

Review

# Promotion of dementia-friendly communities and extension of healthy life expectancy

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## Abstract

Promotion of age- and dementia-friendly communities can be one of the approaches to improve the social determinants of healthy life expectancy, since age- and dementia-friendly environments allow older people, including those with dementia, to manifest their potential capacities. Improving social systems and eliminating social disparities are fundamental necessities, while it is also important to identify actions that can be taken by individuals. Top-down administrative policy and bottom-up voluntary approaches can work complementarily. Voluntary initiatives should be inclusive for the vulnerable, as well as being co-beneficial, sustainable, and low cost, allowing the initiatives to expand to low-income countries. Small actions that can be implemented immediately should be taken to make the society dementia-friendly through individual efforts.

## Key words

Age, Community, Dementia, Dementia-Friendly Community, Healthy Life Expectancy, Longevity

## Introduction

Extending life expectancy is an ongoing issue in the health policy of every country, while at the same time, many countries are exploring approaches to address the issue of the unprecedented ageing of the society. In recent years, the focus has shifted from simply extending life expectancy to extending healthy life expectancy. Healthy life expectancy is defined as “a form of health expectancy that applies disability weights to health states to compute the equivalent number of years of good health that a newborn can expect.”<sup>1</sup>

How should life be spent as an older adult? How should we approach an ageing society? These questions are common to all countries and are not limited to the ones with greater longevity. For example, compared to Japan, India's average life expectancy at birth in 2016 was lower by 13.5 years for males and 16.8 years for females, while the life expectancy at the age of 60 years decreased to 6.4 years for males and 4.7 years for females<sup>2,3</sup> (Table 1).

**Table 1: Life expectancy at birth and at age 60 years in India and Japan**

	India	Japan	Difference
Life expectancy at birth (2016)			
Male	67.44	80.98	13.54
Female	70.34	87.14	16.8
Life expectancy at age 60 years (2016)			
Male	17.24	23.67	6.43
Female	18.8	23.51	4.71
Probability of dying before 5 years of age (per 1000 live births, 2018)	37	2	35
Probability of dying between 15 and 60 years, m/f (per 1000 population, 2016)	214/138	65/36	149/102

Life expectancy at birth and at age 60 years in India and Japan in 2016.<sup>2,3</sup> The difference in life expectancy at birth is larger than that at age 60 years; it is possible that the probabilities of dying before 5 years of age and that of dying between 15 and 60 years are related to these differences.

With regard to healthy life expectancy at 60 years of age, the difference between the two countries in 2015 was 6.4 years for males and 9.5 years for females, with the difference staying around the same level since 2000 (Table 2).<sup>4</sup> As the period between life expectancy and healthy life expectancy, which is a long period characterised by poor health, may decrease the quality of life of an individual and increase social burden, such as medical costs and social welfare costs, focus should be on extending healthy life expectancy, not merely life expectancy.

This paper emphasises that since humans are physical-psycho-social beings, extending healthy life expectancy should not only focus on the physical aspect but also include the psychosocial aspect. From this perspective, pro-social and altruistic activities may lead to the extension of healthy life expectancy, including the enhancement of the psychosocial aspects.

<b>Table 2: Healthy life expectancy at birth and that at age 60 years between 2000 to 2015</b>					
<b>A. Healthy life expectancy at birth</b>					
		<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>
Male	India	53.6	55.3	57.2	58.4
	Japan	69.9	70.6	71.4	72.4
	Difference	16.3	15.3	14.2	14.0
Female	India	53.4	55.2	57.6	59.5
	Japan	75.0	75.7	76.2	76.8
	Difference	21.6	20.5	18.6	17.3
Total	India	53.5	55.3	57.4	58.9
	Japan	72.5	73.2	73.8	74.7
	Difference	19.0	17.9	16.4	15.8
<b>B. Healthy life expectancy at age 60 years</b>					
		<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>
Male	India	11.0	11.5	12.1	12.4
	Japan	16.9	17.3	17.9	18.8
	Difference	5.9	5.8	5.8	6.4
Female	India	11.9	12.2	12.7	13.2
	Japan	21.4	22	22.4	22.9
	Difference	9.5	9.8	9.7	9.7
Total	India	11.5	11.8	12.4	12.8
	Japan	19.3	19.8	20.3	20.8
	Difference	7.8	8.0	7.9	8.0
There seems to be a decreasing tendency in the difference between the two countries in healthy life expectancy at birth from 2000 to 2015, while there is no such tendency in healthy life expectancy at age 60 years from 2000 to 2015.					

### Determinants of health

In order to extend healthy life expectancy, approaches that address the determinants of health are effective. Determinants of health include functional and structural factors, such as age and genetic factors as core elements, which are non-modifiable. However, they also include modifiable factors related to lifestyle, such as nutrition and exercise. Considering that addressing these modifiable factors can be effective for extending life expectancy, most recent discussions on frailty prevention have revolved around nutrition and exercise. Furthermore, determinants of health include social factors.

According to the World Health Organization (WHO), “social determinants of health are the conditions in which people are born, grow, live, work, and age”. Furthermore, “these circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities – the unfair and avoidable differences in health status seen within and between countries.”<sup>5</sup>

Social issues create health disparities, and the elimination of inequality remains a global issue. However, these issues cannot be solved instantly or only by individual efforts. Rather than just waiting for global issues to be solved, it is important to identify modifiable factors that can be changed through individual effort, and desirably without incurring costs.

What are the modifiable social determinants of health? The Office of Disease Prevention and Health Promotion in the United Nations classifies social determinants of health into five domains: education, economic stability, neighbourhood and built environment, health and health care, and social and community context.<sup>6</sup> Among these classifications, health and health care systems are the issues that should be tackled by society as a whole and cannot be changed through individual efforts alone. Furthermore, education and economic stability are difficult to alter once an individual reaches middle age. In contrast, neighbourhood and built environment, and social and community context can be influenced by individual efforts. Indeed, the environment includes various elements such as public hygiene, which cannot be changed by individuals; however, it also includes elements such as social relationships that can be changed through individual efforts without incurring costs.

### Building an age- and dementia-friendly community

As a modifiable social determinant of health, promoting an age- and dementia-friendly community can be related to the extension of healthy life expectancy. According to the World Report on Ageing and Health in 2015, the WHO stated that “physical and social environments are powerful influences on Healthy Ageing”; and that “age-friendly environments allow older people to be and to do what they have reason to value by enabling them to maximize both their capacity and their ability”.<sup>7</sup>

Originally, age- and dementia-friendly communities developed separately by different initiatives, but recently there has been a tendency to integrate age- and dementia-friendly initiatives to complement each other.<sup>8</sup> Considering dementia as a disease, it is a spectrum disorder<sup>9</sup> where the individual's function deteriorates. From this perspective, it makes sense to consider age- and dementia-friendly environments collectively. According to the WHO, older adults and people with dementia are greatly influenced by environmental factors in terms of their functional manifestation. Therefore, promoting age- and dementia-friendly environments can be one approach to address the social determinants of health. Furthermore, the WHO adds that “creating environments that are truly age-friendly requires action in many sectors – health, long-term care, transport, housing, labour, social protection, information and communication – by many actors – government, service providers, civil society, older people and their organizations, families, and friends”.<sup>7</sup> Therefore, it may be desirable for older adults to participate in the promotion of age- and dementia-friendly communities. Moreover, it is also important for people with dementia to participate according to their abilities.

Since 2005, the Dementia Supporter Program, a volunteer training programme to support dementia patients and their families, has been promoted with the aim of creating a dementia-friendly community in Japan.<sup>10</sup> In the United Kingdom, Dementia Friends was launched since 2013 and has been expanded to various countries, including India.<sup>11</sup> The common goal of both the programmes is to take small initiatives that can be implemented immediately and to make the society more dementia-friendly by tapping the potential of individual efforts.<sup>11</sup>

Both Dementia Supporter and Dementia Friends programmes are thought to have four important characteristics: respect for diversity, reciprocity, bottom-up approach, and low cost.

### 1) Originally, a movement that encompasses diversity

Age- and dementia-friendly movements must also consider age and dementia as types of diversity to build an inclusive society. This does not mean that preference should be given only to age and dementia. In fact, there are various vulnerable people in society, and the idea is to include all who are vulnerable in society as a whole. All people who continue living will eventually become older adults, at risk of dementia. With this in mind, dementia is an imminent disorder that may develop in anyone. Looking at the origins of age- and dementia-friendly communities, future developments must strive to create a more diverse society by expanding the inclusion of all socially vulnerable people.

### 2) Co-benefit

From the perspective of social sustainability, a society that embraces diversity is beneficial for both supporters and recipients. The WHO Geriatric Report 2015<sup>7</sup> introduces the Experience Corps<sup>12</sup> as a real-life example of altruistic behaviour. Experience Corps is an initiative in which middle-aged and older adults assist school children in learning, for example, tutoring children whose learning is delayed, such as immigrant children with poor understanding of English, and supporting in libraries. This initiative can also be considered an age-friendly attempt to provide middle-aged and older adults with significant social roles and opportunities rather than being treated as care beneficiaries and social care recipients. This initiative has benefited both sides: for school children, an increase in academic abilities and learning motivation, and for the volunteers, an increase in physical strength and capacity,<sup>13,14</sup> improved cognitive function,<sup>14</sup> improvements in social networks,<sup>14</sup> and fewer depressive symptoms.<sup>13</sup> In addition, positive impacts on parents, the entire school, and the entire community have also been reported.

Benefitting everyone involved is one of the highlights of Experience Corps. It is an age-friendly attempt to improve the functions of older adults<sup>13,14</sup> by engaging them in altruistic activities. Supporting children in learning is a child-friendly activity, and at the same time, it is parent-friendly, family-friendly, and school-friendly, positively impacting the entire community. It may not be considered age-friendly if the benefits for the older people are

brought at the expense of other residents, including children. Such activities can result in the division of society and generations, and are not sustainable. The example of Experience Corps suggests the benefits of engaging in altruistic activities. Being altruistic is an innate desire for people,<sup>15</sup> and altruistic acts have been reported to increase motivation as a social reward.<sup>16</sup> It has been reported that, even in the care of persons with dementia, 'giving' is considered as a form social reward for caregivers.<sup>17</sup> The WHO Geriatric Report 2015 has also highlighted the importance of further considering the meaning of altruistic behaviour as a dementia prevention activity.<sup>7</sup>

For people with dementia, it is desirable to have social roles according to their abilities, rather than simply receiving care. In reality, it is rather difficult for them to take full responsibility in real life situations, so it is also recommended to set up a specific dementia-friendly environment, such as a dementia café. In Japan, people with dementia are encouraged to have some social roles to play in dementia cafes in order to be actively involved.

### 3) An approach to empower bottom-up activities from grassroots and society

Along with administrative health policies, an empowerment approach can also be effective in supporting the voluntary activities of citizens.

According to the WHO Ottawa Charter, "health is, therefore, seen as a resource for everyday life, not the objective of living".<sup>18</sup> Therefore, healthy longevity is a resource that enriches people's lives rather than a goal. The Ottawa Charter further emphasises that "health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being".<sup>18</sup> Top-down administrative policies may tend to emphasise numerical performance indicators, such as the number of registered people as dementia supporters as a performance indicator. However, too much emphasis on pursuing numerical goals can result in a fall by placing the means as an objective. Voluntary bottom-up activities can be complementary to top-down administrative policies by paying attention to psychosocial factors.

Moving forward, ageing problems will eventually manifest in all countries. It is important to improve the wellbeing of all citizens, including older adults, without setting healthy life expectancy as a personal objective. The activities of Dementia Supporter and Dementia Friends can be good initiatives to improve the wellbeing of entire communities through autonomous and voluntary co-operation.

### 4) Low-cost or no-cost sustainability

Low cost is an important advantage for sustainability. The United Kingdom is actively expanding the Dementia Friends programmes to low- and middle-income countries. This system can be maintained at a low cost and is expected to further expand in the future.

## Health counsellor system

It is pertinent to introduce the health counsellor system that has contributed to health longevity in Japan. Currently, Japan is well developed in terms of health, but the Japanese people in their 70s or older in 2020 are those who spent their childhood before, during, and after the turmoil of World War II. Before the war, Japan was poor, so the older people of today did not receive sufficient nutrition or have an adequate public health environment while growing up. Furthermore, during the war and post-war years, supplies were lacking, society was impoverished, and nutrition and public health conditions continued to be poor.

The health counsellor system began voluntarily in the 1940s. During this period, housewives witnessed the struggles of public health nurses in encouraging rural villages to tackle issues such as improving public health and reducing infant mortality rates. This system began when housewives voluntarily started calling for activities to help in whatever way they could. Activities officially started in 1945, four months before the defeat of Japan at war, when Japan was the most deprived, and the rural areas were completely exhausted.

After the war, rural areas had poor public health for a long time and life expectancy was low. However, health counsellors persevered steadily in their activities. For example, in the prefecture with the greatest number of strokes, public health nurses and health counsellors conducted surveys on winter room temperature and salt content in food in 1971. Based on these surveys, activities were carried out to improve the living environment and nutrition of the residents. As the educational standards were not high in the rural areas at that time, accurate knowledge was conveyed to people who were not well educated. Health counsellors, who were people without medical qualifications, were the ones to develop devices to put knowledge into practise. Although health counselling started as a voluntary activity, the national and local governments in Japanese later organised it into a system.

What is remarkable about this activity is not the task-shifting of medical-led training, but the proactive and voluntary activities initiated by residents, which was later supported by policies. The health counsellors also voluntarily learned to assist public health nurses and to educate citizens. In addition, they voluntarily made efforts to encourage behavioural changes in citizens. Health counsellors are still active in Japan and are organised by the local governments, while what is worthy of notice is that this system was born independently of top-down policies.

At present, Japan has a long life expectancy, but rather than its current social security system, Japan's history of community activities voluntarily initiated by citizens is crucial. Extending healthy life expectancy is important, but health care for older adults may get pushed back in

terms of priority in the context of policy during the prevalence of COVID-19. As medical resources may not be allocated for dementia during the current pandemic, rather than relying on policies, the importance of grassroots activities should be emphasised.

## Evidence-based medicine review and research gaps

As the current emphasis is to promote evidence-based medicine, it is important to mention here the evidence supporting a non-pharmacological approach. Non-pharmacological approaches to dementia, including dementia care, promotion of dementia-friendly communities, and dementia prevention interventions are also recommended to be evidence based. Being evidence based is important, but imposing an emphasis on evidence without properly recognising the limits and scope of evidence poses the risk of expanding the research–practice gap. Considering that evidence-based medicine is aimed at improving practice, bending practice in order to conform to evidence is putting the cart before the horse.

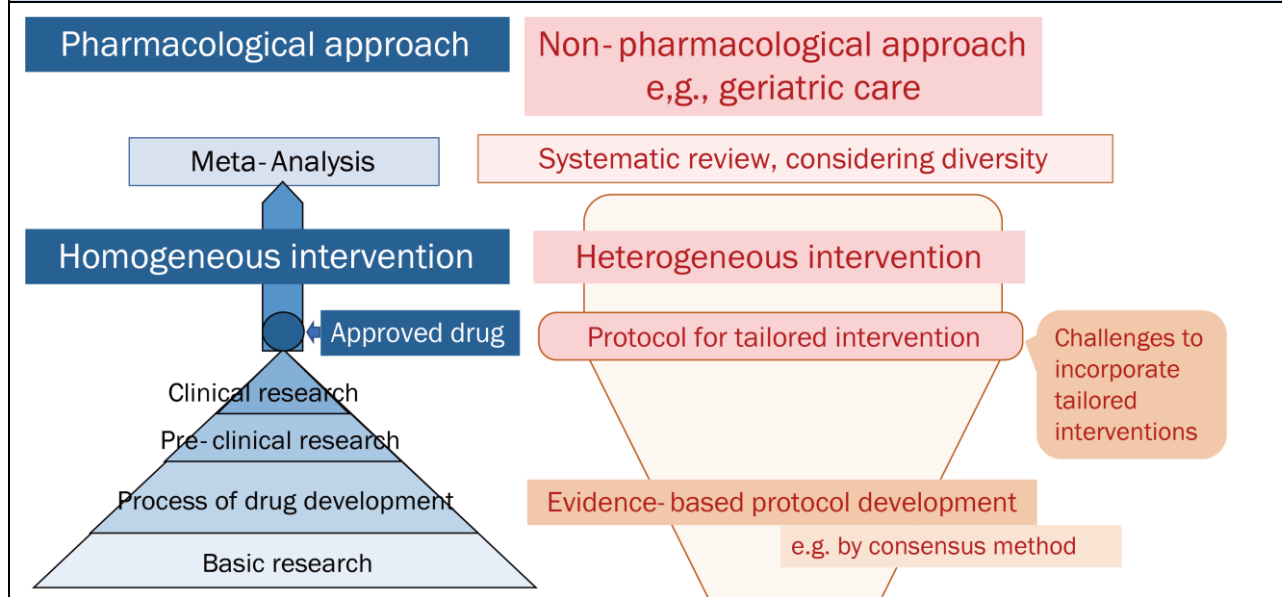
To begin with, standardised methods cannot measure all 'cognitive functions' that deteriorate in dementia. In the fifth edition of the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-5), Major Neurocognitive Disorder, which corresponds to dementia, is defined as "substantial impairment to be present in one or (usually) more cognitive domains". Furthermore, "the impairment must be sufficient to interfere with independence in everyday activities".<sup>9</sup> Cognitive functions are classified into six domains, but methods for measuring all domains of cognitive functions have not been standardised. For example, the Mini Mental State Examination (MMSE) is regarded as one of the gold standards of cognitive function tests for dementia diagnosis. However, such a test with a total score of 30 points cannot evaluate the entirety of cognitive functions. Also, among the six areas, executive function and social cognition are difficult to objectively measure and quantify.

In the standardised tests for medical treatment, methods are objectively established, and reproducibility is required. This means that the same result must be obtained regardless of how many times and how many different people conduct the test. However, executive function and social cognition are not one-sided manifestations of abilities, but are the abilities to interact with the environment, including other people, by influencing them. This interactive nature makes one-sided objective measurements difficult.

As the brain itself interacts with the environment, standardised tests such as the MMSE have a limited capability to measure cognitive functions. Therefore, it is important to be aware of the limitations and scope when considering evidence measured by standardised cognitive tests. In other words, standardised cognitive function tests do not assess the entirety of cognitive functions.



**Fig 1: Applying evidence-based medicine (EBM) framework to non-pharmacological approach may expand the research-evidence gap.**



EBM has been considered within the framework of pharmacological approach. Applying this framework to non-pharmacological approach may expand the research-evidence gap in non-pharmacological approach.

Intervention in the pharmacological approach is homogenous because such interventions use drugs, allowing meta-analyses to summarise the results of a large number of participants. Intervention in a non-pharmacological approach is essentially person-centred and tailor-made, meaning that such interventions are heterogeneous. Therefore, increasing the homogeneity of intervention requirements will lead to a wider research-evidence gap. Within this context, a tailor-made approach to the framework of evidence building was applied. Since the intervention is heterogeneous, statistic meta-analysis cannot be performed to different intervention methods. This means that appraisal of multiple research results should be carried out through a qualitative systematic review.

In the pharmacological approach, the process of drug development is based on the accumulation of evidence from fundamental research. In contrast, non-pharmacological approaches often do not verify the intervention protocol process. It is required to verify the protocol development process, which is equivalent to the drug development process, for example, using the consensus method.

Furthermore, it is necessary to reconsider the evidence of a non-pharmacological approach for dementia<sup>19</sup> (Figure 1). There is no reported robust evidence in non-pharmacological approaches for dementia. Thus, the importance of strictly constructing the methodology of interventions has been emphasised. The framework of evidence was originally constructed for pharmacological approaches, which have homogeneous interventions using approved drugs. However, the non-pharmacological approach is essentially person-centred, which means that fundamentally, it is an individualised approach. Thus, intervention is essentially tailor-made according to the individual. Although tailor-made pharmacological therapy has been developed, conventional pharmacological therapy remains homogeneous using approved drugs for all. As for non-pharmacological intervention, seeking the homogeneity of intervention based on the framework of pharmacological intervention may impair the essence of non-pharmacological approaches and lead to the expansion of the research-practice gap. Originally, the purpose of evidence-based medicine (EBM) was to improve practise. Therefore, introducing tailor-made interventions into non-pharmacological research is being seen as a challenge that aims to bring research (evidence) closer to practise. This approach is the opposite of seeking homogeneity of intervention and is a challenge consistent with the essence of non-pharmacological approach. Furthermore, in the framework of EBM, the highest level

of evidence is the result of a meta-analysis of statistical processing and evidence. However, statistical processing assumes homogeneity of intervention. Meta-analysis should not apply to tailor-made interventions, as they are heterogeneous. Therefore, qualitative systematic reviews should be used to summarise the results of such interventions. Within this context, the framework of evidence should be reviewed in non-pharmacological approaches.

The issue to be considered regarding the non-pharmacological approach is the process corresponding to drug development, which is constructed by the accumulation of evidence from basic researches to clinical studies. The verification of the corresponding process in the non-pharmacological approach has been neglected to date. For example, both music therapy performed by a qualified music therapist and that by an untrained layman who has not learned music therapy, are considered to be same 'music therapy' in meta-analysis. It is evident that the efficacy is influenced by the therapists' skill and methodology, making it important to appraise these factors. Therefore, building evidence for the non-pharmacological approaches is necessary to verify the process, corresponding to the process of drug development in the pharmacological approaches. One proposal is to verify the methodology and intervention protocol using consensus methods. In addition, it is

important that the protocol contain evaluation of the therapists' skills or training programme.

## Conclusion

It is not sufficient to simply view the extension of life expectancy from the viewpoint of an individual organism. Human beings are not merely physical organisms but also psychosocial beings. Therefore, the real issue is extending healthy life expectancy (life expectancy with good health), which includes the psychosocial aspect.

Modifiable social determinants of health should be tackled when considering the extension of healthy life expectancy. The promotion of age- and dementia-friendly communities can be considered as an approach to address modifiable social determinants of health.

Medical care for older adults may become less prioritised during the COVID-19 pandemic. Furthermore, social distancing, which has been made essential by the pandemic, severely restricts social interaction, especially for the older persons. However, it does not mean that nothing can be done under the condition, and it is desirable to search for things that can be done within the present constraints and devise safe workarounds despite the ongoing pandemic. The long life expectancy in Japan can be related to innovations in rural areas that had suffered from poor public health. In India and other Asian countries, many things can be done even under these conditions, as regional connections and spiritual values are still alive.

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