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Research Article

DEVELOPMENT & STANDARDIZATION OF 'HEALTH SCALE-19 (HS-19)' ON THE BASIS OF DHATU-SAMYATA

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ABSTRACT

Going through individual peculiarities of all the subjects is the prime requirement for carrying out any research in the field of Ayurveda. For practical accomplishment of this need and to fulfill the aim of individualized mass, Standardization of research materials has become essential. If it's a case of healthy volunteers, categorization becomes somewhat more complex. 'Health' is merely interpreted as an absence of a disease, but in Ayurveda, it is narrated as a definite condition of 'Dhatu-samyata'. Acharya Charaka has narrated its traits in a precise manner. These features designate Health at four different levels viz. Physical, Psychological, Sensorial and Spiritual. Different Health-scales and criteria of modern science contain questionnaire related with Physical capacity, effect of disease on routine works and symptoms related to recovery from the disease. Though being scientific and trustworthy, these scales still seem lacking in spotting some of the aspects like Sensorial & Spiritual Health. So, to develop and standardize a criterion for assessment of Complete Health (*DHATUSAMYATA*) in healthy volunteers, this literary exercise of establishing 'Health Scale-19', has been done.

Keywords: Ayurveda, Dhatu-samyata, Health, Sensorial Health, Spiritual Health, Health scales, Standardization.

INTRODUCTION

When material of research work is a human being, it necessitates lots of concern to avoid possible research lacunas. Such a study may be massive when oriented to modern science, but when it is aimed to research in the field of *Ayurveda*, it must have touch of individualization¹ as it is advocated by the ancient scientists of *Ayurveda*. For carrying out any research work, it is practically not feasible to go through individual peculiarities of all the candidates. Thus, to fulfill the aim of individualized mass, Standardization of research materials is essential. In the case of patients, categorization may be done as per the signs and symptoms of the related disease narrated in classics, but when it's a case of healthy volunteers, categorization becomes somewhat difficult. *Ayurvedic* classics accommodate sound literature regarding Health. For thorough maintenance of health, some modalities like *Swasthavritta*, *Sadvritta* and *Rasayana* have also been narrated in detail. Unfortunately, this actual concept of health has been vanished and Health is being interpreted only as an antonym of Disease. In actual, Health is not merely an absence of a disease rather much more.

Absolute concept of HEALTH:

The definition of Health given by *Acharya Sushruta*² is well accepted and is the base of the current definition of Health given by W.H.O. This definition can be utilized for development of few criteria to assess the status of Health of an individual. Definition of *Sushruta Samhita* says, when *Dosha*, *Dhatu*, *Mala* & *Agni* can perform their works without any difficulty and, along with that, the soul, sense organs & mind are also in a pleasant condition then the person may be eligible for the nomenclature of 'Swastha' i.e. healthy. Amongst all the classics, *Acharya Charaka* has narrated the traits of a 'Swastha' (Healthy) person in a comprehensive and sensible manner. He has narrated *Dhatu-samyata* as 'Karya' i.e. one of the 10 aspects to be investigated for better development of intellect. Here, 'Karya' means balanced state of all body components. This is characterized by *Vikaropashama* (subsidence of disease). It may be ensured by *Rugupashamana* (subsidence of pain), *Swaravarnayoga* (having original quality of voice & complexion), *Shareeropachaya* (appropriate nourishment of the body) etc characteristics³ This is one of the best descriptions defining Health which includes almost all the

linked aspects and levels i.e. physical, sensorial, psychological and spiritual levels of Health. This is why these features have been accepted as the characteristics of a healthy person.

Different scales and criteria of modern science, regarding Health, contain questionnaire related with Physical capacity, effect of disease on routine works and symptoms related to recovery from the disease. Some of the criteria, like GHQ-12, indicate the status of mental health of a person. Some other scales are also there. Though being scientific and trustworthy, all these scales still fall short to spot some of the important aspects like Health at Sensorial & Spiritual levels. So, to assess the different aspects of Health, in a diverse way, this literary exercise has become inevitable.

• Aims & Objectives

1. To develop and standardize a criterion for assessment of Complete Health (*DHATUSAMYATA*) in healthy volunteers as well as cured patients.

MATERIALS AND METHODS

Materials

Only textual materials have been referred for present work. The main text used for this study is *Charaka Samhita*. The other classics used are *Sushruta Samhita*, *Kashyapa Samhita* and available commentaries on these classical texts. Some research articles and related websites have also been referred.

Methods

Facts related to the concept of Health and its assessment in ancient *Ayurvedic* texts and modern literature have been collected, compiled and analyzed to build the base of the present study.

• Different aspects of Health

Health possesses equal importance to the diseases in the classics of *Ayurveda*. That is why it has shared almost half portion of the ultimate goal of this science. Perception of 'Health' in *Ayurveda* is quite unique. All over goodness of *Shareera*(body), *Mana*(mind), *Buddhi*(intellect) and *Indriyas*(sense organs) is known as Complete Health. *Acharya Charaka* has described the importance of keen observation in determination of different stages of diseases as well as of healthy status⁴. A wise physician should closely observe the subtleties of aggravated, normal and diminished *Doshas*, power of digestion, strength, mental faculties and diseases. Having close acquaintance of these diverse states, helps physician to set down such remedies as would help in attainment of four-fold welfare.

In the present era, the tripartite conceptualization of health into physical, mental and social components has tended to dominate most frameworks for general health. Physical health may be parsed into mobility and ambulation, limitations on ability to do usual activities etc. Mental health could be parsed into cognitive function, emotional health & its limits on functioning and so forth. Social health may involve abilities to interact with friends and family, intimacy, spirituality and aspects of the social and physical environment in which the person lives.

While examining the status of Health at the anvil of science, the characteristics of a 'Healthy' person can be divided under other three different labels i.e. strength of *Deha* (body), *Agni* (power of digestion) & *Chetas* (psyche). Above mentioned

signs and symptoms may be divided in these three categories accordingly:

- 1) **Dehabala** – *Vata-Mootra-Purisha-Retas mukti* (proper expulsion of flatus, urine, stool and semen), *Shareeropachaya* (proper nourishment of body), *Swara-Varna yoga*(regaining the actual status of voice & complexion), *Balavruddhi* (extension of bodily strength up to its previous level).
- 2) **Agnibala** – *Aaharakale ruchi*(sense of hunger at the meal time), *Abhyavaharya-abhilasha* (desire for food), *Kaale-Samyak Jaranam* (timely & proper digestion of the food taken).
- 3) **Chetasbala** – *Sarvakaraihi mano-buddhi-indriyanam avyapattih* (completely non-tumbled condition of mind, intellect & senses), *Yathakalo nidralabha* (timely sleep), *Sukhena pratibodhanam* (feeling of being at ease at the time of awakening), *Vaikarikanam Swapnanam adarshanam* (non-appearance of abnormal dreams).

On the basis of these three types of strength, the dose of medicine gets determined. Hence, knowledge of the status of Health is crucial not only for the maintenance of Health but also for treating the diseases.

Many criteria are available for evaluation of particular diseases, but no one is established to assess Health as it is. Subsequent to the Health Insurance Experiment, researchers in Boston had to face the same problem. They wished to demonstrate a general model for evaluating the outcomes of medical care. The general health questionnaire they wanted to use was too long. Ware and colleagues developed a short form of that questionnaire using 36 questions to cover 8 scales:

- 1) Physical function (PF)
- 2) Role function as limited by physical health (RP)
- 3) Bodily pain (BP)
- 4) Social functioning (SF)
- 5) Mental health (MH)
- 6) Role function as limited by emotional health (RE)
- 7) Vitality (VT)
- 8) General health perception (GH)

This was formally known as the Medical Outcome Study Short Form – 36, or “MOS Short Form-36”, and now is just the “SF-36”⁵ for short. This version is now used under the name SF-36v2™ (Ware,2000)⁶. It is perhaps the most widely used health status profile in the world which was generated to comprehensively assess multiple dimensions of health generally following the WHO conceptualization. The aim of this scale was to measure health-related quality of life. It was prepared for advancement of Social Science. Hence, the objectives of this scale are quite different than motto of *Ayurveda*. Therefore, the method of *Ayurveda* should be adopted to develop a scale for the measurement of different aspects of total Health.

Development of 'Health Scale-19' (HS-19) for four fold evaluation of Health i.e. Dhatusamyaya

For carrying out any research in *Ayurveda*, Health must be evaluated at four different levels viz. Physical, Psychological, Sensorial and Spiritual. Including normalcy of all Anatomical structures, if all the systems and organs can perform their natural functions with ease then the person can be called as Healthy at Physical level. Similarly, pleasure of Mind and

sense organs is also a sign of good health. If all Psychological traits appear normal then the person may be labeled as Healthy at Psychological level while appropriate working of every sense organ, without any difficulty or deterioration, indicates to be healthy at Sensorial level. Presumption of Health at Spiritual level is an austere task. Intellect may be taken as a representative of Spirit and hence, health at this level may be presumed by its function i.e. the power of taking decisions.

In *Charaka Samhita*⁷, *Acharya Charaka* has narrated *Dhatusamyā* as to be achieved at the end of treatment. So, the very first characteristic is *Rugupashamanam* i.e. subsidence of

previous disease which, in the reference to context, has not been given due importance here.

If a person is ill, his pain & debility reflect in his appearance and performance. Pain can be assumed keenly through Voice and complexion of the person. After medication, when pain settles down and debility dies out then the person regains his natural state of energy and hence the original quality of voice and complexion may be attained again. In the same way, all other features may be elaborated and their frequency, intensity and duration may be divided in grades, as follows:

→ **Physiological features**

1) **Rugupashamanam**

Gd.	Lakshana
0	Presence of any kind of disease in body and mind, routine works cannot be done at all
1	Presence of any kind of disease in body and / or mind, hampering routine works to some extent
2	Presence of any kind of disease in body and / or mind, not hampering routine works
3	Absence of any kind of disease in body and mind

2) **Vata-mukti**

Gd.	Lakshana
0	Can't pass flatus or passes with great difficulty, with great sound & strongly foul smell
1	Difficulty in passing flatus, frequency altered, with sound & may be foul smelling
2	Slightly altered frequency with mild sound & slight odor
3	Easily passes flatus, less frequency, without sound & much odor

3) **Mootra-mukti**

Gd.	Lakshana
0	Great difficulty in passing urine with altered consistency and color of urine
1	Difficulty in passing urine, consistency and color of urine may or may not be altered
2	Altered frequency without difficulty
3	Easily, in normal routine frequency

4) **Pureesha-mukti**

Gd.	Lakshana
0	Passes stool only with purgatives
1	Passing of stool is depended on smoking, tea, walking etc.
2	Passes stool without any help but irregularly and without satisfaction
3	Passes stool easily(without any help) and regularly with satisfaction

5) **Shareeropachaya**

Gd.	Lakshana
0	Severe alteration in body built
1	Moderate alteration in body built
2	Mild alteration in body built
3	Normal body built as per Prakriti

6) **Varna-yoga**

Gd.	Lakshana
0	Totally altered Varna on most of the parts of the body
1	Completely altered Varna at some part of the body with or without moderately altered body colour
2	Moderately altered body colour
3	Varna as per Prakriti or Slightly altered Varna according to age, race etc

7) *Balavrihdhdi*

Gd.	Lakshana	
0	Severe loss of Bala and efficiency decreased > 50%	
1	Bala reduced and efficiency decreased up to 50%	
2	Bala slightly reduced but efficiency not altered much (< 25%)	
3	Bala as per Prakriti or Bala slightly reduced due to age, race etc	

8) *Aaharakale ruchih*

Gd.	Lakshana	
0	Doesn't feel hunger	
1	Feels hunger at Aaharakala but cannot take food	
2	Feels hunger at Aaharakala but cannot eat in proper quantity	
3	Feels of hunger at Aaharakala and takes food in proper quantity	

9) *Retas-mukti*

Gd.	Lakshana	
0	Premature / Delayed ejaculation with severe pain / No ejaculation	
1	Premature / delayed ejaculation, may be with mild pain	
2	Sometimes Premature / Delayed ejaculation with or without pain	
3	Timely ejaculation without pain	

Or

Aartava-mukti

Gd.	Lakshana	
0	Irregular, severe pain, least / heavy bleeding	
1	Severe alteration in any one parameter or moderate change in all the parameters	
2	Mild to moderate alteration in any of the parameters	
3	Regular, mild pain, moderate amount	

10) *Abhyavaharya-abhilasha*

Gd.	Lakshana	
0	Unwilling towards food but can take it without difficulty	
1	Willing towards most liking food and not to the other	
2	Willing towards some specific food or Rasavishesha	
3	Equal willing towards all foods	

11) *Kale jaranam*

Gd.	Lakshana	
0	Presence of Samyak jarana lakshanas >10 hrs	
1	Presence of Samyak jarana lakshanas within 8-10 hrs	
2	Presence of Samyak jarana lakshanas within 6-8 hrs	
3	Presence of Samyak jarana lakshanas within 6 hrs	

12) *Samyak jaranam*

Gd.	Lakshana	
0	Absence of Samyak jarana lakshanas (< 25%)	
1	Presence of some of the Samyak jarana lakshanas (25 to 50 %)	
2	Presence of many of the Samyak jarana lakshanas (50 to 90 %)	
3	Presence of all lakshanas of Samyak jarana (> 90%)	

→ *Psychological features*

13) *Sarvakaraihi Mano-avyapattih*

Gd.	Lakshana	
0	Not potent to perform >3 of chintanadi karmas satisfactorily	
1	Less potent to perform 2 or 3 chintanadi karmas satisfactorily	
2	Less potent to perform any one of chintanadi karmas satisfactorily	
3	Potent enough to perform all chintanadi karmas satisfactorily	

14) *Vaikarikanam swapnanam adarshanam*

Gd.	Lakshana	
0	Regularly abnormal and disease related dreams disturbing sleep	
1	Occasionally abnormal and disease related dreams but not disturbing sleep	
2	Occasionally abnormal dreams may or may not disturb sleep	
3	Rarely abnormal or disease related dreams but not disturbing sleep	

15) *Sukhen pratibodhanam*

Gd.	Lakshana	
0	Mostly feeling distress at both Physical & Mental levels after awakening at morning	
1	Feeling of discomfort at Physical level and dissatisfaction at mental level after awakening at morning	
2	Feeling of dissatisfaction without any complaint at physical level after awakening at morning	
3	Total satisfaction and feeling of well being at Physical & mental levels after awakening at morning	

16) *Yathakalo Nidralabhah (adequate sleep at night)*

Gd.	Lakshana	
0	Requires >1 hour to sleep after going to bed in any condition	
1	Requires 30 minutes to 1 hour to sleep after going to bed in any condition	
2	Requires 10 to 30 minutes to sleep after going to bed in any condition	
3	Requires <10 minutes to sleep after going to bed in any condition	

→ *Sensorial features*

17) *Swara-yoga*

Gd.	Lakshana	
0	Quality & loudness of voice altered	
1	Loudness of voice altered	
2	Quality of voice altered	
3	Quality & loudness of voice as per Prakriti	

18) *Indriyanam –avyapattih*

Gd.	Lakshana	
0	Inability to percept vishayas by two or more indriyas	
1	Inability to percept vishayas by one indriya	
2	Difficulty in perception of vishayas by one or more indriya	
3	Normal perception of vishayas by all the indriyas	

→ *Spiritual features*

19) *Sarvakaraihi Buddhi-avyapattih*

Gd.	Lakshana	
0	Cannot take decision anyhow	
1	Feels greatly bewildered and can take decision only after others' help	
2	Feels confusion while taking decision but finally judges firmly	
3	Can take decision very well	

DISCUSSION

Health is a very peculiar condition. The view of *Ayurveda* towards Health is quite different than that of modern science. Manifestation of disease may be so subtle that it may intermingle with the superficial picture of Health. So, to standardize the status of Health, this line difference between Health & disease must be recognized.

As per the theory of *Shadvidha Kriyakalas*, it is very clear that the minute appearance of the disease starts very early from its actual manifestation. This particular stage is so delicate that even a minute interruption in the functions of either of the

Physique, Psyche, Sensory organs and Spirit may disturb the status of Health. So, the actual harm to Health begins from this very point. Hence, Healthy volunteers should be selected for research before they come across this stage. Moreover, also while checking the status of Health in a cured patient, this stage is to be checked for verifying complete remission of the disease.

SF-36 is described as one of the Health-related quality measurements. Health at this level merely means the capacity of performing all routine activities with ease. Some questions regarding mental health and social behavior are also accommodated which add to Physical Health. Even after

touching different aspects, it seems that, SF-36 is lacking somewhere to cover all the minute observations of HS-19. On the other hand, SF-36 accommodates questions regarding Social behavior, in which the other scale is deficient. But, after all, social behavior depends on Physical & Psychological

health and hence can be considered as a consequence of them. This might be the reason behind lack of these types of questions in HS-19. Comparison of both the scales is as below:

Table 1: Comparison of the parameters included in SF-36 with that of the HS-19 criteria

No.	SF-36 scale	HS-19 criteria	No. of Que. in HS-19 criteria
1	Physical function (PF) e.g. climbing stairs	--	00
2	Role function as limited by physical health (RP) e.g. having difficulty	--	00
3	Bodily pain (BP) e.g. pain interference	<i>Rugupashamanam</i>	01
4	Social functioning (SF) e.g. social time / extent	--	00
5	Mental health (MH) e.g. nervous / happy	<i>Sarvakaraih Mano-Avyapatti, Nidralabho yathakalam, Sukhena pratibodhanam, Vaikarikanam swapnanam adarshanam</i>	04
6	Role function as limited by emotional health (RE) e.g. less accomplished	--	
7	Vitality (VT) e.g. full of energy / tired	<i>Balavridhi</i>	01
8	General health perception (GH) e.g. sick easier or health excellent	<i>Shareeropachaya</i> --	01

As shown in table-2, all the 8 facets used in SF-36, can be divided under three headings used in HS-19, viz. *Dehabala, Agnibala & Chetasbala*. Hence, it can be said that HS-19

contains most of the aspects of SF-36 and SF-36 is like a small part of the concept of *Dhatusamyamya*.

Table 2: Comparison of the categories of the parameters used in SF-36 & HS-19

No.	Scale used in SF-36	Category of the parameters used in HS-19
1	Physical function (PF)	<i>Dehabala</i> (Physical Health)
2	Role function as limited by physical health (RP)	
3	Bodily pain (BP)	
4	Vitality (VT)	<i>Dehabala + Chetas bala</i> (Physio-psychological Health)
5	General health perception (GH)	
6	Social functioning (SF)	--
7	Mental health (MH)	<i>Chetas bala</i> (Psychological Health)
8	Role function as limited by emotional health (RE)	

SF-36 was actually prepared to check the Health status of the members of Health Insurance Experiment. Here, the quality of life had been emphasized. The main aim was to ensure their fitness for insurance. In this way, the basic need of its creation was quite different than the idea of Health in *Ayurveda*. Moreover, the questionnaire was designed to verify the Health status mostly during last 4 weeks whereas the concept of Health in *Ayurveda* extends up to larger limits. Furthermore, the picture of Health revealed by both the methods is quite unlike. SF-36 makes known the comparative position of Health. It merely checks whether the physical or mental health has been interrupted during last 4 weeks or not, so that the policy may be decided undoubtedly. Health analysis in

Ayurveda is done in a totally diverse way. This method checks either the percentage of Health at four different levels in Healthy volunteers or the percentage of recovered Health in the cured patients. Hence, from method & means to the motto, everything is varied in regards of these two.

HS - 19 evaluates Total Health in four different but equally essential categories. Total score of the scale is taken as 100% for 19 questions, among which are 9, 1, 2 and 1 questions are allotted to Physical, Psychological, Sensorial and Spiritual levels, respectively. In addition, 4 & 1 questions are related to Physio-psychological and Physio-psycho-sensorial level, correspondingly. Thus, total number of questions at all the levels will be as under:

Table 3: Distribution of questions in HS-19

No.	Level of Health	No. of Que.	Gained No.	% of Health
1.	Physiological	14		
2.	Psychological -Male	07		

	-Female	06		
3.	Sensorial -Male	03		
	-Female	02		
4.	Spiritual	01		

Maximum 3 marks are given to each answer and then total percentage of answers is calculated at each level. As per this calculation, the final assessment of this outcome will be as below:

Table 4: Criteria for Assessment

Dhatusamya lakshanas	Evaluation of Health
75-100% at all the 4 levels	Completely healthy
75-100% at all the 2 or 3 levels	Healthy
50-75% at all the 4 levels	Partially Healthy

After having a superficial look over Table no. 3, one may get confused that how all the four levels may have equal importance as the no. of questions distributed to each of them is different. Actually, each level represents a different stage of Health and hence has been allotted total 100% of scores. So in final scoring, each has its own place and importance.

• **Suggestions**

The ultimate aim of *Chikitsa* (treatment) is *Dhatusamya* i.e. completely balanced condition of body, mind, senses and spirit. From the aspect of practical utility, it is chiefly related to body for most of its part. For the particular use of this scale in assessment of healthy volunteers and cured patients, the above mentioned pattern of distributing questions is alright, but if the purpose of research especially includes aspects of senses or spirit, then the number of questions allotted to Sensory and Spiritual levels should be changed. Especially in the case of Spiritual level, the number should be increased as only a single question is not appropriate for statistical analysis of the study. The number of questions may be changed as per the need of the research.

Among all the features, *Rug-upashamana* should be included in the cases of cured patients only and if otherwise should be excluded.

Questions allotted to the three features regarding completely non-deteriorated condition of *Mana*, *Indreeya* and *Buddhi*, may be multiplied by elaborating their basic concepts.

CONCLUSION

Characteristics of *Dhatusamya*, accommodated in ‘Health Scale-19’ depict the status of Health of a person. Through this scale, Health can be checked at Physical, Psychological, Sensorial and Spiritual levels, which all together indicate Complete Health of the person. Hence, ‘HS-19’ is a valuable criterion to check the status of Health in individuals. This particular scale may be used to select healthy volunteers for the research purpose in *Ayurveda*. It can also be used to ascertain the status of Health in cured patients. Thus, it may be

useful either in the beginning (for Healthy volunteers) or at the end (for cured patients) of many research works.

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