ While massage is safe in general, it is not entirely risk free and the technique should be optimized to prevent adverse events.¹⁹

Box 2: Effectiveness of ginseng in improving cognitive function among healthy older people

Dementia is a prevalent problem among older people, characterized by progressive cognitive impairment which lowers the ability to perform daily activities and increases the likelihood of behavioral disturbances.²⁰ Ginseng has been used as a natural product to combat ageing for thousands of years.²¹ It is widely used throughout the world to provide positive effect on people's cognitive performance and well-being.²² Findings of a Cochrane systematic review indicated that oral intake of ginseng extract (400 mg/day) for an average duration of 8.5 weeks yields significant improvement in learning and memory test scores measured among healthy older people when compared with placebo. No serious adverse effects were associated with its use.²¹

the studies and the local population should be analyzed prior to making decision on the use of T&CM. Factors to consider should include²³:

- If patients included in the study differ from local patients in terms of their health, and demographic and socioeconomic characteristics;
- Methodological design of the study;
- Temporal, ethnical and geographical variations among patients;
- Training level of clinicians, treatment settings, and reimbursement policy.

As new clinical evidence on T&CM emerges, clinicians and patients can make informed choices on whether to use the T&CM modalities according to the following principles²⁴:

- *Category 1:* If evidence supports both safety and effectiveness, clinicians may recommend the therapy but continue to monitor the patient conventionally.
- *Category 2:* If evidence supports safety but is inconclusive about effectiveness, the treatment may be cautiously offered with monitoring of patient outcomes.
- *Category 3:* If evidence supports effectiveness but is inconclusive about safety, close monitoring on both patient outcome and safety should be implemented while offering the interventions.
- *Category 4:* Therapies for which evidence indicates either serious risk or inefficacy obviously should be avoided and patients actively discouraged from pursuing such a course of treatment.

When making decisions on the use of T&CM, the guidance of high quality evidence (i.e. based on the results from the MA and RCT) is important to allow clinicians and patients to carefully eval-

uate the risk and benefit of the T&CM modality in question, and acknowledge any uncertainty in using such modality.²⁴ Academia needs to improve the quality and quantity of clinical research on T&CM and its integration with conventional medicine, and to promote rapid dissemination of results in order to reduce the degree of uncertainty involved in decision-making on T&CM in the future.

Perception of T&CM among older people

In this section, we review published studies focusing on the three questions, which are related to how the role of T&CM is perceived by older people living in the Western Pacific Region:

- i) How do older people consider the strengths of T&CM, and its role in healthcare?
- ii) How do older people perceive the risk associated with T&CM use?
- iii) How and why do older people choose to use both T&CM and conventional medical care?

Answers to these questions can help policy-makers in understanding and recognizing the role of T&CM, which is a strategic objective in the *WHO Traditional Medicine Strategy 2014–2023*.¹² They can also increase the responsiveness of T&CM services to the health needs and expectations of older people, a goal set by the *Regional Framework for Action on Ageing and Health in the Western Pacific 2014–2019*.⁶

To identify relevant studies, we searched MEDLINE from its inception date to April 2020 for studies that investigated older people's views on T&CM. We restricted our search to studies conducted within the WHO Western Pacific Region. The search terms are shown in Appendix A. Inclusion criteria were:

- Original empirical investigations that have employed qualitative, quantitative or mixed method approaches;
- Studies with an explicit aim of investigating the public or patient perception on T&CM;
- Studies that sampled T&CM users aged 60 or above.

Titles and abstracts generated from MEDLINE search were screened for eligibility assessment. Full texts of potential citations were retrieved for detailed examination. These processes were conducted by two authors independently [CW and CZ]. Final decision on inclusion was made by consensus adjudication among investigators [CW, CZ and VC]. For each included study, texts under the headings of 'results' or 'findings' were extracted and subjected to analysis by two investigators [VC and CW]. A thematic analysis approach was adopted for synthesizing qualitative and quantitative studies.²⁵

The results are reported in two parts: i) perceptions of older people for whom T&CM is considered as part of the cultural tradition (traditional medicine, TM); and ii) perceptions from populations where T&CM is regarded as a complement to conventional medicine (complementary medicine, CM). All findings are stratified into views from healthy older people and views from older people with NCD.

Perceptions of traditional medicine where T&CM are part of cultural tradition

Perceptions of traditional medicine among healthy older people. In the Western Pacific Region, TM is generally accepted as part of the healthcare ecology at individual or health system level, and is widely used among older populations.^{26–28} A Japanese survey showed that 80% of study participants reported TM use in the past 12 months.²⁹ Results from another survey in Japan also indicated that 76% of participants have used at least 1 TM therapy within the

past 12 months.²⁶ The most common TM therapies used among healthy older people are massage, acupressure, and natural products which include dietary supplements and herbal medicines.²⁸ Recommendation by friends and relatives is one of the major reasons for choosing TM.³⁰ In addition, the empathic nature and longer duration of the TM consultation process are major motivators for consulting a TM practitioner.³¹

The perceived effectiveness of TM is high. In a Malaysian study, over 50% of older people thought that TM was more effective than conventional medicine and up to 83% of them that TM was good for maintaining overall health and well-being.³² Self-administration of TM for minor illnesses and well-being improvement is also very common.^{26,33} TM is chosen as it is perceived to provide tonic and holistic effects for improving physical and mental health.^{26,28,31}

Combined use of TM and conventional medicine is also popular among healthy older populations,^{26,28,31} and TM is often considered as useful for augmenting conventional medical care, or for reducing side effects caused by conventional medicine. However, despite high concurrent use and perceived benefits, many older people are not willing to disclose or discuss TM use with their conventional medicine clinicians due to fear of negative response and disapproval.^{26,28}

The prevalence of TM-related adverse events is perceived as relatively low by users. In a survey conducted in Hong Kong, study participants perceived strengths of acupuncture as having fewer side effects and as being effective for preventive care.³⁴ According to a Malaysian study, the majority (78.5%) of study participants agreed that TM had less side effect when compared with conventional medicine.³²

Perceptions of traditional medicine among older people with NCD. Not unexpectedly given previously discussed findings, the use of TM is also common among older NCD patients. Prevalence of TM use ranges from 22% to 32%,^{35,36} with friends and relatives' suggestions its use being the most common motivator, followed by recommendations from healthcare professionals.^{35,37-39}

Results from a Chinese study among patients with coronary artery disease, as well as two studies conducted in Malaysia among patients with HIV/AIDS and breast cancer indicated that herbal medicines were one of the most popular forms of TM.^{37,38,40} However, it is not surprising that the most common type of TM among older NCD patients varies according to their diagnosis. TM is widely considered as having a generalized effect in maintaining health and well-being,³⁶ revitalizing functional capacity,³⁶ relieving pain⁴¹ and improving general well-being.³⁵ For example, one study of Malaysian breast cancer survivors found that TM was perceived to be effective in healing the body's inner strength, preventing cancer from spreading and reducing stress among the patients investigated.³⁸

This is in line with the general perception that TM is harmless or only associated with few side effects.⁴² A study conducted among patients with chronic pain in Singapore indicated that approximately 40% of patients considered TM as safe⁴³; while another Malaysian study reported that 66% of NCD patients believed that TM was free from side effects.³⁵

Combined use of TM and conventional medicine is also common among older NCD patients.³⁹ A study conducted among 423 NCD patients in Korea showed that the simultaneous use of TM and conventional medicine was common.⁴⁴ However, the percentage of patients who are willing to disclose their use of TM to their conventional medicine clinicians is generally low.^{35-37,39} The main reason for not telling their conventional medicine clinicians about TM use is that the clinicians do not actively ask about TM use, followed by a perception that it is unimportant for the clinicians to know about

TM use, and finally fear of the clinicians' disapproval on their use of TM.^{35,36,39}

Perceptions of older people who regard T&CM as complementary medicine

Perceptions of complementary medicine among healthy older people. In Australia, CM is regarded as a popular form of self-care or primary care service.⁴⁵⁻⁴⁷ Common CM modalities include natural products, acupuncture, chiropractic and osteopathy.⁴⁸⁻⁵⁰ In recent decades, CM is increasingly used among healthy older populations, with 84.7% of older people consuming CM in the past 12 months.⁵¹ Several studies conducted in Australia have highlighted factors associated with CM use among healthy older people, namely personal beliefs and experiences, social networks, educational levels and previous experiences encountering conventional medicine.^{52,53}

Older people with higher levels of social support are found to be more likely to use CM accessed over the counter.⁵¹ It is estimated that 8.14 million CM practitioner visits are made annually among Australians aged 65 years or above.⁴⁹ Healthy older Australians usually use CM modalities for maintenance of general health, pain management,⁵⁴ lowering cholesterol levels and blood pressure, and improving sleep.⁵⁰

Perceived effectiveness of CM is high, with over 90% considering acupuncture, chiropractic, osteopathy, and natural products including herbal medicines to be very helpful.^{48,55} A recent qualitative study conducted in Australia demonstrated that most of the older people were satisfied with the types of CM they had used, and majority of them perceived that some CM modalities, such as massage and Tai Chi, were good for relaxation and stress management.⁵⁶

Nevertheless, the perceived safety of CM remains controversial in Australia. An Australian study showed that some participants viewed natural products as intrinsically safer than conventional drugs. They perceived that the latter consist of unnatural artificial chemicals, while others were hesitant about the use of natural products due to therapeutic uncertainties.⁵⁵ The majority of study participants agreed that natural products should be regulated by the government as rigorously as conventional drugs.⁵⁵

Perceptions of complementary medicine among older patients with NCD. In common with all older healthy populations, CM is commonly used among older NCD patients. Results from the Australian national survey showed that the prevalence of CM use among patients older than 60 years with one or more NCD was 33.2%.⁴⁷ CM use for musculoskeletal conditions is popular, with about 40% of older Australian consuming CM to manage their arthritis symptoms.⁴⁷ Similar findings were observed in another national survey in Australia, showing that older people with chronic pain-associated or mobility limiting conditions were more likely to visit a CM practitioner in the past three months.⁵⁷ The most common sources of CM information were family and friends.⁵⁸

Besides, CM is particularly popular among older cancer patients from Australia and New Zealand.^{58,59} A survey conducted in Australia indicated that 68% of cancer patients currently or previously used CM.⁵⁸ The majority of cancer patients aim to use CM to improve general physical well-being.⁵⁸ In New Zealand, some cancer patients also expect the use of CM to offer hope in managing, or even curing their cancer.⁵⁹

People-centered policies for integrating T&CM into health system

Convergence of themes emerging from existing literature synthesized in the last section indicates that policy-makers from

different Member States in the Western Pacific Region share common policy issues when considering the integration of T&CM with conventional medicine. The issues can be summarized as:

- T&CM is considered as a useful option for prevention and treatment among older people with or without NCD.^{26,28,31,37–39} As T&CM has been regarded as having special strength in providing holistic and salutogenic treatment effects that complement conventional medical care, older people often use T&CM in conjunction with conventional medicine.^{26,28,31,50} Facilitating T&CM as safe and effective self-care provides positive impact on patients' health status and self-efficacy,^{6,60} but also helps complement the integration of T&CM into health systems, with the potential to reduce inequality among the disadvantaged.⁶¹
- However, not all T&CM modalities are safe and adverse interactions between natural products and conventional medications may be harmful.^{62,63} This highlights the need for effective and professional guidance on T&CM use among older people.¹² It is also essential for governments to regulate natural products and ensure pharmacovigilance.¹²
- In the paragraph below, we illustrate a case study from Singapore where professionally guided Chinese medicine service are provided to disadvantaged elderly in an equitable manner:

With the population of Singapore ageing, it is estimated that the number of seniors aged 60 or above will increase from 8.4% in 2005 to 18.7% in 2030.⁶⁴ The government has introduced the idea of setting up Senior Activity Centers (SAC) as a center to support vulnerable seniors. Since the setup of the first SAC about 20 years ago, many seniors across different parts of Singapore have been served by SACs under different Voluntary Welfare Organizations (VWOs). There are more than 50 SACs set up to date. These SACs are generally situated at the ground floor of one- and two-room rental flats at different housing estates. The SACs aim to help these seniors by meeting their biological needs, psychological needs and socio-cultural needs, so as to enhance their quality of life.⁶⁵ This means providing various health services, such as medical escort services, medication, monitoring services and nutritional dietary services. Should the elderly be in distress at home, they are able to sound the emergency alert response calls which will notify the employees at the SAC and who will provide immediate medical treatment. SACs also organize programs and activities to help the seniors exercise, socialize and interact with other seniors, thereby, reducing their social isolation and promoting the idea of ageing-in-place. For these activities and programs to take place, SACs need to form partnerships with local organizations, community groups and government agencies.

Through community multi-sectorial partnership, be it providing actual medical services or conducting talks to educate the public, the Chinese Medicine sector in Singapore has been actively participating in promoting healthy ageing. An example of how Chinese Medicine is used would be the partnership between Public Free Clinic Society and the various SACs and community centers in Singapore. Public Free Clinic Society is a non-profit organization that provides free Chinese Medicine services and has 5 clinics across Singapore. In recent years, their services also include providing mobile services, known as Home TCM treatment, in which they partner up with the various SACs such as Kreta Ayer SAC, Fei Yue SAC. In 2013, Fei Yue SAC have partnered with Public Free Clinic Society to have a team of Chinese physicians who visit the center weekly to provide consultations for the seniors who are unwell. The team diagnoses the seniors' physical condition and provides acupuncture and Chinese herbal medicines for them on the spot. Each week the consultation numbers average between 20–25 seniors. The seniors find it convenient to travel to the SAC instead

of traveling elsewhere to seek treatment due to mobility difficulties. They also give feedback that the acupuncture treatment has been effective in alleviating their pain. Moreover, the service provided by Public Free Clinic Society is free-of-charge to members, and has greatly aided the low-income elderly on their hefty medical expenses.⁶⁶

Thye Hua Kwan Moral Charities Limited (THKMC) is a VWO in Singapore and has over 50 welfare services, including the Ang Mo Kio – Thye Hua Kwan Hospital, various welfare homes, family service centres, senior activity centres, communal housing, community-based services, and case management services. Today, THKMC has 17 SACs operating and they often include Chinese medicine as part of their treatment services or conduct regular morning exercise regimes such as tai chi or qi-gong. Their partners could come from the Chinese Medicine clinic under their own subsidiary or from external stakeholders.

Econs healthcare group, a private eldercare services provider of 30 years in Singapore and Malaysia has a similar approach. Econs has set up 5 SACs, termed ECONLIFE! Hubs, across Singapore that create opportunities for seniors to bond with one another as well as interact with people of all ages. Members at the SAC can participate in activities ranging from educational workshops, games and karaoke to simple pastimes such as gardening. Econs also provides health and medical services, counselling, and information on government schemes for the general public.⁶⁷ Econs has a Chinese Medicine department and clinicians who are involved in delivering TCM educational talks to participants to share health tips on managing pain or improving their lifestyle. With the inclusion of Chinese Medicine services in the organization, it is more convenient for the members to seek Chinese Medicine treatment for their health issues. Through public education, these members are also more receptive to try out other Chinese medicine services like acupuncture.

Other than contributing in the form of medical services, Chinese Medicine education is equally important in the prevention of illnesses. Singapore Council for Third Age (C3A), a government-related agency, was set up in May 2007. The agency promotes active ageing through public education, outreach and partnerships. As an umbrella body in the active ageing landscape, and with its focus on lifelong learning, senior volunteerism, and positive ageing, C3A works with and through partners to help third agers to age well.⁶⁸ Chinese Medicine organizations have been actively involved in such programs to help benefit the elderly Singaporeans. One such example would be Nanyang Technological University's (NTU) partnership with C3A. C3A engages Confucius Institute NTU and NTU Chinese Medicine Clinic to conduct Chinese Medicine talks to the public to share more about how Chinese Medicine can help one stay healthy and age healthily. The talks are often well-received and speakers would spend time after the talk to answer the public queries. Some would even move on to consult the physicians at the clinic for consultation and treatment

Facilitating T&CM as self-care in community settings

Promoting chronic disease self-care using proven interventions is recommended in the *Regional Framework for Action on Ageing and Health in the Western Pacific 2014–2019*⁶ and fostering partnerships to facilitate self-care using T&CM is advocated by the *WHO Traditional Medicine Strategy 2014–2023*¹² and the *Regional Strategy for Traditional Medicine in the Western Pacific 2011–2020*.⁸ Facilitating T&CM as self-care also fits with many other WHO strategic documents advocating the empowerment of people to contribute to their own health (e.g. *World Health Report 2008 Primary Health Care – Now More than Ever*).⁶⁹

Promoting the uptake of safe and effective mind-body practice as self-care among older people

Safe and effective forms of mind-body practice which are neither manipulative nor invasive (e.g. yoga, Tai Chi, mindfulness and meditation) can be promoted widely in the older community.^{70,71} When older people become competent in mind-body practice and other instructor-based T&CM independently, they can self-manage their well-being and health conditions without time and cost limitations.⁷² They can also tailor practices according to their own needs. Self-learning tools are important to supplement to trainer-based training, particularly in providing refreshers on appropriate practices. In a New Zealand study, yoga participants viewed home practice as an opportunity to self-manage their health conditions.⁷³ Advantages of self-practice include: i) allowing participants to practice regularly when they could not attend group classes; ii) enabling them to choose techniques suitable for their current condition; and iii) incurring minimal expenses when appropriate self-practice tools (e.g. visual presentations via electronic means) is used.⁷³

Developing face to face instructions and self-learning materials for mind-body practice

A multifaceted learning approach (e.g. face to face plus computer aided learning) is recommended.⁷⁴ Uptake of skills can be enhanced by self-learning materials, which can include both computer assisted (e.g. CD-ROM, DVD, or online) or printed instructions. In an evaluation of self-learning intervention for acupuncture, combined use of computer assisted and printed materials was found to be effective.⁷⁵

Adopting train the trainers approach to increase access to mind-body practice instructors

In lower income countries, access to skilled trainers in mind-body practice can be limited.⁷⁶ To promote access, community members can be trained to provide instructions for older people, with support from policy-makers.⁷⁶ The “train the trainers” approach in disseminating practice technique is useful in increasing trainees’ knowledge and improving instructional quality at longer term.⁷⁴ Through training new trainers, the community may benefit from increased employment and accessibility.⁷⁷ With a team of trainers available in the community, self-practice by older people is possible after a period of instructor-led training.⁷⁸ Community-based mind-body practice may thus become self-sustainable in the future.⁷⁷

Providing subsidies and spaces for practice to facilitate mind-body practice in community settings

Intersectoral collaboration between non-governmental organizations (NGO), health and municipal authorities can facilitate dissemination of low-cost mind-body practices in community settings.⁷⁹ For instance, municipal and local authorities can subsidize NGOs the cost of hiring and training of instructors, and provide space for group practice. Community-based meditation practice organized by NGOs has been found to be effective in increasing self-satisfaction and happiness among participants.⁸⁰

Regulating natural products and implementing pharmacovigilance

Self-medication using natural products is very common in the Western Pacific Region. Most information about safety and effectiveness is not obtained from professional sources.^{50,55} Controlling the risk of natural product self-medication has been high on Member States’ agenda worldwide in the past decade. The *WHO Traditional Medicine Strategy 2014–2023* has highlighted

Member States’ progress in implementing regulation on natural products.¹² While each Member State can formulate its own regulatory framework that meets the needs of their own circumstances, the increasingly globalized trade of natural products has made this national approach unsustainable.¹² For example, Regulatory Agencies in Australia, China, Japan and South Korea have no mutual agreement on recognizing each other’s regulatory decision. Different Member States may have varying requirements on manufacturing standards and enforcement of regulation, which make the elimination of quality related risk across border very difficult.¹² These risks can include, but are not limited to, misidentification of herbs, low-quality herbal materials, incorrect processing methods, contamination and adulteration.⁸¹

International harmonization of regulation frameworks for natural products

International harmonization of regulation standards for natural products based on quality, safety and effectiveness should be the long-term goals of Member States.⁸² For instance, the European Parliament and Council have enacted a pan European Union (EU) directive on traditional herbal medicinal products. From 30 April 2011, all herbal products sold in the EU must possess appropriate licenses.⁸³ Governments within the Western Pacific Region should consider similar regional mutual recognition.

Expansion of pharmacovigilance systems to monitor safety of natural products and natural product-drug interactions

Despite the establishment of regulatory systems, the consumption of natural products can cause toxicities due to i) overdose; ii) hypersensitivities and idiosyncratic reactions; iii) mid and long terms toxic effects.⁸⁴ Pharmacovigilance systems for natural products are needed to monitor these adverse events from natural products, as well as their interactions with conventional medications.⁸⁵ This system should be fully integrated into pharmacovigilance systems for conventional medicine to ensure standardization in reporting, with input from toxicology departments and botanical gardens.⁸⁶ Adverse event reporting should include reports from patients, T&CM practitioners and conventional medicine clinicians, as well as other allied health professionals.⁸⁷ Intensive monitoring of certain natural products should be launched when a certain number of spontaneous reports are collected.⁸⁸ Policy-makers are encouraged to make reference to the *WHO Guidelines on Safety Monitoring of Herbal Medicines in Pharmacovigilance Systems* when formulating plans for natural product pharmacovigilance.⁸⁹

Timely dissemination of adverse events from natural products and natural product-drug interaction to healthcare professionals

Since the risk of adverse reactions between natural products and conventional medications exists,⁹⁰ both T&CM practitioners and conventional medicine clinicians should keep up to date on research related to natural product toxicities and their interactions with conventional medications and proactively ask about their combined use during consultation.⁹¹ This should be a focus for continuous professional development, and regulatory agencies need to support all clinicians in acquiring timely information. In conventional healthcare settings that also supply natural products, risk management can be implemented by setting prescription rules that minimize the risk of adverse interactions.⁹² With these measures, the problem of underreporting in spontaneous reporting systems can be resolved.⁹³

Encouraging patients’ disclosure and discussion of natural product use with T&CM practitioners and conventional medicine clinicians

Given the varying level of awareness among populations about the potential adverse events originating either from the natural

product itself or its interaction with conventional medicine, educational campaigns can support education of the public about the possible risks involved in using natural products.⁹⁴ Patients should be encouraged to discuss the use of T&CM and conventional medications with both T&CM practitioners and conventional medicine clinicians during their consultation.⁹⁵

Strengthening the role of pharmacists on advising patients' use of natural products in self-medications

Pharmacists responsible for providing over the counter natural products have an important role to play and need to be informed and engaged in established systems. Pharmacists are often perceived by older people as drug experts, but their role in advising on the use of natural products may not be acknowledged. For example, only 0.7% of the Hong Kong population mentioned that they would consult a pharmacist when they have questions regarding the safety and efficacy of Chinese herbal medicines.⁹⁶ It has been suggested that pharmacists who receive additional training in natural products can serve a critical role in coordinating co-use of conventional medications and natural products,⁹⁷ and the feasibility of this approach should be evaluated by policy-makers.⁹⁸

Conclusion

This review summarizes current evidence for the potential use of T&CM to promote healthy ageing by considering the population preference, available clinical evidence, community empowerment strategies, and the importance of regulating natural health products. It is clear that T&CM has a role to play in primary, secondary and tertiary prevention of NCD in older populations as well as in promoting well-being. Evidence from RCTs and systematic reviews provide the best evidence for T&CM. Introducing evidence-based T&CM into health systems requires policies which are responsive to older people's expectations. The synthesis of older people's views about T&CM with relevant evidence leads this review to recommend that policy-makers within the Region need to facilitate communication and collaboration between a range of parties – T&CM practitioners, conventional medicine clinicians, regulatory bodies, community organizations and the public. Policy-makers from different Member States in the Region will benefit from continued dialogue and sharing of experience from policy development and implementation. Common action points to be considered include:

- **Action points for Facilitating T&CM as self-care in community settings**
 - i) Encouragement of safe and effective uptake of mind-body practice as self-care among older people.
 - ii) Development and use of face to face instructions and self-learning materials to facilitate the learning of mind-body practice skills.
 - iii) Increasing access to mind-body practice instructors by training local older people as trainers to promote greater community resilience.
 - iv) Subsidizing the cost of hiring and training of instructors, and providing space for group practice to facilitate uptake.
- **Action points for regulating natural products and implementing pharmacovigilance**
 - i) Harmonizing regulatory frameworks for natural products at regional and global levels, including mutual recognition of regulatory approval, to improve standards and protect patients.
 - ii) National pharmacovigilance systems should be expanded to cover natural products and natural product–drug interactions. Promoting timely spontaneous reporting from patients, T&CM practitioners and conventional medicine clinicians, and other healthcare professionals would sustain the system.

- iii) Information on adverse events from natural products as well as their interaction with conventional medications should be disseminated to all healthcare professionals in a timely manner.
- iv) Disclosures and discussions of natural product use, as well as their co-administration with conventional medications, should be encouraged between patients, T&CM practitioners and conventional medicine clinicians.
- v) The role of pharmacists in advising patients on self-medication using natural products needs to be strengthened.

Since the aging population has relatively higher frequency of T&CM services and modalities utilization, these policies have particular relevance to older populations. However, these recommendations may have wider implications for other populations who use T&CM as well. Since these policy suggestions are based on literature review, future research should examine appropriateness of these recommendations via expert interviews or Delphi survey, as well as to ensure the comprehensiveness of our suggestions.

There are several challenges which policy makers may consider as priority. The first challenge is improving quality control for multi-herb preparations, which is commonly used in East Asia T&CM practice. Aside from assuring quality of each single herb in the preparation, for multi-herb preparations, novel techniques are needed for controlling formulation process, as well as consistency standards. Investigations on how overall composition profile contributes to mechanisms of actions are also required.⁹⁹ Secondly, international harmonization of herbal medicines towards a common, consensus based framework regarding safety and quality is essential for advancing regulatory functions across jurisdictions. In this regard, Forum for the Harmonization of Herbal Medicines (FHH) is the key organization for promoting mutual consensus in the Western Pacific Region among drug regulatory authorities. The work of FHH will reduce duplication of efforts, create economic use of resources, and create standards in areas of regulatory importance.¹⁰⁰ Finally, successful integration of herbal medicine services requires collaboration between conventional and T&CM clinicians, as well as pharmacists.¹⁰¹ Herbal medicine education for conventional medicine clinicians and pharmacists are found to be effective in promoting their confidence in communicating with patients about the use of herbal medicines and supplements.^{102,103} Effective curriculum can be adapted and promoted in Universities across Western Pacific Region.

It is hoped that international cooperation on T&CM development will bring Member States within the Western Pacific Region to achieve the goal stipulated in the *WHO Traditional Medicine Strategy 2014–2023*: “*Harnessing the potential contribution of T&CM to health, wellness and people-centered health care; and promoting safe and effective use of T&CM through the regulate on, evaluation and integration of T&CM products, practices and practitioners into health systems, as appropriate*”.¹²

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Conflict of interest

All authors declare that there are no conflicts of interest.

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Ethical statement

This research did not require an ethical approval as it does not involve any human or animal experiment.

Data availability

The data will be made available upon request.

CRediT authorship contribution statement

Vincent C.H. Chung: Conceptualization, Methodology, Writing - original draft, Project administration, Funding acquisition. **Charlene H.L. Wong:** Formal analysis, Investigation, Resources, Writing - review & editing. **Claire C.W. Zhong:** Formal analysis, Investigation, Resources, Writing - review & editing. **Yan Yin Tjioe:** Visualization. **Ting Hung Leung:** Visualization, Project administration. **Sian M. Griffiths:** Supervision, Project administration.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.imr.2020.100469>.

References

- World Health Organization. Ageing and health. <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>. Published 2018. Accessed April 8, 2020.
- World Health Organization. Western Pacific Region. Preparing for an ageing population. <https://iris.wpro.who.int/bitstream/handle/10665.1/14388/WPR-2019-RDO-003-eng.pdf>. Published 2019. Accessed April 8, 2020.
- World Health Organization. World Health Day. Ageing in the Western Pacific Region. http://www.wpro.who.int/world_health_day/2012/WHD2012INFORMATION/en/index.html. Published 2012. Accessed April 8, 2020.
- Martinez R, Lloyd-Sherlock P, Soliz P, Ebrahim S, Vega E, Ordunez P, et al. Trends in premature avertable mortality from non-communicable diseases for 195 countries and territories, 1990–2017: a population-based study. *Lancet Glob Health* 2020;8:e511–23.
- Informal experts' consultation on healthy ageing in the WHO western pacific region. Geneva: World Health Organization. <http://www.wpro.who.int/equity/MeetingHealthyAgeing2011.pdf>. Published 2011. Accessed April 8, 2020.
- WHO Regional Office for the Western Pacific. Regional Framework for Action on Ageing and Health in the Western Pacific (2014–2019). http://www.wpro.who.int/about/regional_committee/64/documents/WPR_RC064_06_Ageing_2013_en.pdf. Published 2013. Accessed April 8, 2020.
- Park YL, Canaway R. Integrating traditional and complementary medicine with national healthcare systems for universal health coverage in Asia and the Western pacific. *Health Syst Reform* 2019;5:24–31.
- Geneva: World Health Organization. The WHO Regional Strategy for Traditional Medicine in the Western Pacific Region (2011–2020). http://www.wpro.who.int/publications/2012/regionalstrategyfortraditionalmedicine_2012.pdf. Published 2012. Accessed April 8, 2020.
- Geneva: World Health Organization. WHO Traditional Medicine Strategy 2014–2023. http://apps.who.int/iris/bitstream/10665/92455/1/9789241506090_eng.pdf. Published 2013. Accessed April 8, 2020.
- University of Oxford. The Oxford Levels of Evidence 2: Oxford University Centre for Evidence-Based Medicine: Levels of Evidence Working Group. <http://www.cebm.net/?o=1025>. Published 2009. Accessed April 8, 2020.
- The Cochrane Collaboration. Glossary. <http://www.cochrane.org/glossary/>. Published 2014 Accessed April 8, 2020.
- Geneva: World Health Organization. Intro 5. WHO Traditional Medicine Strategy 2014–2023. http://apps.who.int/iris/bitstream/10665/92455/1/9789241506090_eng.pdf. Published 2013. Accessed April 8, 2020.
- Chan M, editor. *Address at the WHO congress on traditional medicine*. World Health Organization congress on Traditional Medicine; 2008.
- Chung VC, Ho RS, Wu X, Fung DH, Lai X, Wu JC, et al. Are meta-analyses of Chinese herbal medicine trials trustworthy and clinically applicable? A cross-sectional study. *J Ethnopharmacol* 2015;162:47–54.
- Cochrane Complementary Medicine. Cochrane Reviews and Protocols related to Complementary Medicine. <https://cam.cochrane.org/cochrane-reviews-and-protocols-related-complementary-medicine>. Published 2020. Accessed June 23, 2020.
- Geneva: World Health Organization. Active Ageing: A Policy Framework. http://www.who.int/ageing/publications/active_ageing/en/. Published 2002. Accessed April 8, 2020.
- Buford TW. Hypertension and aging. *Ageing Res Rev* 2016;26:96–111.
- Liao IC, Chen SL, Wang MY, Tsai PS. Effects of massage on blood pressure in patients with hypertension and prehypertension: a meta-analysis of randomized controlled trials. *J Cardiovasc Nurs* 2016;31:73–83.
- Ernst E. The safety of massage therapy. *Rheumatology (Oxford)* 2003;42:1101–6.
- Hugo J, Ganguli M. Dementia and cognitive impairment: epidemiology, diagnosis, and treatment. *Clin Geriatr Med* 2014;30:421–42.
- Geng J, Dong J, Ni H, Lee MS, Wu T, Jiang K, et al. Ginseng for cognition. *Cochrane Database Syst Rev* 2010:CD007769.
- Kennedy DO, Scholey AB. Ginseng: potential for the enhancement of cognitive performance and mood. *Pharmacol Biochem Behav* 2003;75:687–700.
- Dekkers O, Ev Elm, Algra A, Romijn J, Vandenbroucke J. How to assess the external validity of therapeutic trials: a conceptual approach. *Int J Epidemiol* 2010;39:89–94.
- Institute of Medicine. *Complementary and alternative medicine in the United States*. Washington, DC: The National Academies Press; 2005. <http://dx.doi.org/10.17226/11182>.
- Lucas PJ, Baird J, Arai L, Law C, Roberts HM. Worked examples of alternative methods for the synthesis of qualitative and quantitative research in systematic reviews. *BMC Med Res Methodol* 2007;7:4. <http://dx.doi.org/10.1186/1471-2288-7-4>.
- Yamashita H, Tsukayama H, Sugishita C. Popularity of complementary and alternative medicine in Japan: a telephone survey. *Complement Ther Med* 2002;10:84–93.
- Tokuda Y, Takahashi O, Ohde S, Ogata H, Yanai H, Shimbo T, et al. Health locus of control and use of conventional and alternative care: a cohort study. *Br J Gen Pract* 2007;57:643–9.
- Hori S, Mihaylov I, Vasconcelos JC, McCoubrie M. Patterns of complementary and alternative medicine use amongst outpatients in Tokyo, Japan. *BMC Complement Altern Med* 2008;8:14.
- Shumer G, Warber S, Motohara S, Yajima A, Plegue M, Bialko M, et al. Complementary and alternative medicine use by visitors to rural Japanese family medicine clinics: results from the international complementary and alternative medicine survey. *BMC Complement Altern Med* 2014;14:360.
- Patel A, Chen Y. Patients' reasons for seeking traditional Chinese medicine: a qualitative study. *J Prim Health Care* 2018;10:338–42.
- Sato T, Takeichi M, Hara T, Koizumi S. Second opinion behaviour among Japanese primary care patients. *Br J Gen Pract* 1999;49:546–50.
- Mitha S, Nagarajan V, Babar MG, Siddiqui MJA, Jamshed SQ. Reasons of using complementary and alternative medicines (CAM) among elderly Malaysians of Kuala Lumpur and Selangor states: an exploratory study. *J Young Pharm* 2013;5:50–3.
- Wong ELY, Lam JKM, Griffiths S, Chung V, Yeoh EK. Chinese medicine: its role and application in the institutionalised older people. *J Clin Nurs* 2010;19:1084–93.
- Chan K, Tsang L, Fung TK. Attitudes toward acupuncture in Hong Kong. *Int J Pharm Healthc Mark* 2015.
- Hasan SS, Ahmed SI, Bukhari NI, Loon WCW. Use of complementary and alternative medicine among patients with chronic diseases at outpatient clinics. *Complement Ther Clin Pract* 2009;15:152–7.
- Saw J, Bahari M, Ang H, Lim Y. Herbal use amongst multiethnic medical patients in Penang Hospital: pattern and perceptions. *Med J Malaysia* 2006;61:422–32.
- Hasan SS, See CK, Choong CLK, Ahmed SI, Ahmadi K, Anwar M. Reasons, perceived efficacy, and factors associated with complementary and alternative medicine use among Malaysian patients with HIV/AIDS. *J Altern Complement Med* 2010;16:1171–6.
- Shaharudin SH, Sulaiman S, Emran NA, Shahril MR, Hussain S. The use of complementary and alternative medicine among Malay breast cancer survivors. *Altern Ther Health Med* 2011;17:50–6.
- Hyodo I, Amano N, Eguchi K, Narabayashi M, Imanishi J, Hirai M, et al. Nationwide survey on complementary and alternative medicine in cancer patients in Japan. *J Clin Oncol* 2005;23:2645–54.
- Chu F-Y, Yan X, Zhang Z, Xiong X-J, Wang J, Liu H-X. Features of complementary and alternative medicine use by patients with coronary artery disease in Beijing: a cross-sectional study. *BMC Complement Altern Med* 2013;13:287.
- Yoon SL, Kim J-H. Factors contributing to the use of complementary and alternative medicine in rural older women with chronic pain in South Korea. *Appl Nurs Res* 2013;26:186–91.
- Teng L, Zu Q, Li G, Yu T, Job KM, Yang X, et al. Herbal medicines: challenges in the modern world. Part 3. China and Japan. *Expert Rev Clin Pharmacol* 2016;9:1225–33.
- Tan M, Win MT, Khan SA. The use of complementary and alternative medicine in chronic pain patients in Singapore: a single-centre study. *Ann Acad Med Singapore* 2013;42:133–7.
- Choi B, Han D, Na S, Lim B. Factors related to the parallel use of complementary and alternative medicine with conventional medicine among patients with chronic conditions in South Korea. *Integr Med Res* 2017;6:223–9.

45. Adams J, Lui C-W, McLaughlin D. The use of complementary and alternative medicine in later life. *Rev Clin Gerontol* 2009;19:227–36.
46. McLaughlin D, Lui C-W, Adams J. Complementary and alternative medicine use among older Australian women—a qualitative analysis. *BMC Complement Altern Med* 2012;12:34.
47. Armstrong AR, Thiébaud SP, Brown LJ, Nepal B. Australian adults use complementary and alternative medicine in the treatment of chronic illness: a national study. *Aust N Z J Public Health* 2011;35:384–90.
48. Xue CC, Zhang AL, Lin V, Myers R, Polus B, Story DF. Acupuncture, chiropractic and osteopathy use in Australia: a national population survey. *BMC Public Health* 2008;8:105.
49. Zhang AL, Xue CC, Lin V, Story DF. Complementary and alternative medicine use by older Australians. *Ann N Y Acad Sci* 2007;1114:204–15.
50. Goh LY, Vitry AJ, Semple SJ, Esterman A, Luszcz MA. Self-medication with over-the-counter drugs and complementary medications in South Australia's elderly population. *BMC Complement Altern Med* 2009;9:42.
51. Smith CA, Chang E, Brownhill S, Barr K. Complementary medicine health literacy among a population of older Australians living in retirement villages: a mixed methods study. *Evid Based Complement Alternat Med* 2016;2016:5672050.
52. Gallego G, Gugnani S, Armour M, Smith CA, Chang E. Attitudes and factors involved in decision-making around complementary and alternative medicines (CAMs) by older Australians: a qualitative study. *Eur J Integr Med* 2019;29:100930.
53. Omori M, Dempsey D. Culturally embedded health beliefs, self-care and the use of anti-ageing medicine among Australian and Japanese older adults. *Social Health Illn* 2018;40(3):523–37.
54. Rayner J-A, Bauer M. "I wouldn't mind trying it. I'm in pain the whole time": barriers to the use of complementary medicines by older Australians in residential aged-care facilities. *J Appl Gerontol* 2017;36:1070–90.
55. Zhang AL, Story DF, Lin V, Vitetta L, Xue CC. A population survey on the use of 24 common medicinal herbs in Australia. *Pharmacoepidemiol Drug Saf* 2008;17:1006–13.
56. Hmwe NTT, Browne G, Mollart L, Allanson V, SW-C Chan. Older people's perspectives on use of complementary and alternative medicine and acupuncture: a qualitative study. *Complement Ther Clin Pract* 2020;39:101163.
57. Yen L, Jowsey T, McRae IS. Consultations with complementary and alternative medicine practitioners by older Australians: results from a national survey. *BMC Complement Altern Med* 2013;13:73.
58. Sullivan A, Gilbar P, Curtain C. Complementary and alternative medicine use in cancer patients in rural Australia. *Integr Cancer Ther* 2015;14:350–8.
59. Chrystal K, Allan S, Forgeson G, Isaacs R. The use of complementary/alternative medicine by cancer patients in a New Zealand regional cancer treatment centre. *N Z Med J* 2003;116:U296.
60. Newman S, Steed L, Mulligan K. Self-management interventions for chronic illness. *Lancet* 2004;364:1523–37.
61. Chung VC, Wong SY, Wang HH, Wong MC, Wei X, Wang J, et al. Use of traditional and complementary medicine as self-care strategies in community health centers: cross-sectional study in urban pearl river delta region of china. *Medicine (Baltimore)* 2016;95.
62. Chan MW, Wu XY, Wu JC, Wong SY, Chung VC. Safety of acupuncture: overview of systematic reviews. *Sci Rep* 2017;7:1–11.
63. Kim JH, Kwong EM, Chung VC, Lee JC, Wong T, Goggins WB. Acute adverse events from over-the-counter Chinese herbal medicines: a population-based survey of Hong Kong Chinese. *BMC Complement Altern Med* 2013;13:336.
64. Ministry of Community Development, Youth and Sports. Committee on Ageing Issues. Report on the ageing population. http://app.msf.gov.sg/portals/0/summary/research/cai_report.pdf. Published 2006. Accessed May 11, 2020.
65. National Council of Social Service. Impact Report For Senior Activity Centres. [https://www.ncss.gov.sg/NCSS/media/Website-Images/Capability%20building/Impact-Report-For-Seniors-Activity-Centres-\(June-2013\)-1.pdf](https://www.ncss.gov.sg/NCSS/media/Website-Images/Capability%20building/Impact-Report-For-Seniors-Activity-Centres-(June-2013)-1.pdf). Published 2013. Accessed May 11, 2020.
66. Fei Yue Community Services. Fei Yue Family Service Centre Annual Report 2013/14. https://feiyue-wpengine.netdna-ssl.com/wp-content/uploads/2018/02/FSC_AR.2013-2014.pdf. Published 2014. Accessed May 11, 2020.
67. ECON Healthcare Group. Services. <https://www.econhealthcare.com/services/econlife-hub>. Published 2020. Accessed May 11, 2020.
68. Council For Third Age. About C3A. <https://www.c3a.org.sg/Aboutus.process.do>. Published 2020. Accessed May 11, 2020.
69. World Health Organization. *The world health report 2008: primary health care now more than ever*. Geneva, Switzerland: World Health Organization; 2008.
70. Zhang Y, Li C, Zou L, Liu X, Song W. The effects of mind-body exercise on cognitive performance in elderly: a systematic review and meta-analysis. *Int J Environ Res Public Health* 2018;15:2791.
71. Wu W-w, Kwong E, Lan X-y, Jiang X-y. The effect of a meditative movement intervention on quality of sleep in the elderly: a systematic review and meta-analysis. *J Altern Complement Med* 2015;21:509–19.
72. Fetherston CM, Wei L. The benefits of tai chi as a self management strategy to improve health in people with chronic conditions. *J Nurs Healthc Chronic Illn* 2011;3:155–64.
73. Ward L, Treharne GJ, Stebbings S. The suitability of yoga as a potential therapeutic intervention for rheumatoid arthritis: a focus group approach. *Musculoskeletal Care* 2011;9:211–21.
74. Pearce J, Mann MK, Jones C, van Buschbach S, Olf M, Bisson JL. The most effective way of delivering a train-the-trainers program: a systematic review. *J Contin Educ Health Prof* 2012;32:215–26.
75. Kim J, Chang S, Lee S, Jun E, Kim Y. An experimental study of students' self-learning of the San-Yin-Jiao pressure procedure using CD-ROM or printed materials. *J Nurs Educ* 2003;42:371–6.
76. Kinser PA, Robins JLW, Masho SW. Self-administered mind-body practices for reducing health disparities: an interprofessional opinion and call to action. *Evid Based Complement Alternat Med* 2016;2016.
77. Paterson C, Vindigni D, Polus B, Browell T, Edgcombe G. Evaluating a massage therapy training and treatment programme in a remote aboriginal community. *Complement Ther Clin Pract* 2008;14:158–67.
78. Bartimole L, Fristad MA. Taiji (Tai Chi) for fall prevention in the elderly: training the trainers evaluation project. *Explore (NY)* 2017;13:198–200.
79. Li F, Harmer P, Glasgow R, Mack KA, Sleet D, Fisher KJ, et al. Translation of an effective tai chi intervention into a community-based falls-prevention program. *Am J Public Health* 2008;98:1195–8.
80. Ramesh M, Sathian B, Sinu E, Kiranmai SR. Efficacy of rajayoga meditation on positive thinking: an index for self-satisfaction and happiness in life. *J Clin Diagn Res* 2013;7:2265.
81. Shaw D. Toxicological risks of Chinese herbs. *Planta Med* 2010;76:2012–8.
82. Fan T-P, Deal G, Koo H-L, Rees D, Sun H, Chen S, et al. Future development of global regulations of Chinese herbal products. *J Ethnopharmacol* 2012;140:568–86.
83. Wiesener S, Falkenberg T, Hegyi G, Hök J, di Sarsina PR, Fønnebo V. Legal status and regulation of complementary and alternative medicine in Europe. *Complement Med Res* 2012;19:29–36.
84. Nortier JL, Vanherweghem J-L. For patients taking herbal therapy—lessons from aristolochic acid nephropathy. *Nephrol Dial Transplant* 2007;22:1512–7.
85. Shetti S, Kumar CD, Sriwastava NK, Sharma IP. Pharmacovigilance of herbal medicines: current state and future directions. *Pharmacogn Mag* 2011;7:69.
86. Shaw D, Graeme L, Pierre D, Elizabeth W, Kelvin C. Pharmacovigilance of herbal medicine. *J Ethnopharmacol* 2012;140:513–8.
87. Rodrigues E, Barnes J. Pharmacovigilance of herbal medicines. *Drug Saf* 2013;36:1–12.
88. Saokaew S, Suwankesawong W, Permsuwan U, Chaiyakunapruk N. Safety of herbal products in Thailand. *Drug Saf* 2011;34:339–50.
89. World Health Organization. *WHO guidelines on safety monitoring of herbal medicines in pharmacovigilance systems*. Geneva, Switzerland: World Health Organization; 2004.
90. Posadzki P, Watson L, Ernst E. Herb–drug interactions: an overview of systematic reviews. *Br J Clin Pharmacol* 2013;75:603–18.
91. Spanakis M, Sfakianakis S, Sakkalis V, Spanakis EG. PharmActa: empowering patients to avoid clinical significant drug–herb interactions. *Medicines (Basel)* 2019;6:26.
92. Gilmour J, Harrison C, Asadi L, Cohen MH, Vohra S. Natural health product–drug interactions: evolving responsibilities to take complementary and alternative medicine into account. *Pediatrics* 2011;128:S155–60.
93. Hazell L, Shakir SA. Under-reporting of adverse drug reactions: a systematic review. *Drug Saf* 2006;29:385–96.
94. Ekor M. The growing use of herbal medicines: issues relating to adverse reactions and challenges in monitoring safety. *Front Pharmacol* 2014;4:177.
95. Kelak JA, Cheah WL, Safii R. Patient's decision to disclose the use of traditional and complementary medicine to medical doctor: a descriptive phenomenology study. *Evid Based Complement Alternat Med* 2018;2018:4735234.
96. Chung VC, Ma PH, Tang TS, Lau CH, Kim JH, Griffiths SM. Do patients tell their clinicians they are using both prescribed and over the counter allopathic and traditional medicine? *Eur J Integr Med* 2011;3:e289–98.
97. Hon EK, Lee K, Tse HM, Lam LN, Tam KC, Chu KM, et al. A survey of attitudes to traditional Chinese medicine in Hong Kong pharmacy students. *Complement Ther Med* 2004;12:51–6.
98. Chung VCH, Lau CH, Chan FWK, You JHS, Wong ELY, Yeoh EK, et al. Use of chinese and western over-the-counter medications in Hong Kong. *Chin Med* 2010;5:41.
99. Wei XC, Cao B, Luo CH, Huang HZ, Tan P, Xu XR, et al. Recent advances of novel technologies for quality consistency assessment of natural herbal medicines and preparations. *Chin Med* 2020;15:1–24.
100. Forum for the Harmonization of Herbal Medicines. Introduction. About FHH. <http://www.fhhm.net/> Published 2020. Accessed June 23, 2020.
101. ILLamola SM, Amaeze OU, Krepkova LV, Birnbaum AK, Karanam A, Job KM, et al. Use of herbal medicine by pregnant women: what physicians need to know. *Front Pharmacol* 2019;10:1483.
102. Foster C, Corbin L, Kwan B, LeClair C. Family medicine resident perspectives on curricula in herbal medicine. *Fam Med* 2018;50:589–96.
103. McKenna Sa, Schauerhamer Mb, Fudin Hr, Babin JI, Shane-McWhorter L. Assessing pharmacy student confidence to answer patient questions regarding herbal medicines and natural product drugs. *Curr Pharm Teach Learn* 2018;10:643–50.