



CONCEPT OF AYU PRAMAN & ITS RELEVANCE IN CURRENT ERA

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ABSTRACT:

Life expectancy has been a topic of great interest and debate since antiquity. It has become more relevant in current era. Human resource is vital to growth of any country, so health care professionals, scientists, industry partners & economists as well are pondering over the issue to enhance the healthy lifespan and increase productivity.

Ayurveda has provided an operational framework for assessment of *Ayu-praman* and enumerated *Ayu janak* & *Ayu vighatakar* factors which needs to be analyzed & to be adopted with a personalized approach. The current review is an attempt to view the life expectancy in modern biology perspective followed by the compressive approach of Ayurveda descriptions. Finally the factors effecting longevity and methods to achieve optimum healthy life span are discussed.

Key words; *Ayu, Hita Ayu,*

INTRODUCTION

The query “How long can one live” has been a topic of great interest & debate since antiquity and still remains to be resolved till date. The maximum lifespan is defined as the maximum observed lifespan of a species, is determined mainly by biological factors. It is generally postulated to be around 125 years, while the observed oldest ages at death and the life expectancy are increasing today¹

Most living species have at least one upper limit on the number of times cells can divide. This is called the Hayflick limit, although number of cell divisions does not strictly control lifespan²

Maximum life span contrasts with mean life span (average life span or life expectancy). Mean life span varies with susceptibility to disease, accident, suicide and homicide, whereas maximum life span is determined by "rate of aging"³.

In the 1990s a long & healthy life was first used as an important dimension of human development index to rank countries. Therefore maximum lifespan and average life expectancy are important indicators of health of individual and at large of the society.

WHO defines Healthy Life Expectancy as the average number of years that a person can expect to live in "full health" by taking into account years lived in less than full health due to disease and/or injury. Again it says that Life Expectancy (LE) is the average number of years a person can expect to live, if in the future they experience the current age-specific mortality rates in the population.

There are variations in Life expectancy between different parts of world, mostly caused by differences in public health, medical care and diet. Within a region or country also difference in LE is observed due to different ethnicity and gender but it doesn't have a personalized approach.

Life expectancy is one of the factors in measuring the Human Development Index (HDI) of each nation, along with adult literacy, education, and standard of living. It is also used in describing the physical quality of life of an area or, for an individual, when determining the value of a life settlement, a life insurance policy sold for a cash asset.

Ayurveda the science of life is regarded as coexisting along with life & its evolution. Its fundamental principles have keys to the quest related to life & its various dimensions. Here we would discuss & analyze the principles of Ayurveda to extend the periphery of current biological understanding.

Life expectancy is an output of a life table. It summarizes the mortality pattern that prevails across all age groups such as children, adolescents, adults and the elderly. Ayurveda presents the concept of *Ayu praman* in the other hand which gives deeper insight to the physiological aspects and simultaneously indicating the opportunities to intervene/manage.

Ayu pramana assessment relies on constitutional factors which fore tells the maximum potential one could live, this could partially co relatable with maximum life span. But in contrast to maximum life span it has incorporated the basic frame

work that each individual has different potential owing to the biological variability within.

| Life Expectancy | Ayu Pramana |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Derived statistically from life table | <ul style="list-style-type: none"> Foretells the latent biological potential |
| <ul style="list-style-type: none"> Based on the mortality rate of a given time period | <ul style="list-style-type: none"> Based on internal variability of constitutional variability, reflecting as phenotypes |
| <ul style="list-style-type: none"> Mostly generalized, same for all | <ul style="list-style-type: none"> It is personalized |

We would be focusing on the following queries from the Ayurvedic descriptions

- Concept of *Ayu praman* vis a vis life span
- factors & mechanisms explaining the riddle of life span variability
- methods to assess the *Ayu pramana*
- features related to quality of life
- means to achieve the optimum biological potential of life span

Ayurvedic descriptions

Ayurveda by definition incorporates the different mode and quality of life along with predicting lifespan for individual & population. This could be done on the basis of examining certain features.

Pramana for all types of Ayu i.e. hita, ahita, sukha and *dukha* has been described in *Ayurveda*.¹ While defining *Ayurveda* only, it has been emphasized that *Ayu* (continuation/sustenance of life) is very dynamic & requires fine equilibrium between its constituents.²

Objective of this *Ayu* or life span is also directed to achieve *chatur varga* i.e. four accomplishments (*Dharma, Artha, Kaama, Moksha*)³

Biology of *Ayu praman* or lifespan and its principles

To understand variability seen in lifespan of individuals and address the question like whether length of life is fixed or not we need to examine the biological factors both internal & external to an

individual which regulate the length of life. *Ayurveda* has put forward the concept of *kaala & akaala mrityu*. As per this concept there are two factors which decides the span of life. First the natural potential of life which is respective to the concerned epoch. Second are a group of internal factors which one adopts in his / her lifestyle along with interactions with the environment.⁴

The maximum biological potential

For the current epoch 100 years is the average & expected lifespan but to achieve it one require following factors.⁵

- *Prakruti sampat* (sama prakriti, *kapha prakriti, pitta prakriti, vata prakriti*)
- Guna sampat (saara , samhanana)
- *Atma sampat (individuality)*⁶

Although the natural potential lifespan for this epoch is said to be 100yrs but we need to examine prakruti, guna sampat of individual & the regimen one follows, which usually comprising of⁷

1. *Ayatha bala aarambha*
2. *Ayatha agni abhyvahanana*
3. *Vishama sharira nyasa*
4. *Ati maithuna*
5. *Udeerna vega vinigraha*
6. *Vidhrya vega vidharanat*
7. *Visha-Vayu-Agni-upatapa*
8. *Abhighta-Ahara pratikara vivarjana*
9. *Jwaradi aatakkat mithyaupachara*

Hence we need to know regarding the *hetu* or factors which could influence maintenance of normal lifespan & what are the measures which if undertaken can extend *Ayupramana* or lifespan to its full potential. Deviation from right way of living & accordingly decline of *sharira poshana karma*.⁸ *Ayurjanaka hetu* & *Ayu vighata hetu*

Range of variability of the biological potential

The average lifespan is about 100 years but it is seen to be both in lower & higher side also. As per *Prakriti, Sara* etc (the internal factors) the lifespan is ranged from 80-120 years.⁹

As per *Chakrapani* if optimum *Prakriti* & *Bal* constituents an individual then he/she could extend lifespan beyond 100 years also. In case the lifespan is decreased or elongated/ enhanced the division of *Ayu* like *bala-madhya-vrudha* is also revised.

| Ayu pramana | Lifespan in years | Bala (childhood) | Madhya (mid-life adulthood) | Vridha (old age/senility) |
|---------------------------------------------|-------------------|------------------|-----------------------------|---------------------------|
| <i>Deerghayu</i> (maximum optimum lifespan) | 120 yrs | Upto 30 years | Till 72 yrs | Afterwards |
| <i>Alpayu</i> (low life span) | 80 yrs | Upto 25 yrs | Till 50 yrs | Afterwards |

Thus from the *lakshanas* (features) manifested we could also predict the lifespan

Methodology for examining subjects

In *swastha avastha*/ healthy scenario the biological variabilities regarding *Ayu pramana* has a great role to play like assessment for present & future health maintenance & preservation measures which in turn ensures productivity in life for individual and society.¹⁰

To comprehend the biological possibilities and their variability, factors as well as methods of examination have been described. This includes examination of new born¹¹, *Prakriti* analysis and other *parikshya bhava* like *sara*¹² etc, *Ayulakshana* & *pramana*¹³

In *Vikriti* (disease condition) assessment of severity and strength of disease based on clinical feature, sudden and abrupt appearance of certain unexplained features are described to assess the prognosis critically. It has been advised to the clinician to assess the life expectancy of

the patient before starting any treatment. Nature of disease, season, digestive power, age, general health, psyche, favorable diets and habits, constitution, medicines, and geographical locality should be assessed in the patient who seems to have good life expectancy¹⁵.

Methods to assess Ayu praman

There are many descriptions in Ayurveda texts related to *Ayu pramana* and the methods to assess it. Broadly in two ways we can assess the *Ayu pramana* (lifespan). First to assess the biological potential on the basis of constitutional features and secondly to predict the remaining life span after emergence of any disease.

The first approach encompasses two type of factors which influence the potential *Ayu pramana* like *Prakriti, Sara, Pramana* which are mostly constitutional factors & are independent of individual's interaction with the environment, but rest like *Satmya* & *Aharashakti* are partly constitutional tendencies and partly adaptable behaviors.

The second approach to assess the remaining lifespan is based on mostly *arista* which are reflected psychosomatically and can give definitive predictions of rest life days.

Now coming to the methods which can be adopted for these assessments are

- observation of anatomical features, physical and physiological tendencies and
- subjective interrogation

Thus the features to be observed are as follows-

1. *Deha pramana* (anatomical features)
2. *Prakriti* (individual constitutional features)
3. *Sara* (constitutional body tissue) features
4. *Satmya* (suitability / adaptability)
5. *Ahara shakti* (digestive capacity)
6. *Lakshna* (signs & symptoms)
7. *Arista* (abnormal signs)

1. *Deha pramana*

Observations are to be made regarding symmetry, proportion, bulk/built and integrity of the body parts¹⁶

Details in **annexure I** : Table No 1 List of body parts and their aspects to be observed for assessment of *Ayu pramana* as per *Sushruta Samhita*

2. *Prakriti*

The *Prakriti* type of an individual holds the clue for his/her biological potential of lifespan.

As per *Charaka Samhita* the Individual with *Sama Prakriti* has highest potential for longer life

Then *Kapha, Pitta* and *Vata prakritis* are having less potential (because of declining *bal/strength* of their *prakriti* type)¹⁷

3. *Sara*

Sara of an individual is vital factor to decide the life expectancy which has a decreasing order from *Satva sara* towards *Twak sara*. *Satva Sara* has the maximum potential for a long healthy life and *Twak sara* individual would have the least comparatively. As per *Charaka* the individual with *sarva sara* would have the maximum longevity, but *Twak sara, Mamsa Sara, Asthi sara* and *Majja sara* would also live for long in comparison to others. *Sara* can be examined by observing the features the *sara* whether present in the individual.¹⁸ Details of *Sara pariksha* is given in the Annexure II.

4. *Satmya*

Satmya is the adaptability or suitability related to an individual, it can be related with *Ahara* (diet), the *Rasa* (taste), *Ritu* (seasons) etc. *Charaka Samhita* says that any individual with suitability to all the six *rasa, ghrita, kshira, taila, mamsa rasa* are strong, enduring and long lived. On the contrary those individuals suited to *ruksha ahara*, single *rasa* are usually weak, with less endurance and not live longer. Those with mixed suitability have medium strength. *Satmya* can be examined by observing the suitability to diet, its constituents, weather, places¹⁹, etc.

5. *Ahara shakti*

Ahara or diet has a vital role in maintaining strength and longevity. Its constituents, amount and individual's digestive capacity & appetite are the factors which result for optimum utilization of diet for maintaining quality life and longevity.²⁰

6. *Lakshana*²¹

Specific features (signs or symptoms) are indicative of longevity. The details are enlisted in table no 2 (Annexure II)

Descriptions related to quality of Life

Ayurveda has not only described about the lifespan and its measure but also it has elaborately described regarding the quality of life which is termed as *Sukhayu*, *Dukhayu*, *Hitayu* and *Ahitayu*.¹

Sukhayu and *Hitayu* are indicative of the quality of life the former is self-oriented approach whereas the later one encompasses the altruistic & benevolent characteristics. Those having the features opposite to these approaches are termed as *Dukhayu* and *Ahitayu*. Basis of these Ayu qualitative types of life are achieved/lived because of the route one takes in pursuit of happiness. Ayurveda has put a caution for all, not to pursue the easy going and instantly satisfying approach which may lead to later complications. But the one with right knowledge and attitudes would not be allured by instant appeasement and stick to the righteous regimen which ultimately prevent genesis of any pathology and pacify the diseases if any.

Means to prevent diseases/akaala mrityu(untimely death) & achieve the full biological potential of Ayu praman

Ayurveda texts states that one who abides the *Swasthviritta* norms would continue till the age of hundred years²² Who ever wishes for happiness, wants to prevent diseases and pacify suffering must abide the *swasthviritta* (recommended regimen for healthy life)²³

Recommendations for achieving *Deergha Ayu* (healthy long life)

- *Swasthavritta* palan (abiding the recommended healthy lifestyle)
- *Kaale sodhana* (undergoing the purification procedures of *Ayurveda / panchakrama*)

- *Rasayan prayoga* (use of rejuvenating drugs/habits/lifestyle)
- *Prajna aparadha tyaga* (proper use of intellect & abstaining from willful indulgence with unhealthy practices)
- *Indriya upashama* (optimum regulations senses)
- *Desha kaala atma vijnana sadvrutta anuvartanam*

All these leads to maintenance of *prakrita avastha* (normalcy) of *dhatu* (body tissues) and their enhancement (both quality & quantity wise) which ultimately slows down the ageing (*jara mandyata*)

List of Ayushya kara upachara

Rasayana (rejuvenation drugs) consolidates the *vaya* (slows aging process), enhances *Medha* (intellect) & *Ayu* (lifespan) and augments *Bal* (strength/immunity), defeats diseases²⁴

Vayasthapan means consolidate *vaya* establishing the features of the biological age over the chronological age.²⁵ *Ayushkara* means increasing *Ayu* i.e. increasing the life span.²⁶

Mechanism of Rasayana Pharmacology for enhancing longevity

The *Rasayana* drugs preserves the homeostatic mechanisms of the system. The *Rasayana* behaviors strengthen the integrity of *Sharira* which in turn enhances the *Ayu* of individual.²⁷

These drugs are mostly *madhura in rasa*, enriches the *Rasa dhatu* both in quantity and quality which enhances the longevity.²⁸

Rasayanas can be categorized into *Dravyabhuta* and *Adravabhuta*

Adravabhuta Rasayana (Non pharmacological approaches)

Achara Rasayana is regarded as the *adravyabhuta* (non pharmacological) approach. These are sets of recommendations (related to lifestyle both physical & psychological) which if followed perfectly would render the optimum health & longevity without administration of any drugs²⁹

*Dravyabhuta rasayana*³⁰⁻⁴⁰
(Pharmacological approaches)

These are drugs with pharmacological properties rendering optimum health & longevity (on proper administration)

- *Brahma Rasayana*
- *Bhallataka Rasayana*
- *Eindra Rasayana*
- *Pippali Vardhaman Rasayanam*
- *Indrokta Rasayana*
- *Sarpi guda*
- *Mahanili tailam*
- *Bala tailam*
- *Eranda taila is Vayasthapana*
- *Guduchi triphaladi niruha vasti*
- *Amalaki, Vidari, Ikshu*
- *Amalaki*
- *Bilwamula kwatha*
- *Vachaghruta suvarna bilwachurna*
- *Kalyanaka sarpi*
- *Jivaniya dravya*
- *Vidangadi Ayushya Yoga*
- *Eladi Ayushya Yoga*

Ahara dravya (Dietary items) for longevity⁴¹⁻⁴⁷

There are dietary components which exerts effect on longivity such as

- *Shitodaka, paya, kshoudra & sarpi*
- *Kshira* is both *vayasthapan* and *ayushya*
- *Ghrita* is *Vayasthapana* and *Ayushya*
- *Yava* has *vayasthapana* property
- *Godhuma* has *Vayasthapana* property
- *Madhura rasa* when becomes *satmya* then it exerts *Ayushya* effect.

Adequate amount of diet is too important for health & longevity failing which inadequate or excess amount of diet has many repercussions ill effects on health & longevity.

Aayushya (Daily regimen for longevity⁴⁸⁻⁵²⁾

1. *Anajanam* (medicated corylium application as per season & time)
2. *Brahmacharya* (Righteous behaviour / lifestyle)
3. *Snana* (regular cleanliness including bathing)
4. *Swedan* (sudation as per prakriti and season & timing)
5. *Prathana* (psychological serenity, openness, prayer)

Anayushya⁵³⁻⁵⁶ (Deleterious factors for longevity)

1. *Ritumati maithunam* (physical indulgence during menstrual periods)
2. *Padatra adharanam* (exposing the soles to harsh conditions)
3. *Alpahaara* (Inadequate amount of diet leads to loss of strength, lusture, nourishment, not providing satiety, results in udavarta, and diminishes Ayu)

CONCLUSION

Curiosity regarding life expectancy is continuing since antiquity and still it entices the scientific community to explore the biological potential, influencing factors & whether intervention could be made to achieve maximum of it. Analyzing the Ayurvedic biological framework provides very timely relevant points to follow for betterment of health, economy of an individual, society, nation & mankind at large. The author suggests that adopting

Ayurvedic methods to assess *Ayu pramana* would not only add more precision rather personalize the approach.

In current scenario when lifestyle is driven by many contradictory impulsion/attractions *Ayurveda* knowledge of *Ayu janak* (enhancing, enriching life factors) & *Ayu vighata hetus* (factors deleterious to life) provides a better understanding to keep balance of the beneficial habits/ preferences for individual & higher levels.

Current alarming conditions of fore coming challenge geriatric care have a solution within principles of *Ayurveda* if translated into practice timely. The concept of *Rasayana* provides a novel way to prevent senility related problems & overall improve quality of the population as a whole. Biogerontology research could derive many new future direction from the *Ayurvedic* principles.

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