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HEALTHY AGEING POLICY IN ASIA

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Populations in Asia are experiencing significant gains in life expectancy , especially in North East Asia and amongst Orientals throughout the region, with Japan, HongKong, Singapore and Macau having amongst the world's best life expectancies. However , this ,must be matched by healthy ageing and improvements in Health Adjusted Life expectancies (HALES).For this to happen , and improvements to be maintained, the changing patterns of disease towards so-called chronic disease like obesity, diabetes, cardiovascular disease, certain cancers, musculo-skeletal diseases like osteoporosis with fracture and arthritides, impaired cognition, impaired special senses (vision, hearing , taste and smell), incontinence and immuno-dysfunctional problems must be checked. Crucial to these ends are adequate residential facilities and basic personal needs, opportunities for safe recreational and physical activities, optimal nutrition and access to a reliable health care system. Independent living, with little frailty, albeit with robust social networks , is a measure of such healthy ageing policy success. It requires a multi-sectoral and multi-disciplinary approach which can develop and regularly review practice and outcomes with the ability and mandate to adopt and implement evidence-based , cost-risk-effective measures.

1.Demography

One of the most significant demographic trends world-wide is the ageing of populations. North-East (NE) Asia is experiencing some of the most rapid of these shifts with about 35% of the population projected to be 65 years of older by 2 051.Already, Japan and Hong Kong are in the top 10 for life expectancy at birth

In other regions like North-Western Europe, in Sweden and UK, it is known that biological age is increasingly less for a given chronological age and that this is probably a relatively new phenomenon in the human experience. However, this is not inevitable and the reverse may also occur with declining life expectancies and increasing disability (Russia after the demise of the Soviet Union or Sub-Saharan Africa with HIV/AIDS). The opportunity for NE Asia to stay on the 'Winning' side of ageing biology is strong with its long and cohesive cultural roots,and its economic achievements.

2.Determinants

Limited information is available in the Asia-Pacific region in regards to the determinants of successful ageing although the Taiwanese NAHSIT study of 1999-2000 creates a valuable foundation for further work and will become longitudinal. The Shanghai longitudinal studies of diet and health in women and men which are underway are also relevant because they include older individuals.

The IUNS (FHILL) and EU SENECA studies, which are longitudinal and cross-cultural, provide some direction as China and Japan were included (www.healthyeatingclub.org). These studies have a nutritional focus which turns out to be particularly important amongst potential predictors of healthy ageing, accounting for 20%-30% of the variance in survival after the age of 70 years.

Other than food, there is already a sense of the relative importance of various contributors to well-being (mood, personal security) and to functional and illness-

free lives, some modifiable (mod) and some not (notmod). These include gender (notmod), substance abuse (alcohol, tobacco, illicit and prescription drugs (mod), social activity and networks (mod), physical activity (mod), mental activity (mod), recreation including music, reading and self-directed learning, playing games (mod), involvement in educational programs like University of the Third Age (mod), independent living and autonomy as far as possible, health-seeking behaviour (mod), meaningful and remunerative work (mod). The strength of evidence for these factors varies since there are few cohort studies and few intervention studies-this is changing as the numbers of elderly grow and the time to adverse events is shorter and more frequent than in younger individuals.

Some studies in other countries in the N-E Asian region support the universal significance of the changeable determinants of ageing as in Japan, especially in Okinawa and Korea. This is especially the case for social events and activity, food intake, body composition and musculo-skeletal health (bone, joints, muscle mass, abdominal fat), physical strength and balance, cognitive function and livelihoods with residential and food security.

Of course, determinants of ageing operate at different levels, societal, community and personal.

The personal determinants usually and understandably pre-occupy those working with bio-medical models of health, but understate the socio-cultural determinants. As far as genetic factors are concerned, their expression and modification by environments is clearly impressive. Within a generation, life expectancies in places like Australia, Japan and Hong Kong have increased by about one year every three years – probably unparalleled in human history and with prospects that it may continue progressively towards what is thought to be maximal life expectancy (without altering our genes) of about 120 years. Vigilance and policy-setting at each level of determination of Healthy Ageing will be required if present achievements are to be maintained and advanced further. This will mean an ecological (less anthropocentric) approach at the societal level, to achieve sustainable and healthy living conditions, an inter-sectoral approach at the community level so that resources are effectively and efficiently used, and both a humanistic and clinical approach at the personal level as health problems are anticipated and emerge. Additionally, at the personal level, there are sub-tiers to consider beginning with 'ways of life' (subtley but usefully more respectful than 'lifestyles') and behaviours, leading to intermediate risk factors and/or steps to the outcomes of illness or disease. And with these outcomes it is important not to take them one-by-one in isolation of each other, but to discern the pattern, so that ultimate aetiology and pathogenesis is tackled at all levels for greater effect. The recent explosion of incidence and prevalence of diabetes against a background of obesity and its increasing impact on macrovascular disease, as its more recognized risk factors (for example, hypertension and hypelipidaemia) respond to pharmacotherapy is a case in point. At the same time, the antecedents of obesity in poor diets and physical activity, are being recognized as predictive of some neoplastic disease (e.g., breast, prostate colon), of osteoporosis, decline in cognitive function and more.

Wahlqvist and colleagues have argued that good governance at all levels and in the governmental, private and NGO sectors is a key factor in personal and food security with advancing age. Healthy Ageing Policy must have these considerations in mind.

3.Changing Health Patterns

There have been striking changes in health patterns in transitional and developed economies, within a generation, towards relatively more so-called chronic diseases. These are largely disorders of net energy excess and/or associated favorable food component deficiency, namely obesity and abdominal obesity with sarcopenia, macro-vascular diseases, diabetes, certain cancers, osteoporosis with fracture and the arthritides, macular degeneration and cataracts, dementia, prostatomegaly or pelvic disorders with incontinence, and falls. All of these are more common with advancing years and probably all can be deferred until later in life, so compressing the time

from the onset of disability to death. Without concerted action, the costs of aged care will increasingly burden economies.

It is already recognized that there is an increasing share of total community morbidity, use of health services, especially pharmaceuticals and hospitals, amongst the aged. The corollary is that small reductions in this burden of illness and disease can produce substantial community and economic benefits and in relatively short time frames.

New insights are being gained into both the societal (linked to the ecological) and biological (neuro-humoral and inflammatory processes in particular) bases of these diseases which are providing new opportunities for their control. They should, if marshaled, play a critical role in the enhancement of healthy ageing.

Additionally, the fetal and early life origins of these emerging health patterns place a renewed emphasis on a whole-of-life approach to healthy ageing and on the ongoing importance of maternal and child health services for future generations.

4. Indices of Health

There are several fairly well developed scoring systems for heath in the aged which have to do with disability although often gross as in ADLs (Activities of Daily Living), of cognition (as in the Mini Mental State assessment) or of Nutritional status (as in various mini nutrition assessments). Rapid assessment procedures (RAP) assessment procedures which are cost and time-effective originally developed by Scrimshaw and Hurtado, have been adapted for the elderly by Kouris and Wahlqvist. These have been relatively well validated and have contributed to instruments being used in more comprehensive studies of the elderly targeted at those 65years or older in 1999.

5. Changing Ways of Life

The way we live is patently relevant to our health. We often speak about healthy or unhealthy lifestyles in this regard. However, the term 'lifestyle' was invented at Stanford University largely for marketing purposes, as is evident from the promotion of products aimed at particular life-styles. This is useful to understand when considering what external factors may operate on health-seeking behaviours. But, for healthy ageing, it is more coherent to consider 'ways of life' which acknowledge who we are, with whom we share our lives and what we do for gainful employment, recreation or self-development. This remains important in later life, for what has contributed to our current health status, for what it may be and how we might alter this trajectory. George Vaillant in his report of 3 longitudinal Harvard Medical School studies begun in 1911, 1921, and 1930, 'AgingWell' claims that choice matters a great deal (especially in regard to substance abuse with tobacco or alcohol), and is more important than genetics, wealth or race; stable marriage, joy of learning, exercise, not being overweight, and psychological maturity count for successful aging.

These several considerations require review throughout Asia.

The family

The family unit presumes shared interests, opportunities and risks, and responsibilities. If functional rather than dysfunctional, it can provide security for older members of society. However, with competing demands for time and money, less may be available within the household for the aged. When illness appears, the strains on resources may prove too great and the community is looked to for complementary support. Ageing demography amongst Chinese-speaking people anticipates an increase in 65 year olds or over to about 35%, and, for the older aged 75 years or over, to about 17% during the period 2 004 to 2051.Comparable changes are occurring throughout the more economically buoyant areas of Asia. Strategies for Healthy Ageing will need to accommodate and utilize this phenomenon. It is a relatively new situation that grandchildren may have all 4 grandparents and this provides a unique opportunity for inter-generational transfer of knowledge, skill and personal resources, with care. Healthy Ageing policy must be informed by these situations.

The dwelling

The ‘roof over one’s head’ or shelter is accepted as a basic human right by the United Nations charter. Yet many older people globally have little or none or depend on others (family, NGOs or government) for it. With questions in many economies about how well people will provide for their own needs in later life, this will become a greater issue.

Also, it is not simply a matter of shelter but where that shelter is. How accessible is public transport? Is it safe to walk in the neighbourhood? How close are the food markets and shops? Is food so inaccessible, difficult to store, or expensive that there are days of hunger?

These and many more variables need measurement for policy makers to plan and act in the interests of the aged.

Work and work–place

Older people are increasingly looked to for their experience in countries and communities where population is shrinking and ageing. And they find a new raft of costs to which they are unaccustomed – telecommunications, services previously provided within the family like repairs, pharmaceuticals and more. When health fails these options close further and a downward spiral in health and well–being can set in. Planning, negotiating and arranging one’s affairs become attributes of much importance and are part of the Healthy Ageing equation.

Recreation

Recreation is often seen as a privilege and discretionary which is understandable for economically, organizationally and time constrained people. But there is growing evidence that the various forms of recreation, physical (aerobic and strength), mental (problem–solving), and with eating (the social role of food), are crucial in achieving optimal health. While the pleasure of recreation is end in itself, the ability of all of these, especially the physical, for performance of all body systems and disease prevention is increasingly convincing. Notable in this regard are the role of exercise in neuronal and cognitive function and the protective role of exercise in bowel and hormonally–sensitive cancers, breast and prostate.

Recreation in the outdoors, as with long walks can provide visual, olfactory and auditory inputs which enrich the obvious physical benefits.

Education – University of the 3rd age

Generally, more educated individuals live longer. Maintained learning, both self–directed and social or structured seem to convey survival advantage.

The ‘University of the Third Age’ movement is relevant here both for its direct and indirect (through added utility) benefits. For example, in Melbourne, Australia, it provides hundreds of retirees opportunities to learn and develop computer skills with which elders communicate with family better and obtain additional piecemeal earnings.

6. Changing Food Patterns

Measures of food patterns need to be used when assessing the prospects for Healthy Ageing.

Caroline Horwath has shown in population based studies in Adelaide amongst elderly people that social activity and food variety are closely correlated, and may be bi–directional in effect.

Studies by Wahlqvist et al on food variety and indices of chronic disease show it to be protective in Europeans and Chinese. Lee and colleagues have shown that a food index which incorporates variety has favourable prediction for health outcomes in the elderly.

The main reasons why food variety is healthy–favourable are that adverse effects are diluted and the wide array of health–protective phytonutrients is consumed. Also, plant–based diets tend to be lower in energy density and relatively nutrient dense in accord with the lower energy expenditures of many elderly people – who need to eat less calories, but still achieve adequate essential and bioactive nutrient intakes. Some of the micronutrient problems seen amongst elderly people can also be addressed in this way. Variety also means small quantities of different animal foods (meat, poultry, fish and other seafood and eggs) which can make the difference in micronutrient status, now recognised as important for chronic disease prevention as well as classical deficiency

states.

A feature of food diversity is that it derives mostly from plant food which is consistent with most traditional Asian diets and, where possible, be an acceptable food style, especially amongst the aged. It is also much more aligned with local food production, at least where there is successful horticulture and grain production as in Taiwan. Nevertheless, imported foods can amplify variety. Sustainable food systems will increasingly be important in national health policy and the findings about foods variety and health will subscribe to sustainability.

Quite small changes in diet can make substantial changes in health outcome. Notable are fish for cardiovascular events, legumes/pulses, including soy, for all-cause mortality, hyperlipidaemia and diabetes, nuts for CVD prevention and potassium-enriched diets for cardiovascular events.

7. Health Economics of Ageing

The economic performance of North-East Asia especially, as in northern Europe, will depend increasingly on the extent of ageing in the population, if the costs of being old are greater than can be supported by the work-force and national investments.

Some data are emerging that the economic value of health promotional programs can be substantial. More systematic study of these scenarios is to be encouraged.

8. Societal Expectations and Individual Aspirations

The way society regards its older members constitutes another view, other than the chronological or biological (themselves more and more asynchronous) of what constitutes the elderly. The most evident example of this is 'Retirement Age', a concept devised by the German Chancellor Bismarck and stipulated to be 65 years. This has had its variants, with younger chronological ages for armed forces, airline pilots and civil servants, especially in some emerging economies (where jobs could thereby more effectively shared around). Now, the trend is the opposite, to increase retirement age and require older individuals to stay in the workforce for their own and society's economic and, perhaps their health sake.

None of these matters are easily resolved, but are part of any enquiry into Healthy Ageing.

9. Creating Policy in Communities with a Global Outlook

A strong case is now being made by bodies like the International Science Council (ICSU) and its member scientific Unions for Regional and Community-based initiatives.

Community-based work is likely to be more relevant to needs and implementable through taking into account local preferences, technologies, infrastructure and stage of education, health and economic development.

These can then be evaluated and revised to increase likely success. When the evidence is sufficient, the programs can be replicated with appropriate cultural sensitivity, for other locations.

At the same time, it is possible to internationalise the concept of sustainable, healthy and economically viable and even prosperous communities.

REFERENCES

1 Barone L, Milosavljevic M, Gazibarich B. Assessing the older person:is the MNA a more appropriate nutritional assessment tool than the SGA? J Nutr Health Aging, 2003, 7: 13~17.

2 Beck AM, Ovesen L, Osler M. The'Mini Nutritional Assessment'(MNA) and the 'Determine Your Nutritional Health' Checklist (NSI Checklist) as predictors of morbidity and mortality in an elderly Danish population. Br J Nutr, 1999, 81: 31~36.

3 Burr ML, Fehily AM, Gilbert JF, et al. Effects of changes in fat, fish, and fibre intakes on death and myocardial reinfarction:diet and reinfarction trial (DART).Lancet, 1989, 2(8666): 757~761.

4 Bush LA, Horenkamp N, Morley JE, et al. D-E-N-T-A-L: a rapid self-administered screening instrument to promote referrals for further evaluation in older adults.J Am Geriatr Soc, 1996, 44: 979~981.

5 Chan LC, Kao S, Chin HML, et al. Nutritional status assessment and predictors of community-dwelling and institutionalized elderly in northern Taiwan.J Chin Nutr Soc, 2002, 27, 147~158.(in Chinese)

6 Chang HY, Hu YW, Yue CS, et al. Effect of potassium-enriched salt on cardiovascular mortality and medical expenses of elderly men. Am J Clin Nutr, 2006, 83: 1289~1296.

7 Chang HY, Pan WH. Reply to CK Chow.Am J Clin Nutr, 2006,

84: 1553~1554.

8 Chen WJ, Pan WH, Lee MS, et al. Elderly Nutrition and Health Survey in Taiwan (1999–2000). Asia Pac J Clin Nutr, 2005, 14: 202~292.

9 Cohendy R, Rubenstein LZ, Eledjam JJ. The Mini Nutritional Assessment–Short Form for preoperative nutritional evaluation of elderly patients.Aging Clin Exp Res, 2001, 13: 293~297.

10 Colditz GA, Feskanich D, Chen WY, et al. Physical activity and risk of breast cancer in premenopausal women. Br J Cancer, 2003, 89: 847~851.

11 Cook NR, Cutler JA, Obarzanek E, et al. Long term effects of dietary sodium reduction on cardiovascular disease outcomes: observational follow–up of the trials of hypertension prevention. BMJ, 2007, 334(7599): 855.

12 Darmadi–Blackberry I, Wahlqvist ML, Kouris–Blazos A, et al. Legumes:the most important dietary predictor of survival in older people of different ethnicities. Asia Pac J Clin Nutr, 2004, 13: 217~220.

13 Darmadi I, Horie Y, Wahlqvist ML, et al.Food and nutrient intakes and overall survival of elderly Japanese.Asia Pac J Clin Nutr, 2000, 9: 7~11.

14 de Groot L, van Staveren W.EURONUT–SENECA study on nutrition and the elderly in Europe:formulation.Section 4(18). In M. L. Wahlqvist, B. H. H. Hsu–Hage, A. Kouris–Blazos, et al. investigators (Eds.), Food Habits In Later Life. A Cross–Cultural Study(CD ROM).1995, United Nations University Press & Asia Pacific Journal of Clinical Nutrition.

15 de Groot L, van Staveren W, Amorim Cruz JA, et al. EURONUT–SENECA study on nutrition and the elderly in Europe: intake of foods at four sites. Section 4 (19).In M. L. Wahlqvist, B. H. H. Hsu–Hage, A. Kouris–Blazos, et al. investigators(Eds.),Food Habits In Later Life.A Cross–Cultural Study(CD ROM)1995: United Nations University Press & Asia Pacific Journal of Clinical Nutrition.

16 de Groot LC, Beck AM, Schroll M, et al. Evaluating the DETERMINE Your Nutritional Health Checklist and the Mini Nutritional Assessment as tools to identify nutritional problems in elderly Europeans.Eur J Clin Nutr, 1998, 52: 877~883.

17 de Groot LCPGM, van Staveren WA, Hautvast JGAJ, eds. EURONUT–SENECA. Nutrition and the elderly in Europe. A concerted action on nutrition and health in the European community.Eur J Clin Nutr, 1991, 45(suppl 3): 1~196.

18 Forcing open the market in Taiwan:lessons for tobacco control.Tob Control, 2005, 14(Suppl 1): 1~80.

19 Fraser GE.Nut consumption, lipids, and risk of a coronary event. Clin Cardiol, 1999, 22(7 Suppl): III11~15.

20 Friedenreich C, Norat T, SteindorfK, et al. Physical activity and risk of colon and rectal cancers: the European prospective investigation into cancer and nutrition. Cancer Epidemiol Biomarkers Prev, 2006, 15: 2398~2407.

21 Giovannucci EL, Liu Y, Leitzmann MF, et al. A prospective study of physical activity and incident and fatal prostate cancer. Arch Intern Med, 2005, 165: 1005~1010.

22 Haveman–Nies A, de Groot LP, Burema J, et al. Dietary quality and lifestyle factors in relation to 10–Year mortality in older Europeans. Am J Epidemiol, 2002, 156: 962~968.

23 Henriksen T, Clausen T.The fetal origins hypothesis:placental insufficiency and inheritance versus maternal malnutrition in well–nourished populations. 2002,Acta Obstet Gynecol Scand, 81: 112~114.

24 Hillman CH, Belopolsky AV, Snook EM, et al. Physical activity and executive control: implications for increased cognitive health during older adulthood. Res Q Exerc Sport, 2004, 75: 176~185.

25 Horie Y, Horie K, Sugase K. Current status of food and nutrient intakes of the elderly in Japan.Section,1995,4.In M. L. Wahlqvist, B. H. H. Hsu–Hage, A. Kouris–Blazos, W. Lukito & I. s. investigators (Eds.), Food Habits In Later Life. A Cross–Cultural Study.(CD ROM):United Nations University Press & Asia Pacific Journal of Clinical Nutrition.

26 Horwath CC, Campbell AJ, Busby W, et al. Stidues in Adelaide, south Australia and Mosgiel, New Zealand, 1995, Section 4 (20). In M. L. Wahlqvist, B. H. H. Hsu–Hage, A. Kouris–Blazos, W. Lukito & I. s. investigators(Eds.),Food Habits In Later Life. A Cross–Cultural Study.(CD ROM): United Nations University Press & Asia Pacific Journal of Clinical Nutrition.

27 Hsu–Hage B, Wahlqvist ML. Food variety of adult Melbourne Chinese:a case study of a population in transition.In Dietary patterns of selected countries, tea and coffee:Metabolic consequences.World Review of Nutrition and Dietetics, 1996, 79: 53~69.Basel: Karger.

28 Kouris A, Wahlqvist ML, Trichopoulos A, et al. Use of combined methodologies in assessing food beliefs and habits of elderly Greeks and in Greece. Food Nutr Bull, 1991, 13: 139~144.

29 Lee MS, Su HH, Yu HL, et al. Validity of Overall Dietary Index Revised (ODI–R). 2006, Taiepi: Department of Health.

30 Lee MS, Wahlqvist ML. Population–based studies of nutrition and health in Asia Pacific elderly(Editorial).Asia Pac J Clin Nutr, 2005, 14: 294~297.

31 Lee SA, Wen WQ, Xiang YB, et al. Assessment of dietary isoflavone intake among middle–aged Chinese men. J Nutr, 2007, 137: 101~1016.

32 Lukito W.Candidate foods in the Asia–Pacific region for cardiovascular protection:nuts, soy, lentils and tempe.Asia Pac J Clin Nutr, 2001, 10: 128~133.

33 Pan WH.Preface:elderly nutrition and health survey in Taiwan (1999~2000). Asia Pac J Clin Nutr, 2005, 14: 202.

34 Pan WH, Hung YT, Shaw NS, et al. Elderly Nutrition and Health Survey in Taiwan (1999–2000):research design, methodology and content. Asia Pac J Clin Nutr，2005，14: 203~210.

35 Savige G, Wahlqvist M.(2001). Agefit.Sydney:Pan Macmillan Australia.

36 Sho, H. History and characteristics of Okinawan longevity food. Asia Pac J Clin Nutr，2001，10: 159~164.

37 Uauy R, Solomons N. Diet, nutrition and the life–course approach to cancer prevention.J Nutr，2005，135(12 Suppl): 2934S~2945S.

38 Vaillant, G.(2002). Ageing Well. Melbourne:Scribe Publications.

39 Villegas R, Gao YT,Yang G, et al. Legume and soy food intake and the incidence of type 2 diabetes in the Shanghai Women's Health Study.Am J Clin Nutr，2008，87: 162~167.

40 Wahlqvist ML.Objective orientated project planning(ZOPP).S Afr J Clin Nutr，2000，13(Suppl 1): S39.

41 Wahlqvist ML. Towards a new generation of international nutrition science and scientist:the importance of Africa and its capacity. J Nutrition，2006，136, 1048~1049.

42 Wahlqvist ML, Darmadi–Blackberry I, Kouris–Blazos A, et al. Does diet matter for survival in long–lived cultures? Asia Pac J Clin Nutr，2005，14: 2~6.

43 Wahlqvist ML, Hsu–Hage BHH, Kouris–Blazos A, et al. The IUNS cross–cultural study of "Food Habits In Later Life"–– an overview of key findings.Asia Pac J Clin Nutr，1995a，4: 233~243.

44 Wahlqvist ML, Hsu–Hage BHH, Kouris–Blazos A, et al. (1995b). Food Habits In Later Life. A Cross–Cultural Study.(CD ROM): United Nations University Press & Asia Pacific Journal of Clinical Nutrition.

45 Wahlqvist ML, Kouris–Blazos A, Savige GS. Food security and the Aged. In O. o. R. Ogunrinade A, May J, (Ed.), Not by Bread Alone.Food Security and Governance in Africa. Toda Institute for Global Peace and Policy Research，1999，206~221. South Africa: Witwatersrand University Press.

46 Wahlqvist ML, Lee MS. Nutrition in health care practice. J Med Sci，2006，26: 157~164.

47 Wahlqvist ML, Lee MS. Regional food culture and development. Asia Pac J Clin Nutr，2007，16((Suppl 1): 2~7.

48 Wahlqvist ML, Lo CS, Myers KA. Fish intake and arterial wall characteristics in healthy people and diabetic patients. Lancet,2(8669)，944~946.

49 Wahlqvist ML, Lo CS, Myers KA. Food variety is associated with less macrovascular disease in those with Type II diabetes and their healthy controls.J Am Coll Nutr，1989，8: 515~523.

50 Wahlqvist ML, Specht RL. Food variety and biodiversity: econutrition.Asia Pac J Clin Nutr，1998，7(3/4): 314~319.

51 Welin L, Tibblin G, Svardsudd K,et al. Prospective study of social influences on mortality.The study of men born in 1913 and 1923. Lancet，1985，1(8434): 915~918.

51 Wu DM, Hong Y, Chu NF, et al. Familial resemblance for serum cholesterol and triglyceride levels:results from a health check–up population in Taiwan. J Med Sci，2003，23: 41~47.

52 Wu DM, Pai L, Chu NF, et al. Prevalence and clustering of cardiovascular risk factors among healthy adults in a Chinese population:the MJ Health Screening Center Study in Taiwan.Intl J Obes，2001，25: 1189~1195.

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