# Preventive Behavior and Health Guidance from the New Perspective of Gerontology—A Sociological Approach to Invigorating the Aging Society

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*A national disease management program (specified health examination and guidance program) that targets lifestyle illnesses and metabolic syndrome will be launched in April 2008. Its stated aim is to contain health care costs while realizing a more vibrant aging society. However, the prevention and guidance measures fail to address healthy longevity in a genuine sense. We review the gerontology literature and propose a quality-of-life approach that considers overall life conditions.*

## 1. Introduction

Japan's average life expectancy at birth reached a new record in 2006—85.81 years for women (up 0.29 from 2005), ranking first in the world for the 22nd straight year, and 79.00 years for men (up 0.44 from 2005), ranking second only to Iceland. According to projections, life expectancy will increase to 88.19 years for women and 81.39 years for men in 2025, and 90.07 and 83.37 respectively in 2050. [1]

As the world's leader in longevity and aging, Japan's pathbreaking role is being closely followed by the rest of the world. However, the attention tends to be negatively biased toward the longevity risk of individuals and aging risk of society (such as social security and labor force issues). The aim of a vibrant ultra-aging society is a society in which individuals live long and with vitality. Whether this can be achieved depends on initiatives put in place today. Current health promotion measures to boost longevity, which mainly concern lifestyle diseases, are not sufficient to ensure that individuals enjoy greater longevity.

In this paper, we overview the current trend in public health promotion policy. Then based on a review of the gerontology literature, we assess the policy, and examine preventive behavior and health guidance for increased longevity primariy from a sociological perspective.

## 2. Public Health Policy Trends

Maintaining and promoting the nation's health is the cornerstone of social security. Numerous initiatives were launched under the health care policy framework in the postwar era—nutrition and hygiene improvement in the immediate postwar era, communicable disease prevention, construction of the health care delivery system, universal health insurance coverage (1961), and health care for the elderly (1982). In the 1980s, reflecting changes in the composition of disease, the policy focus shifted to prevention of lifestyle illnesses (then called adult diseases).

### 1. Healthy Japan 21 and New Health Frontier Strategy

Lifestyle disease reduction remains a major goal of health care policy. Healthy Japan 21, launched by the Ministry of Health, Labor and Welfare in fiscal 2000, and the New Health Frontier Strategy, launched by the Cabinet Office in fiscal 2007 (restarting the Health Frontier Strategy of fiscal 2005), are nationally administered campaigns that rely on local government participation and take a population approach. However, except for popularizing the term "metabolic syndrome" (obesity that poses a risk of leading to chronic illness), the campaigns have not gained much traction in terms of reducing lifestyle illnesses.

### Exhibit 1　Healthy Japan 21

| | |
|---|---|
| Objective | To achieve a vibrant aging society in which individuals enjoy good health and rich spirit; to increase healthy life expectancy |
| Areas of concern | (1) nutrition and diet, (2) physical activity and exercise, (3) rest and mental health, (4) smoking, (5) alcohol, (6) dental health, (7) diabetes, (8) circulatory diseases, (9) cancer |
| Supervisor | Ministry of Health, Labor and Welfare |
| Mode of operation | Provide information and guidance to local governments; conduct mid-term evaluation in 2005 and final evaluation in 2010. |
| Time period | Fiscal 2000-2010 |

Source: Compiled with materials from Ministry of Health, Labor and Welfare.

### Exhibit 2　New Health Frontier Strategy

| | |
|---|---|
| Objective | To increase healthy life expectancy through preventive health care; to support the public's life satisfaction by enhancing the capabilities of households & communities, and through R&D |
| Areas of concern | (1) children's health, (2) women's health, (3) metabolic syndrome, (4) cancer, (5) mental health, (6) long-term disability, (7) dental health, (8) diet education, (9) exercise and sports |
| Supervisor | National government (Cabinet Office) |
| Mode of operation | Collaborate with local governments; conduct publicity campaign on the Internet and other media; formulate national action plan |
| Time period | Fiscal 2007-2017 |

Source: Compiled with materials from Cabinet Office.

## 2. Disease Management Program

Nonetheless, the situation is evolving. The fiscal 2006 health care reform calls for a national disease management program starting in April 2008, which will make lifestyle disease prevention a contentious issue. All persons aged 40 to 74 years covered by health insurance will receive an annual checkup for lifestyle illnesses. Based on the test results, three levels of health guidance will be issued—information provision, motivational support, and active support.

Notably, the program ensures compliance using strong pressure and incentives. It explicitly delegates the responsibility (role) of fighting lifestyle illnesses to health care insurers, and sets numerical targets for program execution and reduction of metabolic syndrome.[2] Based on the results, their contributions to the new elderly health care insurance system (to be launched in fiscal 2008) will be adjusted up or down by as much as 10% starting in fiscal 2013.[3]

Since the program was originally part of a reform to contain health care costs (such as revision of remuneration schedules), health care providers are astounded by the foray into the realm of public health (guidance and prevention). The compulsory aspect has ignited controversy, which is likely to rekindle ahead of the April 2008 launch. In our view, doubts remain regarding not only the program's operational effectiveness, but its expected impact on healthy life expectancy.

### Exhibit 3　Specified Health Examination and Guidance Program

**Health examination**
Starting in April 2008, all health insurance participants (insured and dependents) aged 40-74 will receive an annual health examination for visceral fat obesity (liver function, serum lipid, blood sugar, BMI, etc.).

**Health guidance**
Based on exam results, patients are rated on a 3-part scale for metabolic syndrome risk, and provided guidance as follows:

*A. Information provision (knowledge support)*
Patients are informed of test results and provided information on lifestyle disease prevention (applies to all).

*B. Motivational support (seeks attitudinal change)*
Guidance is provided by individual or group consultation (one time). Results are reevaluated in six months.

*C. Active support (seeks behavioral change)*
Following the first consultation, ongoing guidance is provided for at least 3 months. Results are reevaluatied in six months.

* Program will be administered by health care insurers. Starting in fiscal 2013, their contributions to the new health care insurance fund for the older population will be adjusted based on three criteria:
(a) implementation rate of health exam
(b) implementation rate of health guidance (B and C)
(c) rate of decrease in metabolic syndrome patients or those at high risk

Source: Compiled with materials from MHLW.

We must reconsider health and longevity in a broader context than simply the improvement of lifestyle illness and attention to diet and exercise. Below we review the literature on gerontology to gain a deeper insight.

## 3. Gerontology Literature Review

Gerontology covers vast areas including the aging process, mortality, centenarians, life motivation, and successful aging. Since the literature in Japan and overseas is much too extensive to cover, we focus on two aspects—the types of people who live(d) long healthy lives, and evidence on the relationship of life expectancy to personal and environmental factors.

### 1. Personal Factors

Among personal factors, genetics is often presumed to be a major determinant of longevity. Surprisingly, a study of identical twins in northern Europe has found that genes explain only 20% to 30% of average life expectancy. The other 70% to 80% is thus attributable to lifestyle and environmental factors.

According to the evidence, gender plays a conspicuous and distinctive role in determining longevity. Although women are known to live longer, their physical functions tend to be inferior compared to men who survive to the same age (of 100, for example). In other words, women live longer with disabilities (and thus require more long-term care) than do men. For men, disabilities tend to be a direct cause of death (Hirose 1992). While science cannot fully explain why women live longer, the results suggest that men must promote health more actively in order to increase longevity.

Many studies have examined how personality affects health condition. While the exact expressions vary, studies link "bright," "carefree," and "optimistic" personalities to increased longevity (for example, Shimonaka et al. 1991). Other personality types linked to good health include "meticulous," "creative" and "non-dependent." On the other hand, "competitive," "aggressive," "pressed for time," and "depressive" personalities are linked to shorter lifespans (Woodruff 1988).

A Japanese study looked at whether blood type affects longevity. The blood type composition of the overall population (40% type A, 30% type O, 20% type B and 10% type AB) was compared to that of centenarians (34% type A, 29% type O, 29% type B, and 8% type AB). Based on these results, the study concluded that persons with blood type B tend to live longer (Hirose et al. 1992).

### 2. Lifestyle and Environmental Factors

Unlike personal factors, which are unchangeable, lifestyle and environment-related factors can be altered by changing behaviors and attitudes.

#### *1. Lifestyle habits*

For lifestyle illnesses such as cardiovascular and cerebrovascular diseases, the primary risk factors are obesity and diabetes. There is no dispute that a balanced diet and suitable exercise are essential to risk reduction. This was verified in a landmark study that identified key factors of health and longevity known as Breslow's seven good health habits (Exhibit 4). An overwhelming number of studies associate these factors with good health. However, while smoking and drinking are basically regarded as detrimental to health, studies have also found that healthy people who live longer are more likely to drink moderately. While no study has recommended smoking for health pursposes, a complete enumeration study of 4,166 centenarians found that those who do well in activities of daily living (ADL) are more likely to smoke (Hagiwara 2000).

**Exhibit 3 Breslow's Health Habits**

| | |
|---|---|
| 1 | Sleeping 7–8 hours a night |
| 2 | Not smoking |
| 3 | Maintaining an appropriate bodyweight |
| 4 | Not drinking excessively |
| 5 | Exercising regularly and vigorously |
| 6 | Eating breakfast every day |
| 7 | Not snacking |

We note in passing that extensive studies also examine health and daily activities such as selection of foods, chewing well, eating in moderation, and walking technique and posture.

### *2. Social environment (support and participation)*

Compared to the public's awareness of lifestyle habits, the connection between healthy longevity and social environment is not well known outside the research community. Below we discuss the evidence from several prominent studies.

A three-year study tracking 2,200 persons aged 60 and over found that men who belong to several groups and participate frequently tend to have greater life expectancy. For women, however, no significant correlation was found between community contact and longevity (Sugisawa 1994).

Another study tracked 1,069 persons aged 60 and over for five years. Social support, as measured by an indicator composed of factors such as contact with community and frequency of contact with the environment, was found to correlate significantly with life expectancy (Anme 2000).

Life expectancy has been found to be shorter among men who have infrequent conversations with family, and among women who have infrequent conversations outside the family (Hashimoto 1986).

Impaired mobility (an indicator of physical functions) and impaired conversational capability (an indicator of psychological functions) have also been found to be independent determinants of life expectancy. Direct personal contact through conversation was found to be a major factor affecting the life expectancy of older adults (Nakanishi et al. 1997).

A study of the centenarian share of population by prefecture and community factors such as social infrastucture found significant positive correlations between longevity and average ambient temperature, elderly welfare cost ratio, number of social workers, number of hospitals, number of physicians, and leisure time. The only significant negative correlation was for work hours (Okamoto et al. 1995).

A study of social networks and life expectancy found a significant bias in mortality rates toward persons not living with a spouse, not socially active, and not provided emotional support from others (Okado et al. 2002).

Thus the literature provides ample evidence of the relationship of quantity and quality of social support and health condition and life expectancy. This clearly suggests that preventive behavior and health guidance measures need to encompass more than lifestyle habits.

### *3. Psychological factors (motivation, independence, and satisfaction)*

Numerous empirical studies have examined how life expectancy may be affected by psychological factors such as motivation in life, desire for independence, and satisfaction with life.

A significant positive correlation was found between subjective happiness and life expectancy among both men and women. The finding suggests that subjective happiness in middle and old age is an effective predictor of life expectancy (Iwasa 2005).

People who cannot clearly state their life motivation, are subjected to stress, or feel unneeded were at higher risk of death by circulatory disease even after adjusting for age and personal history of smoking, drinking and high blood pressure (Sakata et al. 2002).

As aging progresses, people find that less is expected of them, their self-defined role and sense of independence tend to diminish. This in turn affects life motivation and ADL, and leads to reduced life expectancy. When people no longer feel optimistic about the future or useful to others, the death rate tends to rise. While family concerns may cause stress for older adults, it can at the same time stimulate their desire to remain independent (Aso et al. 1995).

The above findings support the view that illness can also come from the mind. Leaving aside the issue of causality (whether psychological factors cause or result from physical health and social

environment), the evidence indicates that psychological factors do indeed affect longevity.

In addition, factors in the natural and economic environment may also determine health condition and longevity. Longevity is greater in western Japan (Okinawa and Kumamoto) than in eastern Japan, which is partly attributed to warmer climate. While many studies have dismissed the role of the economic environment, in recent years a study has found that managers tend to live longer (Matsuzaki 1980).

## 4. Improving Healthy Longevity

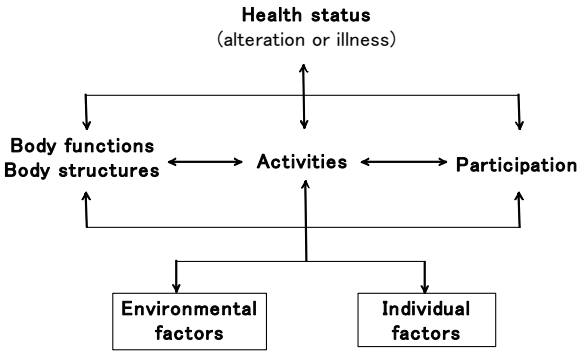
As the literature review shows, factors that affect health and longevity are numerous, ranging from personal factors to lifestyle and environment-related factors. The national disease management program aims to fight lifestyle illnesses and contain metabolic syndrome by focusing on diet (nutrition) and exercise habits. This may be sufficient within the current framework of public health. But from the broader perspective of healthy aging, two more key areas must be addressed.

### 1. QOL Approach and Life Conditions

Once we focus on lifestyle illness and metabolic syndrome, the only health concern becomes fighting metabolic syndrome through proper diet and exercise. However, diet and exercise are only a part of daily life, and not the end goal—we do not live to eat. Looking ahead, the preventive behavior and health guidance program must not confuse the means with the end.

The World Health Organization defines health as not merely the absence of disease or disability, but more broadly as being in good physical, psychological, and social condition. This is embodied in the 2001 International Classification of Functioning, Disability and Health (ICF), in which health condition is seen as a dynamic and interactive process of personal factors, environmental factors, body functions, body structures, and activities and participation (Exhibit 5).

**Exhibit 5 WHO International Classification of Functioning (ICF)**




Source: WHO, *International Classification of Functioning, Disability and Health (2002).*

Similarly, the concept of successful aging encompasses physical health, psychological health, financial health, and social health. All dimensions must be addressed to improve quality of life (QOL) and generate life motivation. The definition of life motivation and conditions for its attainment broadly consist of three levels—alleviating dissatisfaction, achieving satisfaction, and ultimately achieving self expression.

Lifestyle habits leading to metabolic syndrome are in turn derived from underlying life conditions. Thus to genuinely promote health and longevity, we must not only provide prevention and guidance related to physical health, but adopt a QOL approach to address life conditions. This means redefining health to encompass psychological health and social health. For example, health guidance consultation should also assess social support indicators and

**Exhibit 6 Successful Aging**


Source: Compiled by NLI Research Institute

**Exhibit 7 Life Motivation Levels**

| Motivation level | Objective condition | Subjective condition |
|---|---|---|
| Primary | Scarcity (disease, poverty, ignorance, constraints) | Dissatisfaction (loneliness, uncertainty, fretfulness, loss of meaning, loss of efficacy) |
| Secondary | Adequacy | Satisfaction |
| Tertiary | Abundance (health, education, wealth, freedom) | Desire (creativity, self expression, self motivation, service, completion, fulfillment) |

Source: Kazuo Aoi et al., *Theory of Daily Life Condition* (2003).

life satisfaction level, and recommend opportunities for personal development through community participation, job referral, continuing education, and intergenerational contact. In the meantime, individuals must also broaden their perspective on preventive behavior.

## 2. Targeting Younger Age Groups

As we mentioned, the new health examination and guidance program targets persons aged 40 and over. But according to a leading theory of aging called continuity theory, lifestyle habits and personality are fully formed by this time. Thus lifestyle illnesses actually need be targeted when people are still in their 20s and 30s. Although fiscal realities may make it difficult to include younger persons, these people need to be reached before metabolic syndrome sets in.

In addition, from the perspective of R&D, society would benefit from having instruments to monitor aging on a daily basis, as well as the development of a standardized health indicator that describes in detail the aging process at each age.

**Continuity theory**

According to Robert C. Atchley (1999), values and lifestyle behaviors developed by middle age are continued into old age, and actually become more radical and entrenched. People adapt to aging by adjusting their thought and behavior patterns to maintain a consistent sense of self. This leads to stability of life in old age.

## 5. Conclusion

In many ways, the twenty-first century seems to portend a chronic condition of malaise for Japan as a nation. The society is aging, the economy is slowing, and the government is plagued with chronic fiscal problems. And while people will live longer, they too face a greater risk of chronic illnesses. Ironically, these outcomes are the result of our unprecedented prosperity.

The ultimate aim in life is not just to live longer, but to enjoy a good quality of life for as long as possible. To increase healthy longevity, public health policy needs to adopt a QOL approach from a comprehensive and structural perspective. Unfortunately, the new preventive behavior and health guidance program is inadequate in this regard, and tends to confuse means and ends.

## Endnotes

1. Refers to the median projection of the National Institute of Population and Social Security Research (December 2006).

2. Includes health insurance associations, municipal governments, national health insurance associations, mutual aid associations, etc.

3. The new health care insurance system for the older population starts in fiscal 2008. Contributions paid by health care insurers will start to reflect results of the disease management program starting in fiscal 2013.

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