

"Every man desires to live long, but no man wishes to be old." [Jonathan Swift](#), Priest, writer, 1726 (Gulliver's travels: travels into several remote Nations of the world)

Theme of the month: Happiness and Longevity

Introduction

This month's newsletter is only about moderate improvements of longevity through our ways of enjoying life. Regular readers of this newsletter know only radical medical scientific progress could make lifespan far beyond our biological limits possible. But while working on this long-term goal, why not also find ways to live a bit longer and happier!

Different authors have various descriptions of what happiness is and defining happiness has been largely subjective. Each person has their own perception of happiness. In psychology, there are two popular conceptions of happiness: [hedonic](#) and [eudaimonic](#).



On the other hand, numerous behavioral psychology studies show that each individual fluctuates around a gradient of happiness that has a maximum, a minimum and an equilibrium zone. This is the theory of the [hedonic treadmill](#) (or hedonic adaptation). Whatever happy or unhappy events we experience, we would tend to return to this equilibrium point. The question then arises whether we could raise this gradient of happiness, possibly through technology, and whether raising it could have an impact on longevity.

Hedonism happiness is achieved through experiences of pleasure and enjoyment, while eudaimonic happiness is achieved through experiences of meaning and purpose.

A [systematic review](#) published in 2014 in the Iran Journal Public Health, concludes that happiness has a complex meaning and is composed of several factors, that can be divided into two dimensions: endogenic (biological, cognitive, personality and ethical subfactors) and exogenic (behavioral, sociocultural, economical, geographical, life events and esthetic subfactors).

Optimizing happiness is a desirable societal goal in itself. If it helps to prolong a healthy life, it's one more reason to focus our attention on it. Let's look through an overview of some research literature, how the feeling of well-being and happiness can influence our longevity.

Happiness and physical health

Many investigations study the association between physical health and happiness and conversely others research study the relation between physical illness (hypertension...) and happiness.

We know through literature study that the relation between physical health and wellbeing is bidirectional. Well-being can be a protective factor in maintaining health, as a deterioration in health can also trigger an impaired in well-being. Elderly people suffering from certain diseases such as coronary heart disease, arthritis... show both increased levels of depressed mood and impaired hedonic and eudaimonic well-being.

In an analysis of the [English Longitudinal Study of Aging](#), eudaimonic well-being was associated with increased survival. People in the lowest wellbeing quartile died in a higher percentage during the average follow-up period of 8.5 years, compared to those in the high wellbeing quartile. Other evidence shows an association between overall hedonic, and eudaimonic well-being with successful aging. High levels of subjective well-being may boost physical health and longevity as well.

Happiness and risk of death

A [research study](#) in the United States concludes that happiness is linked to longer lives in American adults. Compared to very happy people, the risk of death during the follow-up period is 6% higher among those who are pretty happy and 14% higher among those who are not happy, after deduction of marital status, socio-economic status, census division and religious attendance. A similar conclusion has been made by [the English longitudinal Study of Aging](#), they show that personal well-being is

associated with higher survival rates, even if this relation could vary among nations.

However, How different is this relationship in other countries with different economic status?

An [ecological study](#) that used data from 151 countries, concluded that a better sense of well-being has a strong relationship with life expectancy regardless of economic status or population size.

Based on all these elements, we can say that well-being has probably a protective role in survival. However, based on the bidirectional aspect of the described relation, It is particularly difficult to know if specifically trying to improve happiness can really be positive for healthy longevity. It is worth noting that the difficulty to distinguish cause and effect is common for many aspects of longevity. For example, studies conclude that "exercise is good for longevity". But since sick people exercise less, this does not prove that exercise in itself is good for longevity.

Psychological Well-Being and Successful Aging

Defining successful aging is not easy, and there is still no consensus among researchers in this field. Numerous studies affirm that physical and psychosocial well-being in old age is an integral part of aging well. More investigations need to be done, but what is almost certain is that unhappiness has a negative effect on people's health and even more on their mental health. In a [cross-sectional study](#) comparing Japanese and Korean seniors, poor physical health was found to be correlated with depressive symptoms in both groups. In fact, in psychology, [psychological well-being](#) is defined as one's level of psychological happiness/health, encompassing life satisfaction and feelings of accomplishment. An Asiatic [study](#) concludes that activities, policies and programs that maintain or improve happiness may be beneficial for a longer life among older people. However, the amount of stress that we accumulate progressively as we grow older, and the inability to manage life adversities and stressful situations may negatively affect our health and life quality in old age. In other words, our ability to cope with stress is one of the important determinants of longevity and quality of life.

Happiness in elderly people

Happy aging is a part of healthy aging. Some characteristics such as: Cognitive-impairment, cardiovascular disease, neuropathology, activity curtailment, stressful life events, insomnia have been considered by [researchers](#) as the main source of depression and a contributing factor for Anti-happiness in older people. On the other hand, engagement, sense of mastery, emotion regulation, close social network, meaning in life are considered as protective factors of depression and contributing factors of happiness in longer life. Happiness is one of the determinants for healthy aging. A [recent study](#) published in 2020 concluded that well-being was associated with age. Let's look at what are the characteristics of happiness in elderly people.

Getting older could potentially mean:

- A better understanding of life
- A deeper appreciation of the value of life
- A sensation of accomplishment along with fulfillment
- A greater capacity to understand and handle life's vicissitudes
- Less pressure and aspirations on themselves
- A better appreciation of the present moment
- Less worry for the future

Of course, all those characteristics are associated with the presence of those protective factors that we mentioned previously.

Conclusion

As already mentioned, happiness plays only a moderate role in improving life span. However, it is important to explore this avenue, as long as we keep the other objectives in mind:

This being written, let's mention these four reasons why gerontology should invest in happiness research, taken from [an article by Andrew Steptoe](#), of the journal Gerontology.

- Happiness is not merely the mirror of depression, anxiety or distress, but has distinct relationships with a range of outcomes, so benefits from study in itself.
- Happiness appears to be a protective factor for morbidity and mortality; although studies are complex and take a long time to complete, there is accumulating evidence that greater happiness

predicts better survival among older people independently of covariates including health status and depression.

- Happiness has broad ramifications at older ages, being related to personal and social relationships, economic prosperity, biological risk factors, health behaviors, and time use as well as health.
- Happiness is malleable, and can potentially be modified in ways that will enhance the health and well-being of older people.

The good and the bad news of the month

After many investigations into the effects of transfusing materials from young animals to old animals, over recent weeks some procedures have shown significant results.

Researchers have shown that [Fecal microbiota transfer between young and aged mice reverses hallmarks of the aging gut, eye, and brain](#). They found that microbiota composition profiles and key species enriched are successfully transferred by [fecal microbiota transplantation \(FMT\)](#) between young and aged mice and that FMT modulates resulting metabolic pathway profiles. The transfer of aged donor microbiota into young mice accelerates age-associated [central nervous system](#) (CNS) inflammation, retinal inflammation, and cytokine signaling and promotes loss of key functional protein in the eye. Conversely, these detrimental effects can be reversed by the transfer of young donor microbiota.

Our second piece of good news is that it has been shown that [cerebrospinal fluid \(CSF\)](#) from young mice can improve memory function in older mice. [A direct brain infusion of young CSF probably improves the conductivity of the neurons in aging mice](#), which improves the process of making and recalling memories. Infusion of a protein isolated from the CSF, fibroblast growth factor ([FGF17](#)), has also shown similar results to restore memory in old mice. Furthermore, giving the mice an antibody that blocked Fgf17's function impaired the rodent's memory ability.

Let's move on to the not so good news.

Last month, the newsletter mentioned the very bad news of a [global decrease of life expectancy](#) in 2020 and 2021. However, the World Bank [published other data](#). According to this major organization, in 2020, there was no decrease, but only a status quo concerning world life expectancy

(precisely -0.01 %). If this study is confirmed, the situation would still be bad (first time without growth since 70 years), but less than previously stated. It is also to be noted that despite all statistics, studies, ... we still have large divergences of analyses concerning the impact of the Covid-19 even for the basic information that is "how many deaths".

Other [scientific news in May](#) from Heales.

For more information

- [Heales](#), [SENS](#), [Longevity Alliance](#), [Longecity](#) & [Lifespan.io](#)
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