"A CONCEPTUAL STUDY OF PSYCHOSOMATIC DISORDERS - AN AYURVEDIC PERSPECTIVE AND ASSESSMENT OF SATHVA IN SPECIFIC PSYCHOSOMATIC DISORDERS"

By

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Dissertation submitted to the
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In the partial fulfillment of the requirements for the degree of
DOCTOR OF MEDICINE (AYURVEDA)
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I hereby declare that this Dissertation entitled ***"A conceptual study of Psychosomatic disorders - An Ayurvedic perspective and assessment of Sathva in specific Psychosomatic disorders"*** is a bonafide and genuine research work carried out by me under the guidance of **Dr. V. Rajendra,** Professor, Department of Post Graduate Studies in Ayurveda Siddhanta, Government Ayurveda Medical College, Mysore.

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ABSTRACT

Background

Psychological factors are posing a serious challenge to the human civilization in recent years. The importance of dealing with psychological factors in relation to physical disease is increasing in the contemporary science. In Ayurveda, the basic approach to health is psychosomatic in nature, which shows the importance given to psychological factors along with the physical entities. There is vast literature in Ayurveda regarding the interrelationship of mind and body. This literature is scattered and needs to be compiled and conceptualized. Considering these factors this study is intended to compile and develop a comprehensive account of psychosomatic disorders from Ayurvedic perspective.

Objectives of the study

- To compile the available literature on psychosomatic disorders and conceptualize psychosomatic disorders from Ayurvedic perspective.
- To assess the role of sathvabala of the individuals in specific psychosomatic disorders through an observational study.

Methods

The study consisted of a conceptual part and an observational part. In the conceptual part, relevant literature about the interrelationship of mind and body was collected, conceptualized and analyzed from Ayurvedic perspective. In observational part, Sathvabala of the patients of four psychosomatic disorders (Essential hypertension, Irritable bowel syndrome, Migraine and Psoriasis) was assessed by administering the sathva assessment questionnaire (Annexure I) to know their grades of sathva.

Inclusion criteria

Individuals between 16-70 years of age of both genders were selected for the study.

Exclusion criteria

Individuals with systemic and established psychiatric illnesses were selected for the study.

Assessment criteria

The selected individuals were further given the sathva assessment questionnaire and were graded as pravara sathva, pravara madhyama sathva, avara madhyama sathva and avara sathva.

Then they were analyzed using descriptive statistics, frequencies, Chi square test, cross tabulations and one-way ANOVA

Results and Conclusion

Out of 200 patients, 75(37.5.00%) patients had avara sathva, 65(32.5.00%) patients had avara madhyama sathva which suggests that persons with psychosomatic disorders will have low stress threshold to the diseases.

Keywords:

- Manas
- Sharira
- psychosomatic
- Sathvabala

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LIST OF ABBREVIATIONS

A.H	-	Ashtanga Hrudaya
A.S	-	Ashtanga Sangraha
ACTH	-	Adreno -corticotrophic hormone
CRF	-	Corticotrophic releasing factor
C.S	-	Charaka Samhita
Ch Su	-	Charaka Samhita Sutrasthana
EMS	-	Emotional motor system
EHTN	-	Essential Hypertension
GI	-	Gastrointestinal
GABA	-	Gamma amino butyric acid
HTN	-	Hypertension
IBS	-	Irritable bowel syndrome
IL	-	Interleukin
MGR	-	Migraine
NK	-	Natural killer cells
PSR	-	Psoriasis
S.S	-	Sushruta Samhita
Su U	-	Sushruta Samhita Uttaratantra
TH 1	-	T-Helper cells 1
TH2	-	T-Helper cells 2

INTRODUCTION

The history of psychosomatic problems is as old as the human civilization. Throughout the history of medicine a major proportion of patients are found to be suffering from psychosomatic disorders. In today's practice of medicine, the individuals suffering from psychosomatic disorders constitute a major proportion of ailing mankind.

Psychosomatic disorder is one in which physical symptoms are caused or exacerbated by psychological factors like stress, anxiety and depression. Psychosomatic medicine is based upon the observation that psychological and socio-economical stressors may play a role in the predisposition, onset, course and response to treatment of some physiological changes and biomedical disorders.

In Ayurvedic classical literature the basic approach to the concept of health is essentially psychosomatic in nature. It is related to the state of equilibrium of physiobiochemical factors namely *dosha, agni, dhatu, mala* along with a state of well being of mental and spiritual faculties[1]. When the *sharirika* and *manasika doshas* are in the state of equipoise, the health of the body and mind are good but when they become disturbed, diseases may occur. At a later time the *sharirika doshas* may influence *manasika doshas* and cause an abnormality of *Manas*. In the same way there is also an influence of *manasika doshas* on the body.

Stress is said to be the potent cause for the psychosomatic disorders. There are many strategies or approaches for handling stressful situations, which vary greatly from person to person. Ayurveda explains about the *Sathvabala* which determines the stress threshold of an individual to all stressors including the disease. *Sathvabala* helps in understanding the response to disease and adopting suitable management

strategies. Hence it is absolutely essential for an attending physician to know the sathvabala of a person before deciding the treatment modalities.

Psychological factors have now posed a serious challenge to the human civilization. The psychologists and psychiatrists are recognising the importance of dealing with psychological factors in relation to physical disease. In Ayurveda, the literature of the interrelationship between body and mind is scattered and needs to be compiled and conceptualized. In this background it was felt necessary to compile, conceptualize and analyze the literature on psychosomatic concepts from an Ayurvedic perspective. Hence the current study was undertaken on *"A conceptual study of Psychosomatic disorders - An Ayurvedic perspective and assessment of Sathva in specific Psychosomatic disorders"*

The study consists of two parts. First part of the study consists of the compilation and conceptualization of a comprehensive account of psychosomatic disorders from different classical Ayurvedic texts, *Vedas, Upanishads* and different Indian philosophical literature.

The second part of the study was intended to assess the *Sathvabala* of an individual for the practical application in psychosomatic disorders. Even though, almost all the disorders are psychosomatic in nature Essential Hypertension (EHTN), Irritable Bowel Syndrome (IBS), Migraine (MGR) & Psoriasis (PSR) are the most common ones and can be considered as representative psychosomatic disorders. In global population about 35% of EHTN, 20% of IBS, 16-17% of MGR and 1-2% of PSR cases are found[2].

The study was conducted in 200 patients, which constituted 50 cases from each of the above mentioned four psychosomatic disorders. *Sathvabala* of them was

assessed by administering the *sathva* assessment questionnaire to know their grades of *sathva.*

The results of the study were observed and statistically analysed using descriptive statistics, frequencies, Chi- Square test, Cross tabulations and one-way ANOVA tests.

In the present study it was observed and recorded that the persons with psychosomatic disorders have low to moderate stress threshold (*avara to avara madhyama Sathvabala)* which was statistically significant.

The conclusions drawn from the study for the psychosomatic disorders is preliminary and needs to be confirmed through larger samples. It is presented before the learned scholars and researchers with a hope that it will be followed up with further studies on various psychological and medical setups leading to further refinements.

OBJECTIVES OF THE STUDY

- To compile the available literature on psychosomatic disorders and conceptualize psychosomatic disorders from Ayurvedic perspective.
- To assess the role of sathvabala of the individuals in specific psychosomatic disorders through an observational study.

Historical review

The literature on the relation between mind and body can be traced from the earliest documented literature of mankind namely Vedic literature.

There are references in Vedas regarding the relationship of *Atma, Manas* and *Indriyas* which is component of the physical existence. In *Rigveda*, it is said that *Mana* acts as a tool between *Atma* and *Indriyas* in the origin of knowledge. The *Atma* is supreme and *Mana*, *Indriyas* are subordinate to it[3]. In *Yajurveda* it is said that *Manas* is the supreme power, which is associated for all the actions to carry out[4].

Brahmanas, which constitute the later part of '*shrutis'* postulated that *Manas* regulates the organs of sense and sense faculties and the sense organs are dependent on *Manas* for perceiving their sense objects. *Shatapata brahmana* has used *Manas* as synonym with *pranavayu*[5].

Taittariya Upanishad describe the human existence in 5 layers of sheath *(Kosha)* of which the *Annamaya kosha* is the most gross and physical. The *Manomaya kosha* forms the third and the middle[6].

Katopanishad has beautifully explained about the strength of *Manas* by quoting the simile which states as;

Self is the lord of chariot and body verily the chariot; intellect is charioteer and Manas its rein[7].

According to *Chandogya Upanishad, Mana* is formed from *ahara.* The *shuddha ahara* leads to *sathva shuddi*[8].

Darshanas gives an elaborate and clear outlook about the relationship between *Manas* and *Sharira*. Particularly the *Sankhya darshana* and *Vaisheshika darshanas* discuss the relationship between mind and body in the background of human existence. *Sankhya darshana* speaks about the order of creation where in *Manas* and

Sharira have common origin from *ahankara.* Among the three types of *ahankaras Manas* and *indriyas* are derived from the *satvika ahankara* and *Sharira* is derived from the *tamasika ahankara.* Both derive force for creation from *rajasika ahankara*[9].

Ayurvedic classical literature derives its basic physiological and psychological concepts from *Sankhya darshana* and *vaisheshika darshana*, keeping the application value of these concepts in medicine.

Charaka samhita particularly has emphasised the significance of the relationship between body and mind in both its physiological and pathological status. In fact, Charaka Samhita defines the science of 'Ayu' as the science of understanding *Sharira, Mana* and *Atma* which are considered as the three legs of a tripod stand required for the existence of universe[10].

In the physiological state, a balance between the body and the mind results in health and happiness and in the pathological state they are the two basic abodes of diseases.[11] Emotional reactions such as *bhaya, shoka, krodha, lobha, moha, maana, irsha* are said to be the *mithya yoga* of *Manas*[12]and to remain healthy both physically and mentally, those and other emotional factors are to be regulated.

The relationship between *Sharirika doshas* and *Manasika bhavas* is clearly explained in *Charaka Samhita* which states that *udvega, shoka* affect the *vata, krodha* affects the *pitta,* and *harsha* affects the *kapha*[13]. The disturbed *Manasika Bhava & upatapta mana* leads to the formation of *Ama*[14]. Disturbances in *Manasika Bhavas* like *chinta, shoka, bhaya, krodha* leads to *ajeerna* even though the diet taken is in proper quality & easily digestible[15].

The information about the relationship of *Manas* and *Sharira* is well depicted in *Charaka Samhita.* It is said that *Sharira* follows *Manas* and *Manas* follow *Sharira*[16]

and when *sharirika* and *manasika vikaras* are allowed to persist for long, at times gets combined with each other[17].

Even though the information regarding the psychosomatic concept is not as elaborate as in *Charaka Samhita,* there are some insights provided in the *Sushruta Samhita* regarding this. The state of *Prasanna mana*[18] which is the pleasant state of *Manas* along with a pleasant state of *Atma* and normal state of physical health are the requirements of *swasthya* or good state of health.

The importance given to psychosomatic concept by *Vagbhata* in *Ashtanga sangraha* can be appreciated by the author's attempt to begin the text book with a metaphor on the relationship between body and mind. *Manas* is simulated to a frightful serpent whose head is long in the form of *trushna*. Its head is *dwesha, visha* is *kama* and *krodha,* fangs are *vitarka,* eyes are full of *raga, asya* is with *moha* which dwells in the cavity in the form of one's own body[19]. Vagbhata provides another simile for the mutual influence of body and mind in Ashtanga hrudaya as, if the vessel is heated then the ghee in it also melts and if the heated ghee is poured into a vessel it inturn heats the vessel[20]. The text also states that for the benefit of one's health *lobha, irsha, dwesha, matsarya* and *raga* are to be controlled[21].

Psychosomatic concepts in Western Medicine

Psychosomatic medicine has its roots in the earliest writings of the history of western medicine. In 17th century A.D, a philosopher Ren Descartes (1637) had created barriers to an integrated psychosomatic approach by postulating a split between mind (the thinking thing), brain and body (the non-thinking thing). Nonetheless, his assertions catalysed vigorous controversy of great relevance to the evolution of mind body explorations.

Baruch Spinoza (1632-1677), hypothesized that both mind and body are identical and therefore are inseparable. Events in one are being mirrored by events in the other. He referred to this concept of the inseparability of psychology and physiology of the living organism as "psychophysiological parallelism".

William Harvey (1578-1657) has written that "Every affection of the mind that is attended with either pain or pleasure, hope or fear, is the cause of an agitation whose influence extends to the heart where in all these affections of the mind (like grief, love, envy, anxiety) engender all manner of disease and consume the body of man".

During 18th century A.D, German physician George Ernst Stahl (1660-1734) described "a vital force or soul that integrated dynamic psychological phenomenon with physiological events". Physician William Falconer (1744-1824) published his writing titled "The Influence of the Passions Upon Disorders of the Body" which emphasized the role of emotional states of mind in the cause or presentation of physical diseases[22].

During 19th century A.D, Benjamin Rush, taught that mental illness could cause somatic illness by altering cerebral vessel pathology, thus absorbing the concept of psychosomatic medicine into the broader field of psychiatry.

The term 'Psychosomatic' was first attached to mind-body interactions by 'Johann Christian Heinroth', a German physician, in 1818. He is said to be the first to use the word 'Psychosomatic' to describe the aspects of insomnia. He proposed that the psyche and the body were two aspects of a single entity, with body being located externally and the psyche internally.

In the United States, a surgeon named Dr. William Beaumont (1785-1853) published a book by name "Experiments and Observations on the Gastric Juice and

the Physiology of Digestion". He was able to directly observe gastric response to emotion in a wounded soldier whose gastric opening serendipitously would not heal. Daniel Hack Tuke, published a book titled "The Influence of the Mind on the Body" in 1872, with psychosomatic concepts that anticipated theories of autonomic functions of the nervous system[23].

Drawing on the work of the pioneers of previous centuries, the early American explorations of psychosomatic approach to medicine was distinctly psychoanalytic and psychodynamic. Sigmund Freud, an Austrian neurologist who is called as the father of modern psychiatry and the founder of psychoanalytic theory, himself had never used the term "psychosomatic" in his writings; he earnestly encouraged others to use psychoanalytic concepts to clarify how physiological and endocrinological events are related to mental phenomenon.

Psychoanalysts such as Groddeck, Ferenczi, Jelliffe, and Jung promoted similar ideas in their practical clinical work .It was Felix Deutsch, an early student of Freud, who coined the phrase "psychosomatic medicine" in 1922.

Certainly, the non psychoanalytic experimentation by Pavlov, Cannon, and others also continued to make considerable psychophysiological contributions to the emergence of psychosomatic medicine in the 1930s.

The decades of the 1930s to the 1950s saw a fervent embrace of the psychosomatic movement. The finding of the journal "Psychosomatic Medicine" in 1939 and the formation of the 'American Psychosomatic Society' in 1942, both largely catalysed by Flanders Dunbar's efforts, proclaimed the intention to study the interrelation of psychological and physiological aspects of normal and abnormal bodily functions. Their objective was to integrate somatic therapy and psychotherapy. In the Synopsis of Psychosomatic Diagnosis and Treatment, Dunbar emphasized that

psychosomatic study of illness include a combination of both (physiological and psychological) technique.

By 1942, attesting to the movement's impact on medicine, a most remarkable change had occurred in Christian's 14th edition of "Osler's Principles and Practice of Medicine". The leading first chapter was devoted entirely to Psychosomatic Medicine, bringing psychiatry and psychoanalysis to the bedside in a way that had probably never occurred before or indeed since. An enthusiastic prediction of psychosomatic medicine's future was expressed in 1950 by Alexander: The significance of psychiatry, particularly of the psychoanalytic method, for the development of medicine lies in the fact that it supplies an efficient technique for the study of the psychological factors in disease. Less than 10 years later, Felix Deutsch proclaimed that the science called "psychosomatic medicine" has not only become a domain of psychoanalysis, but almost deserves the name of "psychoanalytic medicine" [24].

The revised fourth edition of "Diagnostic and Statistical Manual of Mental Disorders" (DSM- IV–TR ©1994)[25]does not use the term psychosomatic instead, it describes the psychological factors affecting the medical conditions as "one or more psychological or behavioural problems that adversely and significantly affect the course or outcome of a general medical condition, or that significantly increase a person's risk of an adverse outcome"

Criteria in the tenth revision of the 'International Classification of Disease and Related Health Problems" (ICD-10) are more general than the DSM-IV-TR criteria. According to the classification of ICD-10, the psychosomatic disorders are described in chapter F-54[26].

Interrelationship between *Manas* and *Sharira* in their physiological level

The concept of psychosomatic disorders from the perspective of Ayurveda can be understood by knowing the interrelationship between *Manas* and *Sharira* at physiological and pathological levels which is explained through an analogue '*Tapta Ajya Ghata*'[27] i.e. if the vessel is heated then the ghee in it melts and if the heated ghee is poured into a vessel it inturn heats the vessel.

Ayurveda defines *Ayu* (life) as the combined state of *Sharira* (body), *Indriya* (senses), *Sathva* (mind) and *Atma* (Soul)[28]. This very definition of life itself signifies the relation between the body, mind, sense organs and the soul. *Sathva, Atma* and *Sharira* are said to be the three *dandas* for *loka dharana*[10a].

Signs of good health which are mentioned in *Sushruta Samhita* states that "A healthy person is one whose *Doshas* and *Agni* are in equilibrium, whose functional activities of the tissues and excretory systems are in balance, and the soul, senses and mind feel well[18a]. Therefore, cheerful state of mind is necessary for the good healthy life**.**

Physiology of Manas

The functions of Manas can be arranged under following sequence

1. Cognitive Process
2. Conative Process
3. Affective Process

Cognitive process- Cognitive means to perceive. In this stage, *Indriya* receives *Artha* if there is active presence *(bhava)* of *Manas*. It is also explained that *Manas* is the key factor for *Indriyas* if it wants to receive *arthas*[29]. When *jnanotpatti* occur the contact

between *Atma, Manas, Indriya*, and *Arthas* are very essential. After the perception the procedure of actual analysis starts. The processes i.e. *Chintya, Vicharya, Uhya, Dhyeya* and *Sankalpya* highlight the various objects of mind according to its capacity. It gives determination to the perception[30].

Conative process- *Manas* stimulates the *Karmendriya* to perform their functions. *Manas* is called *Ubhayendriya* because it connects itself to *Jnanendriyas* and *Karmendriyas.* After the determination of knowledge perceived by *Jnanendriyas,* the important functions of *Indriya prerana* is carried out by *Mana*[31]. In this way, beginning from cognitive and sensory perception upto stimulation of psychomotor activities which regulates the behaviour, the whole process of knowledge is coordinated by *Manas.*

Affective process- Affect refers to the experience of feeling or emotion. Various emotions and feelings are the manifestation of *Manas* itself. *Bhaya, shoka, krodha, lobha, moha, maana, irsha* are said to be *mithya yoga* of *manas*[12a]. Most *of Manasika Bhava* like *krodha, shoka, bhaya, kama* are either part of *Iccha or Dvesha*[32].

Relationship between *Manas* and *Sharirika doshas*

I. Vata:

The control and stimulation of *Manas* is under the influence of *vayu*. *Vata* does the *prerana* of *indriyas*. It is responsible for *Utsaha* (enthusiasm). *Prana Vayu* is related to *Buddhi* (intellect) and *chitta* (mind). *Udana Vayu* is related to *smruti* (memory)[33].

II. Pitta:

Pitta is related to *Dhee, shourya, Prabha, prasada*, and *medha*. *Sadhakapitta* is related to *buddhi* (intellect), *medha* (retention) and *abhimana* (ego factor)[34].

III. Kapha: *Kapha* is related with *kshama, dhriti* and *alobha*[35].

Relationship between *Manas* and *Sharirika prakruti*

Both, at physiological and pathological level, the *sharirika prakruti* have an influence on *Manas.* The influence of *sharirika doshas* on mental faculty and functions have been described in Ayurvedic literature. The following table provides a list of mutual relationship between *sharirika prakruti* and *manasika Lakshanas.*

Table No 1; Showing the *Manasa lakshanas* in *Sharirika prakruti*

Sl No	*Lakshanas*	Meanings	C.S[36]	S.S[37]	A.H[38]
Vataja prakruti Rajasika Lakshanas					
1.	Anarya	Infidel	–	+	–
2.	Alpa Smruti	Short Memory	+	–	–
3.	Avyavasthita Mati	Absent Minded	–	+	–
4.	Anavasthitatma	Unsteady Minded	–	+	–
5.	Bahu Bhasi	Talkative	–	–	–
6.	Chala Dhruti Smruti Buddhi	Unstable psychic faculty	–	–	+
7.	Krodhi	Angry	–	+	–
8.	Krutaghna	Ungrateful	–	+	–
9.	Matsarya	Jealousy	–	+	–
10.	Na Jitendriya	Without Self Control	–	–	+
11.	Na Drudha	Indefinite	–	–	+
12.	Pralapi	Delirious	–	–	+
13.	Shighra Raga Viraga	Short Temperament	+	–	–
14.	Shighra Trasa	Fatigability	+	–	–
15.	Shrutagrahi	Quick Grasping	+	–	–
16.	Stena	Kleptomaniac (stealing nature)	–	+	–
Pittaja prakruti Rajasika Lakshanas					
1.	Kshiprakopa	Short tempered	–	+	–
2.	Kshipraprasada	Quick Composing	–	+	–

3.	Klesha asahishnu	Diminished Adaptability	+	–	–
4.	Madhya Jnana Vijnana	Moderate knowledge	+	–	–
5.	Vigrahya Vakta	Debate Oriented speaker	–	+	–
6.	Medhavi	Brilliant	–	+	–
7.	Nipuna Mati	Sharp Understanding	–	+	–
8.	Saahasa Buddhi	Adventurous	–	–	+
9.	Shoora	Valiant	–	–	+
10.	Sucharita	Chaste	–	–	–
Kaphaja prakruti Tamasika Lakshanas					
1.	Chira Grahi	Delayed Grasping Power	–	+	–
2.	Sahishnu	Tolerable	–	+	–
3.	Nidralu	Sleepy	–	–	+
4.	Asheeghra Samarambha	Slow in initiating actions	+	–	–
5.	Alpa Krodhi	Non aggressive	–	–	+
6.	Manda Chesta	Slow in action	+	–	–
Satvika Lakshanas					
7.	Alolupa	Lack of ardent desire	–	+	–
8.	Dhrutiman	Firm Minded (Good controlling power)	–	+	–
9.	Deergha Darshi	Far Sighted	–	–	+
10.	Gambhira	Sober	–	–	+
11.	Krtajnata	Grateful	–	+	–
12.	Prasanna Darshana	Cheerful in look	+	–	–
13	Santa	Pacific	+	–	–
14	Satyasandha	Truthful	–	–	+
15.	Sheela Laksha	Character conscious	–	–	+
16.	Smrtiman	Retentive(Good memory)	–	–	+
17.	Shraddha	Dedicated	–	–	+
18.	Vinita	Modest	–	–	+

Relationship between *Manas* and *Sara* [39]

While examining the excellence of *dhatus (Sara pariksha)* each *Sara* is attributed with psychological characteristics which are as follows:

Table No 2; Showing the *Sara* and the attributed Psychological factors

Dhatu sara	**Psychological characters**
Twak sara	*Sukha, buddhi, vidya*
Rakta	*Sukha, sukumarata, anatibalam, akleshasahishnutvam*
Mamsa	*Kshama, dhruti, aloulya, vidya, sukha arjava*
Medas	*Sukha, upabhoga, arjava, sukumarata*
Asthi	*Mahotsaha, kriyavanta, kleshasaha*
Majja	*Balavaan*
Sukra	*Balavaan, sukha*
Sattva	*Smrutimanta, bhaktimanta, krutajna, praajna, shuchi, mahotsaha, daksha, dheera, samaravikranta yodhina, tyakta vishaada*

Relationship between *Manas* and *Ahara*

Bhagavad-Gita describes that the *ahara* which is *snigdha, hitakara* is liked by *satvika* individuals which increases the duration of life and gives strength, health, happiness and satisfaction. The *ahara* which is predominant with *tikta, amla, lavana rasas,* contains *ushna* guna is liked by *rajasika* individuals which causes misery and diseases. Food that is heavy, stale is liked by the *tamasika* individuals which causes *moha*[40].

According to *Chandogya Upanishad, Mana* is formed from *ahara.* The *shuddha ahara* leads to *sathva shuddi*[8a].

Among the *shad rasas, madhura rasa* is said to be *shadindriya prasada*, while *amla rasa* is said to provide *dhrudatva* to *indriyas* and does *avabodhana* of *Manas*[41].

Relationship between *Manas* and *Ahara vidhi*

As *ahara* influences *Manas*, *aharavidhi* also has its influence on *Manas*. While explaining the importance of *anna* it said that *anna* provides *sukha, medha*[42]. *Ahara* is responsible for the *Preenana* of the body. It produces instant strength, increases the life span, lustre, happiness as well as normal mental activities like memory power etc[43]. *Matravat ahara* does *preenana* of *indriyas*[44]and *Pathya* is that which is liked by the *Manas*[45]. While explaining the *ahara vidhi vidhana* it is mentioned that *snigdha bhojana* gives *dhrudatva* to i*ndriyas.* Again it is said that one should follow the rule *tanmanaa bhunjeeta* in the context of *ashta ahara vidhi visheshayatanani*[46].

Relationship between *Manas* and *Vihara*

In *Charaka samhita* it is described that the term *"Vrishya"* is a *dravya* which is pleasant to mind[47]. Again it is said that due to *Cheshta* and *Sankalpa, Shukra* gets squeezed out of the whole body with the help of *Vayu* which has great velocity. The process is similar to the process of squeezing a wet cloth so that water comes out of it[48]. Hence it can be confirmed that *Sankalpa* is an inevitable factor for *shukra-chyavana.*

Relationship between state of *Manas* and *Vichara*

Pleasant minded, absence of fear worry, consoling the frightened person, overcoming the *hetu* of *raga, dwesha* are the qualities attributed for good conduct[49].

The one who develops the qualities of *Satyavadina, akrodhi, priyavadina* and takes *Rasayana* acquires the qualities of *Rasayana*[50].

Relationship between State of *Manas* and factors influencing *Garbhavastha*

If the expectant mother gets addicted to alcohol, it makes the progeny constantly thirsty, alpa smrutivan and fickle minded. If she is constantly grief stricken, it makes the progeny fearful[51].

It is said that *soumanasya* helps in *garbhadharana*[52]. During *garbhavastha* it is important for the mother to stay happy all the time as the joy of mother adjoins foetal development. The pregnant women are advised to think and concentrate on the *rupa, charita* and *achara* of the people belonging to the *Janapadas* which they liked and thus get benefit of similar impressions on their foetus[53].

Inter relationship between *Manas* and *Sharira* at pathological level

A review through the literature of Ayurveda through ages clearly establishes the fact that the knowledge of interrelationship between *Manas* and *Sharira* was well known. *Manas* and *Sharira* are closely interlinked and interact to each other not only in their physiological level but also in their pathological level.

Ayurveda highlights this by giving the statement-

"When *sharirika* and *manasika vikaras* are allowed to persist for long, at times gets combined with each other"[17a]. The word *paraspara* (mutual) in this context, has been interpreted by *Chakrapani* to suggest four possible combinations,

1) *Shariraanaam sharirena* (Somatic diseases influencing other somatic diseases)
2) *Maanasaanaam maanasena* (Psychological diseases influencing other psychological diseases)
3) *Maanasaanaam shareerena* (Psychological diseases being influenced by somatic diseases), and
4) *Shareeraanaam maanasena* (Somatic diseases being influenced by psychological diseases).

Relationship between Manas and Sharirika doshas

At the pathological level, *Sharirika doshas* influences *Manas* i.e. *Kupita Vata* has the property of impairing the normal functioning of sense organs. It causes *bhaya, shoka, moha, dainya* and *atipralapa*[54]. Also, *Manas* influences *sharirika doshas* i.e. *manasika bhavas* like *Kama* (lust), *shoka* (grief) and *bhaya* (fear) aggravates *Vata. Pitta* gets aggravated by *krodha* (anger)[55].

Relationship between *Manas* and *Srotodushti*

Unlike the physical srotas *Manovaha srotas* is considered as a subtle *srotas* which is spread out throughout the body except *nakha* and *kesha*. *Hrudaya* is said to be its *moola sthana*[56]. *Sharirika Srotas* also get vitiated by some of the psychological factors which are as follows;

Table No.3; Showing the *Srotas* and the psychological factor mentioned for their vitiation[57]

Sroto dushti	**Psychological factors responsible**
Udakavaha srotas	*Bhaya* (fear)
Rasavaha srotas	*Chintyanam cha atichintanat* (excessive worry)
Swedavaha srotas	*Krodha* (anger), *shoka* (grief), *bhaya* (fear)

Relationship between *Manas* and *Ojokshaya*

'*Ojus'* the supreme essence of all *dhatus* gets depleted by various psychological factors like *kopa, shoka. Glani* and *tandra* are the features seen in *ojovyapat*. *Murcha* and *moha* are the features seen in *ojo kshaya*[58]. *Bibheti, Durmana* is said to be some of the *lakshana* seen in *ojokshaya* for which *Chakrapani* comments as *manobala viheena*[59].

Relationship between *Manas* and *Ahara*

There are many factors which have their influence on *ahara* and the methods of taking *ahara,* which reflect their effect on health. Among those factors *Manas* also plays a major role. Even, the quantity of food intake has its effect on *Manas*. *Charaka Samhita* explains this by saying that "*alpa matra ahara* is *mano buddhi indriya upaghatakara"* [14a]. If the disturbed *Manasika Bhava & upatapta Manas* are present at

the time of eating "*ama*" formation takes places. Also disturbances in *Manasika Bhava* like *chinta, shoka, bhaya, krodha* lead to *ajeerna* even though the diet taken is in proper quantity & easily digestible[15a]. In *ashta ahara vidhi vidhana* it is said that food consumed in *anishtadesha* (uncongenial place) produces *manovightaka bhavas* like *kama, krodha, lobha, moha and irshya*[60].

Interrelationship between *Manas* and *Sharira* at disease level

'*Vishaado rogajananaanaam*'[61] this statement emphasizes that '*vishaada*' one of the *manasika bhava* influences *Sharira* and *Manas* in causing *vyadhi.* Some of the *sharirika vyadhis* in which *manasika bhavas* are mentioned are listed below:

Table No. 4; Showing the Psychological symptoms in somatic diseases

Somatic diseases	**Psychological factor involved in the causation of disease**	**Psychological manifestation**
Vata Jwara	*Udvega, shoka*	*Shoka*
Pitta Jwara	*Krodha*	*Krodha*
Kapha Jwara	*Harsha*	*Drowsiness*
Rakta gulma	-	*Alasyam*
Vata Prameha	*Udvega,shoka*	*Shoka*
Pitta Prameha	*Krodham*	-
Shosha	*Shoka, chinta, irshya, bhaya, krodha*	-

Specific sub types of *sharirika vyadhis* which originate by psychological factors are enumerated below:

Table No. 5; Showing the *Sharirika vyadhis* originated by psychological factors

Sl no.	Disease	*Manasika bhavas*	C.S[62]	S.S[63]
1	*Shokaja Jvara*	*Shoka*	+	+
2	*Kamaja Jvara*	*Kama*	+	+
3	*Krodhaja Jvara*	*Krodha*	+	-
4	*Bhayaja Jvara*	*Bhaya*	+	+
5	*Shokatisara*	*Shoka*	+	+

Ayurvedic classics have explained some major *Manasa Vikaras*, which are produced by the vitiation of both *Sharirika* and *Manasika Doshas,* which are as follows:

Table No. 6; Showing the *Manasa Vikaras* originated by *Sharira* and *Manasa Doshas*

Sl no	*Vikara*	References
1	*Unmada*	Ch Ni 7, Su U 62
2	*Apasmara*	Ch Ni 8, Su U 61
3	*Mada*	Ch Su 24, Su U 47
4	*Murccha*	Ch Su 24, Su U 46
5	*Sanyasa*	Ch Su 24, Su U 46
6	*Madatyaya*	Ch Su 24, Su U 47
7	*Apatanaka*	Ch Si 9, Su Chi 5
8	*Apatantraka*	Ch Si 9, Su Chi 5

Table No. 7; Showing the Specific *manasika vikaras* enumerated as *Nanatmaja vyadhis*[64]

Vikara	***Dosha***
Ashabda Shravana (auditory hallucination)	*Vata*
Tama (faintness)	*Vata*
Bhrama (confusion)	*Vata*
Vishada (depression)	*Vata*
Atipralapa (delirious)	*Vata*
Aswapna (insomnia)	*Vata*
Anavastita Cittatva (unstable mind)	*Vata*
Tandra (stupor)	*Kapha*
Nidradhikya (hypersomnia)	*Kapha*

Raja and *tama* are the two pathogenic factors of the *Manas* and due to them many *manovikaras* are produced[65]. Among these two *rajas* is the independent pathological factor because *tamas* cannot act independently[66].

Table No. 8; Showing Manovikaras

Sl.No	***Manovikaras***	**C.S[67]**	**S.S[68]**
1	*Kama* (passion)	+	+
2	*Krodha* (anger)	+	+
3	*Lobha* (greed)	+	+
4	*Moha* (infatuation)	+	-
5	*Irsa* (grief)	+	+
6	*Mana* (pride)	+	-
7	*Mada* (arrogance)	+	-
8	*Shoka* (grief)	+	+
9	*Cittodvega* (anxiety)	+	-
10	*Bhaya* (fear)	+	+
11	*Harsha* (exhilaration)	+	+
12	*Vishada* (depression)	-	+
13	*Abhyasuya* (indignation)	-	+
14	*Dainya* (affliction)	-	+
15	*Matsarya* (jealousy)	-	+

Psychosomatic disorders

The term 'psychosomatic' is made up of two words, 'psyche' which means human faculty of thought, emotion and judgement and 'soma' which means the body. Psychosomatic disorders are those in which physical symptoms are caused or exacerbated by psychological factors.[69]

The term 'psychosomatic' refers to, "that which is pertaining to the relation between mind and body. This term has now been replaced by the new terminology "psychological factors affecting medical conditions".[70]

Psychosomatic medicine is based upon the observation that psychological and social stresses may play a role in the predisposition, onset, course and response to treatment of some physiological disorders.[71]

Franz Alexander cited in the text book of "Essentials of Psychiatry" authored by M. S Bhatia has enumerated described 7 psychosomatic illnesses.[72]

1) Bronchial asthma
2) Ulcerative colitis
3) Peptic ulcer
4) Neurodermatitis
5) Thyrotoxicosis
6) Rheumatoid arthritis
7) Essential Hypertension

Table No 9; Showing some of the common Psychosomatic disorders[73]

Cardiovascular system	Essential hypertension Coronary disease Mitral valve prolapse Cerebrovascular disease
Respiratory system	Asthma Vasomotor rhinitis Hay fever
Gastro-intestinal system	Irritable bowel syndrome Peptic ulcer disease Ulcerative colitis Crohn's disease
Skin	Psoriasis Acne vulgaris Pruritus Hyperhydrosis Urticaria Atopic dermatitis Alopecia areata Psychogenic purpura Dermatitis artifacta Lichen planus Warts
Muscle and joints	Rheumatoid arthritis Fibrositis
Endocrine system	Diabetes mellitus Hypoglycaemia Hyperthyroidism Hypothyroidism Hyperparathyroidism Hypoparathyroidism

Immune system	Allergic disorders Cancer Auto-immune disorders
Reproductive system	Psychosexual disorder Disorders of menstruation Dysmenorrohoea Peri- menopausal syndrome Amenorrhoea & oligomenorrhoea Menorrhagia Menopausal Disturbances

Psychological and social factors that influence health

Biological, psychological and social factors are implicated in the cause and maintenance of every disorder. Psychological and social factors influence health and physical problems in two distinct ways.

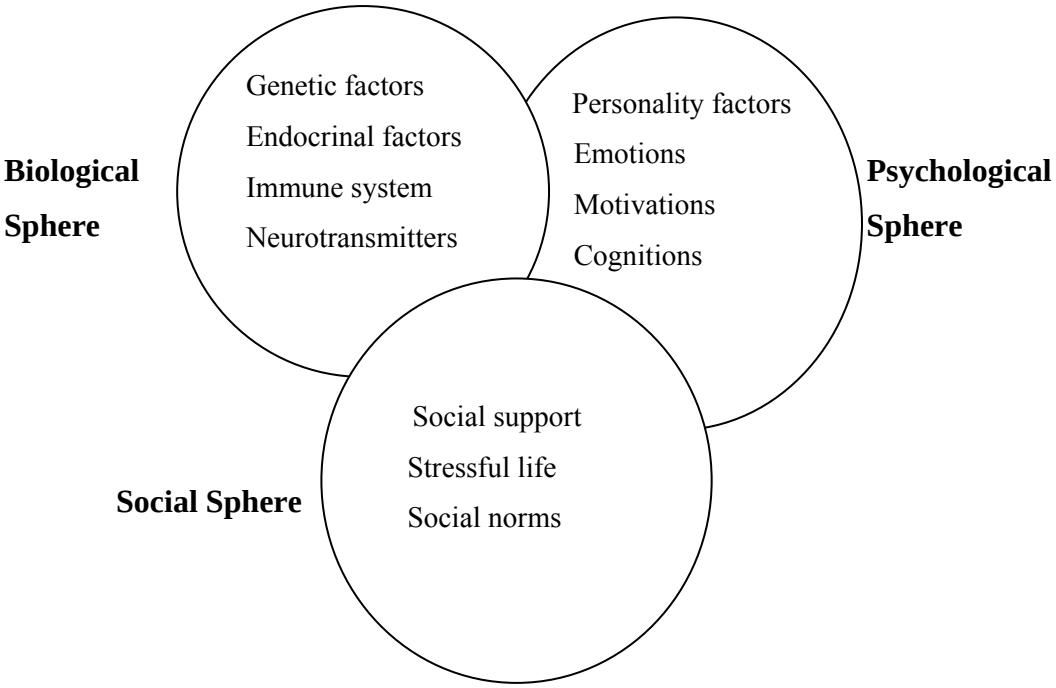
- Firstly; they can affect the basic biological processes that lead to illness and disease.
- Secondly; long standing behavioural patterns may put people at risk to develop certain physical disorders[74]

  Sometimes both these avenues contribute to the etiology or maintenance of disease.

George Engel in 1977[75] described a biopsychosocial model to explain the complex interaction between biological, psychological and social spheres resulting in a psychosomatic illness. The twenty-first century started, therefore, with a bio-psychosocial model of disease, which implies an appreciation that genetic and early environmental factors may shape an individual's predisposition to disease, on which

biological, psychological and social variables may determine the onset and subsequent course of a clinical disorder[76].

Illustration No. 1. Illustration of Bio-psychosocial model



Common characteristics of Psychosomatic disorders[77]

The psychosomatic disorders have certain common characteristics;

- Emotions precipitate attacks of the illness. The emotional changes can increase the severity of an attack or prolong its duration.
- A correlation is observable between the occurrence of stressful life experience and the onset of these disorders or with recurrence of attacks during the course of the illness.
- They exhibit a differential sex incidence e.g. asthma before puberty is twice common in boys as in girls whereas after puberty, it is more common in women than in men.
- Peptic ulcer, coronary heart disease and hypertension are more common in men; thyrotoxicosis and chronic urticaria are more common in women.
- Psychosomatic disorders often run a phasic course.

DSM-IV Criteria for Psychological factors Affecting Medical Condition[78]

A. A general medical condition is present.

B. Psychological factors adversely affect the general medical condition in one of the following ways:

- The factors have influenced the course of the general medical condition as shown by a close temporal association between the psychological factors and the development or exacerbation of, or delayed recovery from, the general medical condition;
- The factors interfere with the treatment of the general medication condition;
- The factors constitute additional health risks for the individual;
- Stress-related psychological responses precipitate or exacerbate symptoms of the general medical condition.

Psychosocial factors affecting individual vulnerability

A number of factors have been implicated to modulate individual vulnerability to disease. Some factors (such as healthy habits and psychological well-being) positively promote health rather than merely reducing disease.

- ***Early Life Events***

The role of early developmental factors in susceptibility to disease has been a frequent object of psychosomatic investigation. Using animal models, events such as premature separation from the mother have consistently resulted in development of pathophysiological modifications, such as increased hypothalamic-pituitary-adrenal axis activation. They may render the human individual more vulnerable to the effects of stress later in life. There has been also considerable interest in the association of

childhood physical and sexual abuse with medical disorders, such as chronic pain and irritable bowel syndrome[79].

- ***Chronic Stress and Allostatic Load***

Life changes are not the only source of psychological stress. Subtle and long-standing life situations should not too readily be dismissed as minor and negligible, as chronic, daily life stresses may be experienced by the individual as exceeding his/her coping skills. The concept of allostatic load coined by Mc Ewen and Stellar in the year 1993 is the physiological consequences of chronic exposure to fluctuating or heightened neural or neuroendocrine response that results from repeated or chronic stress[80]. Allostatic load can be measured in physiological systems as chemical imbalances in autonomic nervous system, central nervous system, neuroendocrine, and immune system activity as well as perturbations in the diurnal rhythms.

Four conditions that lead to allostatic load are:

≈ Repeated frequency of stress responses to multiple stressors;

≈ Failure to habituate to repeated stressors of the same kind;

≈ Failure to turn off each stress response in a timely manner due to delayed shut down; and

≈ Inadequate response that leads to compensatory hyperactivity of other mediators[81]

- ***Psychological Well-being***

Positive health is often regarded as the absence of illness, despite the fact that half a century ago, the World Health Organization defined health as a 'state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'[82].

Several studies have suggested that psychological well-being plays a buffering role in coping with stress and has a favourable impact on disease course[83].

- ***Personality Factors***

The notion that personality variables can affect vulnerability to specific diseases was prevalent in the first phase of development of psychosomatic medicine (1930–1960) and was particularly influenced by psychoanalytic investigators, who believed that specific personality profiles underlay specific 'psychosomatic diseases'. The social-cognitive model of personality assumes that personality variables interact with social and environmental factors and result in differences in the features of the situations that individuals select[84]. In this sense, personality variables (e.g. obsessive-compulsive, paranoid, impulsive) may deeply affect how a patient views illness, what it means to him/her and his/her interactions with others, including medical staff.

- ***Influence of culture***

Culture has been conceptualized as representing the totality of behaviour patterns, customs, values and beliefs that make a group of people unique from other groups. Culture has been of concern in medicine because it is an important determinant of behaviour, which can in turn influence disease through a variety of mediating factors, such as diet, smoking, use of alcohol and other drugs, activity levels, and compliance with medical management. Toward the end of the 19th century, interest in culture increased as physicians from colonial powers described unusual disorders among native or primitive populations, conditions that came to be called culture-bound syndromes, examples include Dhat syndrome, Anorexia nervosa[85].

Somatoform disorders

Somatoform disorders comprise a heterogeneous group of psychiatric illnesses in which symptoms or complaints without objective organic causes are present and in which there are strongly associated psychological factors[86].

Although the symptoms of somatoform disorder are physical, the specific pathophysiological processes involved are not demonstrable or understandable by existing laboratory procedures.

The prevalence rate of somatoform disorders vary by diagnosis, but in general, across ages, some somatoform disorders and their less severe variants have been seen in 16% of primary care outpatients and in 23% of out patients with medically unexplained symptoms[87].

Clinical features of somatoform disorders

Somatoform symptoms are explained by the affected individuals as real physical sensations, pain or discomfort usually indistinguishable from symptoms of actual medical disorders and frequently coexisting with them. Despite having no organic basis, these symptoms can lead to significant emotional distress and functional impairment.

Patients with somatoform disorders are often able to accept that their symptoms my be functional and have psychological roots. Unlike malingering, somatoform disorders do not represent intentional, conscious attempts by the patients to present physical symptoms in order to achieve a specific goal. They differ from factitious disorders such as Munchausen syndrome in that their aetiologies are considered to be wholly unconscious and are not always aimed at achieving the sick role. Neither do they represent delusional thinking as found in psychotic states.

Somatoform disorders also differ from psychosomatic disorders, which are characterized by actual disease states with presumed psychological triggers. Instead, somatoform disorders involve a complex interaction between brain and body, in which the affected individual is unknowingly expressing psychological stress or conflict through the body. Increased somatic symptoms and pre-occupation with illness are often associated with anxiety, depression and psychological trauma[88].

There are seven somatoform disorders listed in DSM IV TR. Among them the common somatoform disorders are,

- Somatization disorder
- Undifferentiated somatoform disorder
- Hypchondriasis
- Conversion disorder
- Pain disorder.

Somatization disorder

Somatization disorder is seen almost exclusively in women and may have prevalent rate ranging from less than 1% to 3%. It is characterized by the presence of recurrent and multiple somatic complaints of several years duration for which medical attention has been sought but which was apparently not due to any physical disorder. Somatoform disorder tends to run a chronic course, with the majority of individuals demonstrating consistent symptom patterns as they age, even into later life[89].

Undifferentiated somatoform disorder

Undifferentiated somatoform disorder is defined by the presence of one of more physical complaints, lasting at least 6months, that cannot be fully explained by

appropriate medical work up and that results in considerable social, occupational or functional impairment.

Prevalence rate for undifferentiated somatoform disorder have not been well established for any age group, although one community study in Italy found 13.8% significant rates for every other somatoform disorder[90].

Hypochondriasis

Hypochondriasis may be defined as an unrealistic interpretation of physical signs or sensations as abnormal, leading to preoccupation with the fear or belief of having a serious disease. The unrealistic fear or belief of having a serious disease persists despite medical reassurance and causes impairment in social or occupational functioning[91].

Hypochondriasis is characterized by a preoccupation with fear of having a serious illness. These fears arise from misinterpretation of bodily symptoms, and the individual's preoccupation is resistant to medical evaluation and reassurance. Hypochondriasis has been seen in 3% of medical inpatients and in around 5% of outpatients[92].

Conversion disorder

Conversion disorder is characterized by one or more motor or sensory deficits that cannot be fully explained by appropriate medical workup and that appear to be causally related to psychological factors. The key to the diagnosis of conversion symptom is identification of the psychological conflict that seems to be prompting the symptom.

Although conversion disorder has been reported in elderly population, it is more common in young women and the prevalence rate in the community is less than 1%[93].

Pain disorder

It is characterized by a clinical picture in which the predominant feature is the complaint of pain, in the absence of adequate physical findings and in association with evidence of the etiological role of psychological factors. The disturbance is not due to any other mental disorder[94].

Sathvabala pareeksha

The assessment of *Sathva* has been mentioned as one among the *dashavidha pareeksha.* Depending upon the strength of the *Manas, Sathva* has been divided into three *grades which are as follows;*[95]

- *Pravara Sathva*
- *Madhyama Sathva*
- *Avara Sathva*

Pravara Sathva

Individuals with *pravara sathva* are also called as *sathvasara purusha.* They possess high level of stress threshold. They are characterized by good memory, devotion, gratefulness, wisdom, purity, enthusiasm, skill, courage, valour in crisis management, absence of sorrow, proper gait, depth of wisdom, sincerity in actions and virtuous acts. Even if they do not possess a good physique, because of virtuous qualities of *Sathva guna* they can tolerate *nija* and *agantu vyadhis* without much difficulty[96].

Madhyama Sathva

Individuals having *madhyama sathva* possess moderate stress threshold. They can withstand stress when they realize that others can tolerate it and they gain strength from others[97].

Avara Sathva

Individuals with *avara sathva* possess a very low stress threshold. Even if they possess a good physique they are not consoled by others inspite of repeated assurance and are susceptible to fear, grief, greed, delusion and ego because of *avara sathva.* When they listen to stories describing wrathful, fearful, terrifying and ugly situation

or come across visions of flesh or blood of an animal or man, they fall victims to depression, pallor, fainting, madness, giddiness or falling on the ground, or even seeing such events may even lead them to death[98].

Sushruta samhita has explained *Sathva* as the capacity of *Manas* which does not cause frustration at times of emotional turmoils. *Dalhana* has commented *Sathva* as *Manobala*, wherein the persons with *satva guna* predominance will have *uttama manobala,* those with *rajoguna* predominance will have *madhyama manobala* and persons with predominance of *tamoguna* will have *manodourbalya*[99]. In this context *Chakrapani* comments in the commentary nibandha sangraha that *manobala(sathvabala)* is increased by *sathva utkarsha(sathva guna utkarsha)*[100].

Qualities considered for grading *Sathva*[101]

Depending on the strength of *Manas, Charaka samhita* describes the following qualities to assess the *Sathvabala.*

- *Smruti*- is the ability to recollect the objects of previous experience.
- *Bhakti*- devotion
- *Krutajnata*- intellectual, wise learned clever discriminator.
- *Shuchi*- clean, pure, hygiene
- *Mahotsaha*- good energy
- *Daksha*- able, expert, clever, skillful
- *Dheera*- brave, bold, courageous
- *Samara vikranta yodhinaha*- powerful, victorious
- *Tyakta vishada* - devoid of sadness, dejection, grief, sorrow
- *Suvyavasthita gati and gambheera buddhi chesta*- properly organised body language, intellect and behaviour.
- *Kalyanabhinivesha*- has positivie approach, aspiring for good things.

Role of *Sathva bheda* in understanding the disease and adopting the treatment modalities

Diseased individuals are classified as *guru vyadhita* and *laghu vyadhita*, depending on one's reaction to disease[102].

Guru vyadhita is a person possessing *pravara Sathvabala*. Even if he is suffering from a major disease he tolerates it without much difficulty and hence seems to be *laghu vyadhita.* Contrary to that *laghu vyadhita* is a person with *avara Sathvabala.* Even if he is suffering from a minor disease he cannot tolerate it effectively and hence seems to be *guru vyadhita.* This concept of *guru-laghu vyadhita* is essential in adopting treatment modalities.

Physicians who do not have the knowledge of this concept, considers *guru vyadhita* person as suffering from minor disease and treat accordingly with *alpa aushadha* and *upachara* leading to poor results of the treatment. Similarly, a *laghu vyadhita* person is considered as suffering from major disease and is treated with *teekshna aushadha* and *upachara* leading to the worsening of patient's condition[103].

Hence proper understanding of *Sathvabala* in terms of stress threshold of an individual is an important aid for physician in adopting different measures of treatment both physically and psychologically.

Stress

Stress is a fundamental component of life. It is the response to a demand and when the demand is perceived as excessive, stress results along with diseases. Psychoneuroimmunologists have contributed greatly to medical science, showing that the stress and the emotional state of an individual may play a significant role in making one vulnerable to diseases.[104] They discovered that stress modulates the activities of the body systems, adversely affecting their functioning to maintain health and the mind and body communicate with each other by the interactions of the endocrine, nervous and immune systems.[105]

Definition of stress

Stress is defined as a 'stimulus event of sufficient severity to produce disequilibrium in the homeostasis of physiological systems'. Stressor is the threat that exceeds an individual's ability to meet the challenge and thereby evokes a stress response[106].

The potency of the stressor to induce physiological responses is dependent upon the perception of the situation by the individual. The capacity of an individual to develop certain coping strategies is of great importance, especially in respect to the physiological long-term stress response. Although stress is often thought about as harmful, one has to distinguish between positive stress, called eustress and negative stress, which is referred to as distress[107].

Classical stages of stress response[108]

Classically, three stages of stress response are described;

- ***Phase I*** or ***Fight or flight response***: This is the first response, which is often protective, at least in the short term. It incorporates the effects of catecholamines

to impending threat. Physiological systems are activated to either escape threat, or to defend oneself against it.

- ***Phase II*** or ***Forbearance response*****:** In this stage the physiological upset is tolerated.
- ***Phase III*** or ***Fortitude response***: When stress is overwhelming, major organ systems are shut down, and death is hastened.

Causes of stress[109]

Stress is caused by the various stressful events which are as follows;

1. ***Related to the person:*** stressful events related to the person include intellectual, motivational and personality characteristics. People who have high self-esteem are likely to believe they have the resources to meet demands.
2. ***Related to the situation:*** stressful events related to the situation include life transitions. Changing from one phase of life to another phase is called a transition; Examples includes joining the school, reaching puberty, joining the college especially away from home, starting a career, getting married, becoming a parent, losing a spouse through divorce or death and retiring.
3. Ambiguity can cause stress. There are two types of ambiguity:
    - Role ambiguity
    - Harm ambiguity.

Role ambiguity can occur in the workplace, for instance when there are no clear guidelines, standards for performance and no clear consequences. Role ambiguity is stressful because people are uncertain about what actions and decisions to make.

Harm ambiguity occurs when people are not sure what to do to avoid harm. Stress will depend upon the person's personality, beliefs and general experience. A person who is seriously ill and has no clear information might draw hope from this ambiguity, believing that they will get well. Another person in the same situation may believe that people are deliberately giving ambiguous information because the prognosis is poor.

Pathophysiology of stress[110]

Stress has been viewed in three ways:

1. Stimulus
2. Response
3. Process.

Stimulus refers to stressors, which can be categorised as emanating from three sources:

- Catastrophic events, such as Tornadoes and earthquakes
- Major life events
- Chronic circumstances, such as living in crowded or noisy conditions.

Response refers to how somebody responds to a particular stress. There are two components of response;

❖ ***Physiological response***

The systemic stress concept in science and mass media stems largely from the work of the endocrinologist Hans Selye[111] who observed the stereotypical response pattern in an animal experiment and it was named as the 'General Adaptation Syndrome' (GAS). This syndrome proceeds in three stages.

a) The ***Alarm reaction*** which comprises of an initial shock phase exhibiting autonomic excitability followed by the countershock phase characterized by increased adrenocortical activity.

b) If the stimulation continues, the organism enters the ***Stage of resistance.*** In this stage the symptoms of the alarm reaction disappear. If resistance to the stimulation increases, then resistance to other kinds of stressors decreases at the same time.

c) If the aversive stimulation persists, resistance gives way to the ***Stage of exhaustion***. The capability of the organism to adapt to the stressor is exhausted, and the symptoms of alarm reaction reappear. This alarm reaction stage is not followed by the stage of resistance leading to the tissue damage.

Certain biochemical changes occur during stress which include following mechanisms, i.e., the hypothalamus in the brain produces corticotrophin releasing factor (CRF) that stimulates the anterior pituitary to secrete adreno-corticotrophine releasing hormone (ACTH). ACTH in turn stimulates the adrenal cortex to secrete stress hormones.

The autonomic nervous system responds to stress rapidly. The sympathetic and parasympathetic limbs of the autonomic nervous system regulate cardiovascular, respiratory, renal and endocrine systems. The brain ultimately controls the global stress response by regulating the secretion of several neurotransmitters: opioid peptides, dopamine and norepinephrine and GABA[112].

❖ ***Psychological response***

This stage involves behaviour, thought patterns, emotions and nervousness.

Process

This stage views stress as a series of interactions and adjustments between the person and the environment which are called as transactions. The two processes mediating the person-environment transaction are:

- *Cognitive appraisal*
- *Coping*

Cognitive appraisal[113]

The concept of *Cognitive appraisal* theory distinguishes two basic forms of appraisal, primary and secondary appraisal.

A. Primary appraisal is the process of perceiving and evaluating a situation as involving threat, challenge, harm or benefit to oneself.

Within *primary appraisal*, three components are distinguished:

- *Goal relevance* describes the extent to which an encounter refers to issues about which the person cares.
- *Goal congruence* defines the extent to which an episode proceeds in accordance with personal goals.
- *Type of ego- involvement* designates aspects of personal commitment such as self- esteem, moral values and ego-identity.

B. Secondary appraisal is concerned with coping options.

Three *secondary appraisal* components are distinguished:

- *Blame or credit* results from an individual's appraisal of who is responsible for a certain event.
- *Coping potential* means a person's evaluation of the prospects for generating certain behavioural or cognitive operations that will positively influence a personally relevant encounter.

- *Future expectations* refer to the appraisal of the further course of an encounter with respect to goal congruence or incongruence

Coping[114]

Coping is defined as 'the cognitive and behavioural efforts made to master, tolerate or reduce external and internal demands and conflicts among them'.

This definition contains the following implications:

a. Coping actions are not classified according to their effects (e.g., as reality-distorting), but according to certain characteristics of the coping process.

b. This process encompasses behavioural as well as cognitive reactions in the individual.

c. Coping is characterized by the simultaneous occurrence of different action sequences leading to the interconnection of coping episodes.

d. Coping actions can be distinguished by their focus on different elements of a stressful encounter. They can attempt to change the person–environment realities behind negative emotions or stress (*problem-focused coping*). They can also relate to internal elements and try to reduce a negative emotional state, or change the appraisal of the demanding situation (emotion-*focused coping)*

Stress and influencing factors

- ***Cognition and stress***[115]

  A high level of stress impairs the memory and attention during cognitive activities such as while taking examinations. Noise can be a stressor, for example when people live next to a busy railway or motorway.

- ***Social behaviour and stress***[116]

  When stress is accompanied by anger, negative social behaviours tend to increase. Stress-produced anger increases aggressive behaviour, and these negative effects continue after the stressful event is over. Stress affects helping behaviour.

- ***Emotions and stress***[117]

  The multiplicity of emotions arises from a different relationship between a person and the environment, hence it has got a great analytical power. Feeling angry has its own special scenario, and so does feeling anxious, guilty, ashamed, sad and proud.

  There are 15 different emotions. They are as follows;

  Negative emotions: Anger, fright, anxiety, guilt, shame, sadness, envy, jealousy, and disgust, each one is a product of a different set of troubled conditions of living, and each involves different harms or threats.

  Positive emotions: Happiness, pride, relief, and love.

  Mixed emotions: Hope, compassion and gratitude (whose valence is equivocal). All these emotional reactions occur during stress.

Stress and psychoneuroimmunology

Stress exposures affect the neurotransmitter system, neuroendocrine system and the immune system. These systems are interconnected to modulate response to acute and chronic stressors.

❖ **Stress and neurotransmitters**

The brain uses an average of 140 billion nerve cells called neurons to control every thought and action. Neurons transmit information throughout the nervous system. Nerve cells are not connected to one another. There is a small space through

which the impulse must pass to get to the next neuron. The space between the axon of one neuron and the dendrite of another is called the synaptic cleft. The chemicals that are released from the axon of one nerve cell and that transmit the impulse to the receptors of another nerve cell are called neurotransmitters[118].

There are certain neurotransmitters that are essential to maintain a happy outlook and disposition. As far as stress is concerned, these are the brain chemicals that begin to malfunction when stress levels become more than a person can tolerate.

Table No. 10; Showing Neurotransmitters and their actions

Neurotransmitter	Action Produced	Deficiencies create
Serotonin	Emotional stability	Lack of rational emotion, feelings of irritability, sudden unexplained tears, problems with sleep
Dopamine	Pleasure, reward, good feelings toward others, maternal/paternal love	Anhedonia-no pleasure, no remorse about personal behaviours
Norepinephrine	Arousal, energy drive	Lack of ambition, lack of energy drive, depression
GABA	Staying calm	Free floating anxiety, unexplained panic
Enkephalins	Psychological pain relief	Feeling of incompleteness, lack of fulfilment, feeling of inferiority, feelings of inadequacy, fearful, insecure feeling.

All of the neurotransmitters are interrelated and work synergistically. For example, in stressful situations the opioid (enkephalin) levels are forced down; they in turn force GABA levels down and, in turn, dopamine levels go up. GABA going down forces norepinephrine rise up and forces serotonin down. Serotonin going down forces the opioid further down etc.[119]

❖ **Stress and immune system**

Psychological stressors are known to trigger the immune system and the responses made to these stressors may result in different diseases.

The immune system helps to maintain homeostasis within the body. Stress induced alterations in the immune system occur primarily in the spleen, lymph nodes, and lymphoid tissues. However, there are numerous components of the immune system that may be modified by stress hormones. It has been shown that individuals who are under stress are at an increased risk for developing autoimmune diseases[120].

A close relationship between psychological factors and the immune system was shown by Pavlovian conditioning of immune function, such as the degranulation of mast cells in the gut[121]. CD4+ lymphocytes are responsible for the occurrence of stress-triggered relapses of colitis in an animal model. [122]

Acute stress stimulates the immune system by the increase of NK cells and CD8+ lymphocytes. Dhabbar(2000) et al showed that a delayed-type hypersensitivity reaction in the skin was enhanced by an acute stressor. In contrast, chronic stress suppresses the immune system by the decrease of macrophages, NK cells and CD8+ lymphocytes.

It is of considerable interest that immune cells on the one hand express various receptors for neurotransmitters – peptides and hormones, and on the other hand

release molecules such as lymphocytes which are able to synthesize catecholamines[123].

❖ **Stress and Neuro endocrine system**

An integrative network of brain structures, involving hypothalamic subnuclei (in particular the paraventricular nucleus), the periaqueductal gray, and the amygdala mediate the stress response by providing output to pontomedullary areas and to the pituitary gland. This inturn modulates efferent autonomic and neuroendocrine control mechanisms of the organism.

This central network receives input from cortical structures, like the medial prefrontal and the anterior cingulate cortex, as well as information from the periphery by ascending projections from the brainstem, which relay information transmitted to the brain via afferent neuronal projections and circulating substances, like glucocorticoids. Major outputs of this brain circuitry – which is named 'emotional motor system (EMS)' to the periphery involve autonomic nervous system, neuroendocrine (hypothalamic-pituitary- adrenal (HPA axis) and pain modulatory systems.

CRF is one of the principal mediators of the stress response of the organism in the brain. Among other brain areas, CRF neurons are located in the paraventricular nucleus of hypothalamus, the amygdala and the locus coeruleus complex, which are part of the EMS.

Several convergent findings suggest that the stress-induced modulation of gastrointestinal function is mediated by activation of brain CRF receptors in brain nuclei which are part of the EMS. Medullary CRF-2 receptors play a role in stress

induced modulation of upper gastrointestinal function, e.g. inhibition of gastric emptying. In contrast, the experimental data point to a role of cerebral CRF-1 receptors in the altered lower gastrointestinal function, e.g. stimulation of colonic transit by psychological stress or centrally injected CRF[124].

Essential hypertension

Hypertension (HTN) or high blood pressure is a chronic medical condition in which the blood pressure in the arteries is elevated. Normal blood pressure is at or below 120/80 mmHg. High blood pressure is said to be present if it is persistently above 140/90 mmHg.

Hypertension is classified as either primary (essential) hypertension or secondary hypertension. About 90–95% of cases are categorized as "primary hypertension" which means high blood pressure with no obvious underlying medical cause. The remaining 5–10% of cases is of secondary hypertension which is caused by other conditions that affect the kidneys, arteries, heart or endocrine system[125] .

Sympathetic nervous system and essential hypertension

Overactivity of the sympathetic nervous system has been suggested as a possible cause of essential hypertension. The sympathetic over activity is indicted by an increased norepinephrine spill over to the circulation which initiates and sustains blood pressure elevations via profound effects on renal and cardiac systems[126].

Increased concentration of norepinephrine in the plasma has been reported in several cases of essential hypertension during many researches in younger patients. Norepinephrine is released by the sympathetic nervous system causing the vessels to constrict by increasing peripheral resistance. This vasoconstriction contributes to hypertension. Increased sympathetic tone results in hyperkinetic circulation i.e. in addition to high plasma norepinephrine values with elevated cardiac out put and heart rate also in Total. Exposure to stress increases sympathetic outflow and repeated stress- induced vasoconstriction may result in vascular hypertrophy, leading to progressive increase in peripheral resistance and blood pressure.

As with norepinephrine and epinephrine, hypersecretion of cortisol has many adverse effects on BP, partially due to its augmentation of neuronal excitability to norepinephrine. Cortisol response to psychological stress and to stimulants such as caffeine is greater and more persistent in persons at high risk of HTN than in low risk normotensives[127].

Health related quality of life and Hypertension

The quality of life issues in HTN typically pertains to the need for long term adherence to the therapy for an asymptomatic disorder. Because patients with mild hypertension have no overt manifestation of illness, therapies that have adverse effect on quality of life can put at risk for long term adherence[128].

Of 20-30 million hypertensives who receive pharmacologic therapy, fewer than 50% adhere to their therapeutic regimen for more than one year and 60% of these patients reduce the dosage of their drug owing to the adverse effects. A negative impact on the patient's quality of life may occur as a result of just making the diagnosis. Effects such as increased absenteeism, sickness behaviour, hypochondria and decreased self esteem have been noted in cohort of previously well individuals who have been told they were hypertensives[129].

Adverse effects from drugs used in treatment, diseases associated with hypertension, and simply being diagnosed with the disease since it is related to increased mortality can all decrease quality of life of the patients[130].

Irritable Bowel Syndrome

Irritable bowel syndrome (IBS) is one of the most common disorders diagnosed by gastroenterologists. The disorder affects approximately 10% of the population in industrialized countries[131].

Until recently many physicians did not consider IBS as an independent physical disease. In fact it was viewed as nothing more than a somatic manifestation of a psychological stress. With the availability of better techniques to study the colonic and G.I. motility & visceral sensory functions, newer concepts of brain regulating the gut functions have evolved. Significant progress has been made towards understanding the pathogenesis of IBS[132].

Pathophysiologic Mechanisms in IBS

The pathophysiology of IBS is considered to be multifactorial, generated by a complex interplay between genetic, psychosocial and environmental factors that impact the patient's quality of life by producing abnormalities in central nervous system processing as well as in the periphery where they generate abnormal motility and secretory activity

Recent evidence strongly suggests that the primary pathophysiologic mechanism of IBS involves a dysregulation in brain-gut interactions.[133] Many central and peripheral factors (genetic predisposition, environmental factors, chronic stress, inflammation or infection) may contribute to an altered brain-gut axis. Those alterations may eventually cause disorders of mucosal immune response, intestinal motility and permeability and visceral sensitivity that produces abdominal pain or discomfort and compromised bowel function[134].

Role of Stress

The role of stress may be particularly important in altering brain-gut interactions, resulting in the development or exacerbation of IBS symptoms. Rectal distension studies in IBS patients have shown altered visceral perception and neuro-endocrine responses to a stressor compared with healthy controls. Although stress affects the gut in both healthy individuals and IBS patients, new evidence suggests that there may be greater reactivity in the major mediator of stress in the brain-gut axis, corticotrophin-releasing factor (CRF)[135].

Serotonin

Serotonin (5-hydroxytryptamine, 5-HT) is a key potentiator of gut motility, sensation, and secretion. 95% of serotonin is found in the gut, where 90% is localized within the enterochromaffin cells and 10% is found within the enteric neurons. Altered serotonin signaling mechanisms have recently been reported in IBS, including a decreased level of the serotonin reuptake transporter protein. This transporter protein is the chief mechanism by which the body regulates the amount of serotonin in the extracellular space and is genetically predetermined in each individual by the presence of long, short or heterozygous polymorphisms. The serotonin reuptake transporter gene polymorphism may influence the response to serotonergic agents[136].

Health related quality of life and IBS

There is evidence that the impairment in quality of life in IBS is not primarily caused by the severity or type of bowel symptoms a person experiences. Rather, reduced quality of life in IBS is largely related to extra intestinal factors, including symptoms of chronic stress (e.g. tiredness, nervousness, hopelessness, difficulty in

sleeping), the belief that there is something seriously wrong with the body, and interference with sexual function.

The severity of the illness as reported by the patients of IBS has been shown to be significantly related to the belief that the gastrointestinal (GI) symptoms represent a serious underlying problem with the body. Persons with IBS demonstrate increased anxiety regarding gastrointestinal sensations (termed as GI-specific anxiety) which has been shown to play a role in disease severity. GI-specific anxiety includes the thoughts, emotions and behaviours that stem from fear of GI sensations, symptoms, and the context in which these occur. GI-specific anxiety has been hypothesised to function as an endogenous stressor, which leads to exaggerated autonomic and neuroendocrine responses, changes in intestinal function and visceral pain perception and GI symptoms. Cognitions accompanying GI symptoms might include beliefs of poor ability to control symptoms, or beliefs that the GI sensations experienced represent a serious underlying illness. These contexts and cognitions can lead to fear, worry and avoidance behaviours, which can be associated with reduced quality of life[137].

Migraine

Migraine is a common debilitating neurological disorder that affects about 8-12% of the general population. It is more prevalent in women than in men[138].

Migraine usually begins at an early age to mid-adolescence. The prevalence of migraine increases until about age 40. Females have an earlier onset and, by approximately a 3:1 ratio, far greater prevalence.[139]

Stress and other emotions are the common triggering factors mentioned for Migraine. Recent knowledge about the relationship between Migraine and stress suggests that stress is a key precipitating and aggravating factor that causes or worsens migraine[140]. As a negative influence it can result in feelings of distrust, rejection, anger and depression, which in turn can lead to health problems such as headache[141].

It has been suggested that stress can modify migraine in many different ways. It is believed that stress can provoke the onset of clinically symptomatic migraine, that it can act as a trigger for migraine attacks, and that it can amplify the intensity and duration of the migraine attack.

The biology of stress and migraine may be linked on several levels. The first of these is the physiological stress response, which involves both the hypothalamic-pituitary-adrenocortical axis, and the sympathetic nervous system including the adrenal medulla. Activation of both these systems leads to the behavioural and physiological changes observed in response to stress, and these inturn could potentially trigger migraine attacks or affect migraine in other ways. Under normal circumstances, corticotrophin releasing hormone (CRH) is secreted from the hypothalamus in a diurnal pattern so that levels are higher in the morning and lower in

the evening. As a result cortisol is released from the adrenal cortex in a similar pattern. Stress is a potent stimulus for CRH release from the hypothalamus in the same way that it is a potent activator of the autonomic nervous system with release of epinephrine. Stress-related activation of these two systems results in increased arousal, as well as stimulation of the dopamine and beta endorphin systems.

Another way that chronic stress may physiologically impact headache is through alteration of the immune system. Chronic stress can activate the immune system in such a way that pain transmission is facilitated at the neuronal level. Inflammatory mediators such as TNF-alpha IL-1beta, IL-6, and nitrous oxide may act as pain mediators and can sensitize the pain matrix. Finally, migraine sufferers may be particularly vulnerable to the effects of stress through the physiological stress response[142].

Role of Serotonin in migraine

Serotonin is the crucial factor in the link between vasodilatation and headache. Transient depletion of 5-HT can result in migraine attacks. Receptors for 5-HT is present in cranial arteries and are also widely distributed in the CNS where they play a role in the neural control of cranial circulation and endogenous pain control system.

Sympathetic Nervous System in Migraine

All factors which activate sympathetic nervous system trigger the syndrome of migraine. These factors include stress, sleep, hypoglycaemia etc and agents which cause release and secondary depletion of peripheral catecholamines. Those patients are more susceptible to migraine who genetically have variation in the ability to maintain the adequate concentration of their peripheral neurotransmitter within

postganglionic sympathetic nerve terminals. This proposed hypothesis is known as empty neuron theory of migraine[143].

Trigemino-vascular system in migraine

According to this proposed mechanism there is activation of cells in the pain processing centre for head and face, the trigeminal nucleus caudalis in the medulla. This results in production of vaso-active neuropeptides which include 'substance P' at vascular termination of the trigeminal nerve leading to the inflammation which activates the trigeminal nociceptors on the vessel wall leading to the swelling and tenderness of the vessel walls[144].

Dopamine in Migraine

Data support a role for dopamine in the pathophysiology of certain subtypes of migraine. Most migraine symptoms can be induced by dopaminergic stimulation. Moreover, there is dopamine receptor hypersensitivity in migraineurs, as demonstrated by the induction of yawning, nausea, vomiting, hypotension and other symptoms of a migraine attack by dopaminergic agonists at doses that do not affect non migraineurs. Dopamine receptor antagonists are effective therapeutic agents in migraine, especially when given parenterally or concurrently with other anti-migraine agents[145].

Health related quality of life and Migraine

Migraine attacks result in significant reduction in health-related quality of life of the sufferers compared with normal healthy subjects. The acute burden of migraine is determined by the intense pain and associated symptoms, while the consequences of migraine attacks often lead to missed work and impairment of work activities, reduced social/ recreational activities and poor mental health[146].

In a study it was observed that pain intensity was reported as severe by 80% of migraineur's. Majority of the patients experienced nausea along with headache. 90% of migraineur's reported functional impairment with their headaches. 53% exhibited impairment severe enough to require bed rest, nearly a third had missed at least one day of work or school in the three months preceding the survey and 51% reported that productivity was reduced by atleast half due to headache[147]. Household, family and social activities were even more often disrupted than work. Migraineur's quality of life appears affected not only during headache but also between attacks. Migraineur's exhibited greater emotional distress, decreased contentment and lower vitality compared to age/ gender matched controls[148].

Migraine may even lead to unemployment. Data from a health maintenance organization in the USA demonstrated an unemployment rate in severe migraine sufferers that was two -fold to four fold greater than that of the general population[149]. The quality of life in migraine measures the individual impact of a disease in the following domains; physical, psychological, social, spiritual and role functioning and general well being[150].

Migraine is therefore a remarkably disabling condition, with most sufferers reporting significant impact associated with their attacks in all areas of their lifestyles.

Psoriasis

Psoriasis is a chronic cutaneous condition with l%-2% prevalence in the general population. Both genetic and environmental factors are believed to play an important role in the pathogenesis of this disorder[151].

Psoriasis is associated with an increased rate of proliferation of the epidermal cells; the characteristic lesions are deep red, thickly scaling plaques that may affect any region of the skin.

It is a multifactorial disorder associated with significant psychological distress[152]**.** Psychosomatic factors have been estimated to be present in at least one-third of patients with dermatological conditions[153]. Psychosocial factors have been implicated as being important factors in the onset & or exacerbation of psoriasis in 40% to 80% of cases. In the dermatologic literature, psoriasis has been classified as a disorder where emotional and constitutional factors "collaborate in different degrees"[154].

In the psychiatric literature, psoriasis is listed under psychosomatic disorders or a disorder where psychological factors affect the physical condition. Patients with psoriasis report that their disease leads to various psychological and psychosomatic consequences such as feeling of anger, depression, anxiety and social isolation[155].

Body Image Disfigurement occurring during adolescence has been reported to have a great impact on body image in later life. This may be especially important in psoriasis, where 58% of patients develop psoriasis before age 30 years, 35% before age 20years, and 10% before age 10 years. Presence of lesions on exposed body parts and increased severity have both been reported to adversely affect the patient's body image[8]. In a study it was observed that psoriasis was often attributed to "venereal disease, dirt, and neglect," leading to a "considerable social effect." Presence of

psoriasis in areas of high visibility such as face and hands can impair social and occupational functioning to a significant degree[156].

In a survey of over 4500 dermatologic patients, 2% of the patients had psoriasis, and emotional factors were reported to "trigger the onset of symptoms" in 62% of the psoriatics[7157]. In a Danish study involving 245 children with psoriasis, "stress" was observed to be a provocative factor in 90% of patients[158].

In a study it was shown that patients with psoriasis experience higher levels of stigmatization related to disease than do other dermatological patients, and that these experiences of stigmatization play a role in mediating the impact of disease severity on quality of life in patients with psoriasis[159].

Pathophysiologic mechanism in Psoriasis

It has long been recognized that stress has the potential to modulate the immune system, probably through the activation of the hypothalamic-pituitary–adrenocortical axis and the sympathetic and adrenomedullary system. When activated, hormones and neuropeptides involved in the regulation of inflammatory and immune responses are released into the circulation[160]. While stress is generally regarded as immunosuppressive, the duration, intensity, and persistence of the stressor are important distinguishing features of the stress response. Recent evidence further suggests that the stress hormones glucocorticoids and catecholamines have differential effects on cellular and humoral immunity by affecting the differentiation of type 1 and type 2 helper T (TH1 and TH2) cells. Furthermore, invitro studies have shown that glucocorticoids can influence cytokine responses in a way that favours TH2-type reactions by inhibiting the production of interleukin (IL) 12 and promoting the production of IL-4. Stress might thus be among the factors that contribute to the

development of a predominant TH2 cytokine pattern, promoting IgE production and possibly initiating allergic inflammation[161].

The results of prospective birth cohort study suggest that the presence of stress-related maternal factors during pregnancy is associated with an increased risk of childhood eczema during the first 2 years of life. Beyond the second year, no increased risk was observed, suggesting that other factors may override the influence of prenatal stress. A prenatal influence of maternal stress during pregnancy on immune functions in the offspring has been hypothesized recently. In a study it was found that maternal nervousness during pregnancy was associated with elevated levels of cord blood IgE. An increase in umbilical cord IgE is, in turn, considered a risk factor for childhood atopy. Furthermore, it has been demonstrated that pregnant women with psychosocial stress have increased serum levels of pro-inflammatory cytokines, and alterations in circulating maternal cytokines are suspected to be related to allergy later in life. There is evidence from earlier epidemiological and animal studies that psychological stress can exacerbate atopic eczema and may thus be an important predictor of symptom severity[162].

Health related quality of life and Psoriasis.

The disease has a major impact on patient's quality of life. Several studies have documented the anguish, stress and enormous disruption experienced by the people with psoriasis in their daily lives, their relationships with others and their perceptions of themselves[163].

Psychosocial burden plays a substantial role in patient's perception of disease severity, quality of life, and disease course.

Although psoriasis generally does not affect survival, it certainly has a number of major negative effects on patients, demonstrable by a significant detriment to

quality of life[164]. The patient with psoriasis feel stigmatized by the condition is well established. This itself contributes to everyday disability leading to depression and suicidal ideation in more than 5% of patients[165].

The two main contributors to stress in patients with psoriasis are engaging in avoidance behaviour and the belief that they are being evaluated on the basis of their skin disease. This constraining, avoidance behaviour may lead to low grade persistent stress. This observation implies that ‘‘severity’’ of psoriasis is a composite of physical and psychological factors. Stress in the form of pathological worry has a deleterious effect on response to therapy. Up to 60% of patients describe stress as being a key “exacerbator” or trigger of their disease[166]. Psoriasis patients often experience difficulties like maladaptive coping responses, problems in body image, self esteem, self concept and also have feelings of stigma, shame and embarrassment regarding their appearance. Discussing their skin condition, covering their lesions, and avoiding contact with people are significantly associated with negative impact on life[167].

Various factors may be attributed to the lower quality of life in psoriasis patients. The chronic and recurring nature of this disease often brings about a feeling of hopelessness in terms of cure for the condition. Patients are constantly concerned with the interference with future plans due to an unexpected outbreak of symptoms. This possibly intensifies due to their lack of control over the disease[168]. Lack of control is one of the most bothersome aspects in psoriasis patients[169]. Psoriasis patients frequently feel ashamed and embarrassed about their condition and consider this to be the worst aspect of their disease[170].

MATERIALS AND METHODS

The materials used for the study were:

1. Literary sources
2. Observational tools

Literary sources

The primary source of literature for the present study was taken from different classical text books of Ayurveda. Along with that, related information was compiled from other resources such as *Vedas, Upanishads* and Indian philosophical texts. Information was also gathered from the text books of contemporary medical science and different journals. Previous studies conducted at different universities and other research centres were compiled.

All the information related with the topic was collected by *Samucchaya vidhi* and *Unccha shiloccha vidhi.*

Observational tools

***Sathva* assessment questionnaire**-This questionnaire was developed as a part of research work carried out in the department of P. G Studies in *Ayurveda Siddhanta,* Government Ayurveda Medical College, Mysore published in the year 2008(Annexure-I). It contains 36 questions; each question has 5 options of answers and key scores. The questionnaire is presented both in Kannada and English languages. It was administered once for each individual. In the beginning of the questionnaire instructions were given as to how the questions are to be answered.

Methodology of assessment of Sathvabala of an individual

Sathva assessment questionnaire was used to assess *Sathvabala* of an individual. The individuals were informed about the questionnaire and the purpose of administering it to them. A written consent was also obtained. They were informed about 36 questions and instructions were given to mark whichever option appropriately suits them among the 5 options of answers. It was also suggested to answer all the questions compulsorily. No time limit was fixed to complete the questionnaire. However they were informed not to indulge in an undue delay. In some under educated persons each question was read and explained and was scored on the option of answer given by the individual.

Scoring was done based on the scoring pattern of the questionnaire.

Methods

Objectives of the study

1. To compile the available literature on psychosomatic disorders and conceptualize psychosomatic disorders from Ayurvedic perspective.
2. To assess the role of sathvabala of the individuals in specific psychosomatic disorders through an observational study.

Research design

- The study consisted of two research designs.
- The conceptual research design was followed to review the literature on psychosomatic disorders from Ayurvedic perspective.
- To assess the different grades of sathva in specific psychosomatic disorders, an observational study design was adopted.

Source of the patients

Sample: For the observational study a total number of 200 subjects, which constituted 50 patients from each of the following four diseases namely Essential hypertension, Irritable bowel syndrome, Migraine and Psoriasis approaching the OPD, IPD of Govt Ayurvedic Medical College and Hospital, Mysore and also from the special camps conducted in the college, were selected for the study.

Inclusion criteria

- The patients fulfilling the diagnostic criteria of four psychosomatic disorders namely Essential hypertension, Irritable bowel syndrome, Migraine and Psoriasis were selected for the study.
- Patients of either sex between the age group of 16-60 years were selected for the study.
- Already diagnosed cases, freshly diagnosed cases based on diagnostic criteria mentioned below.
- Both treated and untreated cases were selected for the present study.

Diagnostic criteria:

I. Irritable bowel syndrome

- Abdominal pain /discomfort in association with frequent diarrhoea or constipation
- Change in bowel habits
- Urgency for bowel movements
- A feeling of incomplete evacuation (tenesmus)
- Bloating /abdominal distention

II. Psoriasis

- Raised areas of inflamed skin covered with silvery white scaly skin (plaques).
- Smooth inflamed patches of skin occurring in skin folds, armpits and is aggravated by friction and sweat
- Numerous small oval (teardrop-shaped) spots appearing over the trunk, limbs, and scalp
- Raised bumps that are filled with non-infectious pus (pustules) occurring at hands and feet.

III. Essential hypertension – Systolic ≥ 140mmHg.

Diastolic ≥ 90 mmHg.

(More than three recordings)

***IV.* Migraine.**

❖ ***Without aura***

A. At least five attacks fulfilling criteria B to D

B. Headache attacks lasting for 4-72 hours

C. Headache has at least two of the following characteristics:

1. Unilateral location
2. Pulsating quality
3. Moderate to severe pain intensity
4. Aggravation by or causing avoidance of routine physical activity

D. During the headache, at least one of the following is present:

1. Nausea and/or vomiting
2. Photophobia and phonophobia

❖ ***With aura***

Aura consisting of at least one of the following, but no motor weakness:

- Fully reversible visual symptoms including positive features (e.g. flickering lights, pots or lines) and/or negative features (i.e. loss of vision)
- Fully reversible sensory symptoms including positive features (pins and needles) and/or negative features (numbness)

Exclusion criteria

- Patients with any other systemic ailments which interferes with the study.
- Patients who are unwilling, violent or who have other concurrent psychiatric diagnosis were excluded.

Sampling method

Simple random sampling method was used for the study.

Statistical methods

Statistical Analysis to assess Individual and comparative effects of the data, was done using descriptive statistics, frequencies, cross tabulations, Chi- Square test and one-way ANOVA. All the statistical methods were carried out through the SPSS (Statistical presentation system software) for Windows (version 18.0)

OBSERVATIONS AND RESULTS

In the present study a total number of 200 individuals were taken for the observational study. All the 200 individuals completely answered the questionnaire that was given to them for the purpose of study.

Table No.11; Showing the distribution of Age in individuals of four psychosomatic disorders.

GROUP	AGE			Total	P Value
	16-34	35-52	53-70		
HTN	0	26	24	50	**0.000**
	0.00%	52.00%	48.00%	100.00%	
IBS	12	30	8	50	
	24.00%	60.00%	16.00%	100.00%	
MGR	18	29	3	50	
	36.00%	58.00%	6.00%	100.00%	
PSR	15	27	8	50	
	30.00%	54.00%	16.00%	100.00%	
Total	45	112	43	200	
	22.50%	56.00%	21.50%	100.00%	

Out of 50 cases of HTN, 26(52.00%) patients were between the age group of 35-52 years and 24(48.00%) patients were between the age group of 53-70 years.

Out of 50 cases of IBS, 12(24.00%) patients were between the age group of 16-34 years, 30(60.00%) patients were between the age group of 35-52 years and 8(16.00%) patients were between the age group of 53-70 years of age.

Out of 50 cases of MGR, 18(36.00%) patients were between the age group of 16-34 years, 29(58.00%) patients were between the age group of 35-52 years and 3(6.00%) patients were between the age group of 53-70 years of age.

Out of 50 cases of PSR, 15(30.00%) patients were between the age group of 16-34 years, 27(54.00%) patients were between the age group of 35-52 years and 8(16.00%) patients were between the age group of 53-70 years of age.

Table No .12; Showing the distribution of Gender in individuals of four psychosomatic disorders.

GROUP	GENDER		Total	P Value
	Male	Female		
HTN	21	29	50	**0.000**
	42.00%	58.00%	100.00%	
IBS	20	30	50	
	40.00%	60.00%	100.00%	
MGR	7	43	50	
	14.00%	86.00%	100.00%	
PSR	30	20	50	
	60.00%	40.00%	100.00%	
Total	78	122	200	
	39.00%	61.00%	100.00%	

Out of 50 cases of HTN, 21(42.00%) patients were males and 29(58.00%) patients were females.

Out of 50 cases of IBS, 20(40.00%) patients were males and 30(60.00%) patients were females.

Out of 50 cases of MGR, 7(14.00%) patients were males and 43(86.00%) patients were females.

Out of 50 cases of PSR, 30(60.00%) patients were males and 20(40.00%) patients were females.

Table No .13; Showing the distribution of Religion in individuals of four psychosomatic disorders.

GROUP	RELIGION			Total	P Value
	Hindu	Muslim	Christian		
HTN	37	13	0	50	**0.064**
	74.00%	26.00%	0.00%	100.00%	
IBS	39	11	0	50	
	78.00%	22.00%	0.00%	100.00%	
MGR	43	5	2	50	
	86.00%	10.00%	4.00%	100.00%	
PSR	44	6	0	50	
	88.00%	12.00%	0.00%	100.00%	
Total	163	35	2	200	
	81.50%	17.50%	1.00%	100.00%	

Out of 50 cases of HTN, 37(74.00%) patients were Hindus and 13(26.00%) patients were Muslims.

Out of 50 cases of IBS, 39(78.00%) patients were Hindus and 11(22.00%) patients were Muslims

Out of 50 cases of MGR, 44(88.00%) patients were Hindus and 6(12.00%) patients were Muslims.

Out of 50 cases of PSR, 43(86.00%) patients were Hindus, 5(10.00%) patients were Muslims and 2(4.00%) patients were Christians.

Table No .14; Showing the distribution of Occupation in individuals of four psychosomatic disorder

GROUP	OCCUPATION					Total	P Value
	Agriculturists	Labourers	Servicemen	House Wives	Students		
HTN	7	8	7	28	0	50	**0.000**
	14.00%	16.00%	14.00%	56.00 %	0.00%	100.00 %	
IBS	5	6	10	24	5	50	
	10.00%	12.00%	20.00%	48.00 %	10.00%	100.00 %	
MGR	4	4	6	29	7	50	
	8.00%	8.00%	12.00%	58.00 %	14.00%	100.00 %	
PSR	38	10	2	0	0	50	
	76.00%	20.00%	4.00%	0.00%	0.00%	100.00 %	
Total	54	28	25	81	12	200	
	27.00%	14.00%	12.50%	40.50 %	6.00%	100.00 %	

Out of 50 cases of HTN, 7(14.00%) patients were agriculturists, 8(16.00%) patients were labourers, 7(14.00%) were servicemen and 28(56.00%) were housewives

Out of 50 cases of IBS, 5(10.00%) patients were agriculturists, 6(12.00%) patients were labourers, 10(20.00%) were servicemen, 24(48.00%) were housewives and 5(10.00%) were students.

Out of 50 cases of MGR, 4(8.00%) patients were agriculturists, 4(8.00%) patients were labourers, 6(12.00%) were servicemen, 29(58.00%) were housewives and 7(14.00%) were students.

Out of 50 cases of PSR, 38(76.00%) patients were agriculturists, 10(20.00%) patients were labourers, 2(4.00%) were servicemen.

Table No .15; Showing the distribution of Marital status in individuals of four psychosomatic disorders

GROUP	MARITAL STATUS			Total	P Value
	Married	Unmarried	Widow		
HTN	47	0	3	50	
	94.0%	.0%	6.0%	100.00%	
IBS	39	7	4	50	
	78.0%	14.0%	8.0%	100.00%	
MGR	38	10	2	50	**0.056**
	76.0%	20.0%	4.0%	100.00%	
PSR	38	10	2	50	
	76.0%	20.0%	4.0%	100.00%	
Total	162	27	11	200	
	81.0%	13.5%	5.5%	100.00%	

Out of 50 cases of HTN, 47(94.00%) patients were married and 3(6.00%) patients were widows.

Out of 50 cases of IBS, 39(78.00%) patients were married, 7(14.00%) patients were unmarried and 48.00%) patients were widows.

Out of 50 cases of MGR, 38(76.00%) patients were married, 10(20.00%) patients were unmarried and 2(4.00%) patients were widows.

Out of 50 cases of PSR, 38(76.00%) patients were married, 10(20.00%) patients were unmarried and 2(4.00%) patients were widows.

Table No .16; Showing the distribution of Socio economic status in individuals of four Psychosomatic disorders

GROUP	SOCIO ECONOMIC STATUS				Total	P Value
	Poor	Lower middle	Middle	Upper middle		
HTN	1	28	21	0	50	**0.002**
	2.00%	56.00%	42.00%	0.00%	100.00%	
IBS	1	12	32	5	50	
	2.00%	24.00%	64.00%	10.00%	100.00%	
MGR	0	21	29	0	50	
	0.00%	42.00%	58.00%	0.00%	100.00%	
PSR	0	26	24	0	50	
	0.00%	52.00%	48.00%	0.00%	100.00%	
Total	2	87	106	5	200	
	1.00%	43.50%	53.00%	2.50%	100.00%	

Out of 50 cases of HTN, 1(2.00%) patient was poor, 28(56.00%) patients belonged to lower middle class and 21(42.00%) patients belonged to middle class.

Out of 50 cases of IBS, 1(2.00%) patient was poor, 12(24.00%) patients belonged to lower middle class, 32(64.00%) patients belonged t middle class and 5(10.00%) patients belonged to upper middle class.

Out of 50 cases of MGR, 21(42.00%) patients belonged to lower middle class and 29(58.00%) patients belonged to middle class.

Out of 50 cases of PSR, 26(52.00%) patients belonged to lower middle class and 24(48.00%) patients belonged to middle class.

Table No .17; Showing the distribution of Education in individuals of four psychosomatic disorders.

GROUP	EDUCATION				Total	P Value
	Illiterate	Primary	secondary	Graduate		
HTN	19	16	14	1	50	**0.003**
	38.00%	32.00%	28.00%	2.00%	100.00%	
IBS	7	13	18	12	50	
	14.00%	26.00%	36.00%	24.00%	100.00%	
MGR	8	14	18	10	50	
	16.00%	28.00%	36.00%	20.00%	100.00%	
PSR	4	20	16	10	50	
	8.00%	40.00%	32.00%	20.00%	100.00%	
Total	38	63	66	33	200	
	19.00%	31.50%	33.00%	16.50%	100.00%	

Out of 50 cases of HTN, 19(38.00%) patients were illiterates, 16(32.00%) patients had primary education, 14(28.00%) patients had secondary education and 1(2.00%) patient was graduated.

Out of 50 cases of IBS, 7(14.00%) patients were illiterates, 13(26.00%) patients had primary education, 18(36.00%) patients had secondary education and 12(24.00%) patients were graduated.

Out of 50 cases of MGR, 8(16.00%) patients were illiterates, 14(28.00%) patients had primary education, 18(36.00%) patients had secondary education and 10(20.00%) patients were graduated.

Out of 50 cases of PSR, 4(8.00%) patients were illiterates, 20(40.00%) patients had primary education, 16(32.00%) patients had secondary education and 10(2000%) patients were graduated.

Table No .18; Showing the distribution of Locality in individuals of four psychosomatic disorders

GROUP	LOCALITY		Total	P Value
	Urban	Rural		
HTN	31	19	50	**0.139**
	62.00%	38.00%	100.00%	
IBS	41	9	50	
	82.00%	18.00%	100.00%	
MGR	38	12	50	
	76.00%	24.00%	100.00%	
PSR	35	15	50	
	70.00%	30.00%	100.00%	
Total	145	55	200	
	72.50%	27.50%	100.00%	

Out of 50 cases of HTN, 31(62.00%) patients belonged to urban area and 19(38.00%) patients belonged to rural area.

Out of 50 cases of IBS, 41(82.00%) patients belonged to urban area and 9(18.00%) patients belonged to rural area.

Out of 50 cases of MGR, 38(76.00%) patients belonged to urban area and 12(24.00%) patients belonged to rural area.

Out of 50 cases of PSR, 35(70.00%) patients belonged to urban area and 15(30.00%) patients belonged to rural area.

Table No .19; Showing the distribution of Diet intake in individuals of four psychosomatic disorders.

GROUP	DIET		Total	P Value
	Vegetarian	Mixed		
HTN	12	38	50	**0.016**
	24.00%	76.00%	100.00%	
IBS	18	32	50	
	36.00%	64.00%	100.00%	
MGR	25	25	50	
	50.00%	50.00%	100.00%	
PSR	12	38	50	
	24.00%	76.00%	100.00%	
Total	67	133	200	
	33.50%	66.50%	100.00%	

Out of 50 cases of HTN, 12(24.00%) patients were vegetarians and 38(76.00%) patients were on mixed diet.

Out of 50 cases of IBS, 18(36.00%) patients were vegetarians and 32(64.00%) patients were on mixed diet.

Out of 50 cases of MGR, 25(50.00%) patients were vegetarians and 25(50.00%) patients were on mixed diet.

Out of 50 cases of PSR, 12(24.00%) patients were vegetarians and 38(76.00%) patients were on mixed diet.

Table No .20; Showing the distribution of Nature of physical work in individuals of four Psychosomatic disorders.

GROUP	NATURE OF PHYSICALWORK			Total	P Value
	Hard	Moderate	Sedentary		
HTN	9	41	0	50	**0.002**
	18.00%	82.00%	0.00%	100.00%	
IBS	8	31	11	50	
	16.00%	62.00%	22.00%	100.00%	
MGR	8	38	4	50	
	16.00%	76.00%	8.00%	100.00%	
PSR	8	41	1	50	
	16.00%	82.00%	2.00%	100.00%	
Total	33	151	16	200	
	16.50%	75.50%	8.00%	100.00%	

Out of 50 cases of HTN, 9(18.00%) patients were hard working, and 41(82.00%) patients were moderately working.

Out of 50 cases of IBS, 8(16.00%) patients were hard working, and 31(62.00%) patients were moderately working and 11(22.00%) patients had sedentary work.

Out of 50 cases of MGR, 8(16.00%) patients were hard working, and 38(76.00%) patients were moderately working and 4(8.00%) patients had sedentary work.

Out of 50 cases of PSR, 8(16.00%) patients were hard working, and 41(82.00%) patients were moderately working. 1(2.00%) patient had sedentary work.

Table No .21; Showing the distribution of Prakruti in individuals of four Psychosomatic disorders.

GROUP	PRAKRUTI					Total	P Value
	Vata Patta	Pitta Vata	Pitta Kapha	Kapha pitta	Kapha Vata		
HTN	2	25	9	9	5	50	**0.004**
	4.00%	50.00%	18.00%	18.00%	10.00%	100.00%	
IBS	10	7	14	10	9	50	
	20.00%	14.00%	28.00%	20.00%	18.00%	100.00%	
MGR	4	16	12	10	8	50	
	8.00%	32.00%	24.00%	20.00%	16.00%	100.00%	
PSR	9	23	9	9	0	50	
	18.00%	46.00%	18.00%	18.00%	0.00%	100.00%	
Total	25	71	44	38	22	200	
	12.50%	35.50%	22.00%	19.00%	11.00%	100.00%	

Out of 50 cases of HTN, 2(4.00%) patients belonged to *vata-pitta prakruti,* 25(50.00%) patients belonged to *pitta-vata prakruti,* 9(18.00%) patients belonged to *pitta-kapha prakruti,* 9(18.00%) patients belonged to *kapha-pitta prakruti* and 5(10.00%) patients belonged to *kapha-vata prakruti*

Out of 50 cases of IBS, 10(20.00%) patients belonged to *vata-pitta prakruti,* 7(14.00%) patients belonged to **pitta-vata prakruti,** 14(28.00%) patients belonged to *pitta-kapha prakruti*, 10(20.00%) patients belonged to *kapha-pitta prakruti* and 9(18.00%) patients belonged to *kapha-vata prakruti*.

Out of 50 cases of MGR, 4 (8.00%) patients belonged to *vata-pitta prakruti,* 16(32.00%) patients belonged to *pitta-vata prakruti,* 12(24.00%) patients belonged to

pitta-kapha prakruti, 10(20.00%) patients belonged to *kapha-pitta prakruti* and 8(16.00%) patients belonged to *kapha-vata prakruti*

Out of 50 cases of PSR, 9(18.00%) patients belonged to *vata-pitta prakruti,* 23(46.00%) patients belonged to *pitta--vata prakruti,* 9(18.00%) patients belonged to *pitta-kapha prakruti,* and 9 (18.00%) patients belonged to *kapha-pitta prakruti.*

RESULTS

Table No .22; Showing the distribution of Sathva in individuals of four Psychosomatic disorders.

GROUP	SATHVA				Total	P Value
	Pravara	Pravara madhyama	Avara madhyama	Avara		
HTN	14	6	15	15	50	
	28.0%	12.0%	30.0%	30.0%	100.0%	
IBS	4	9	17	20	50	
	8.0%	18.0%	34.0%	40.0%	100.0%	
MGR	6	4	18	22	50	
	12.0%	8.0%	36.0%	44.0%	100.0%	**0.003**
PSR	8	9	15	18	50	
	16.0%	18.0%	30.0%	36.0%	100.0%	
Total	32	28	65	75	200	
	16.0%	14.0%	32.5%	37.5%	100.0%	

Out of 50 cases of HTN, 14(28.00%) patients had *pravara sathva,* 6(12.00%) patients had *pravara madhyama sathva,* 15(30.00%) patients had *avara madhyama sathva* and 15(30.00%) patients had *avara sathva.*

Out of 50 cases of IBS, 4(8.00%) patients had *pravara sathva,* 9(18.00%) patients had *pravara madhyama sathva,* 17(34.00%) patients had *avara madhyama sathva* and 20(40.00%) patients had *avara sathva.*

Out of 50 cases of MGR, 6(12.00%) patients had *pravara sathva*, 4(8.00%) patients had *pravara madhyama sathva,* 8(36.00%) patients had *avara madhyama sathva* and 22(44.00%) patients had *avara sathva.*

Out of 50 cases of PSR, 8(16.00%) patients had *pravara sathva,* 9(18.00%) patients had *pravara madhyama sathva,* 15(30.00%) patients had *avara madhyama sathva* and 18(36.00%) patients had *avara sathva.*

Overall, out of 200 patients of psychosomatic disorder, 32(16.00%) patients had *pravara sathva,* 28(14.00%) patients had *pravara madhyama sathva*, 65(32.5.00%) patients had *avara madhyama sathva* and 75(37.5.00%) patients had *avara sathva.*

Illustration No.2; Showing the incidence of Age

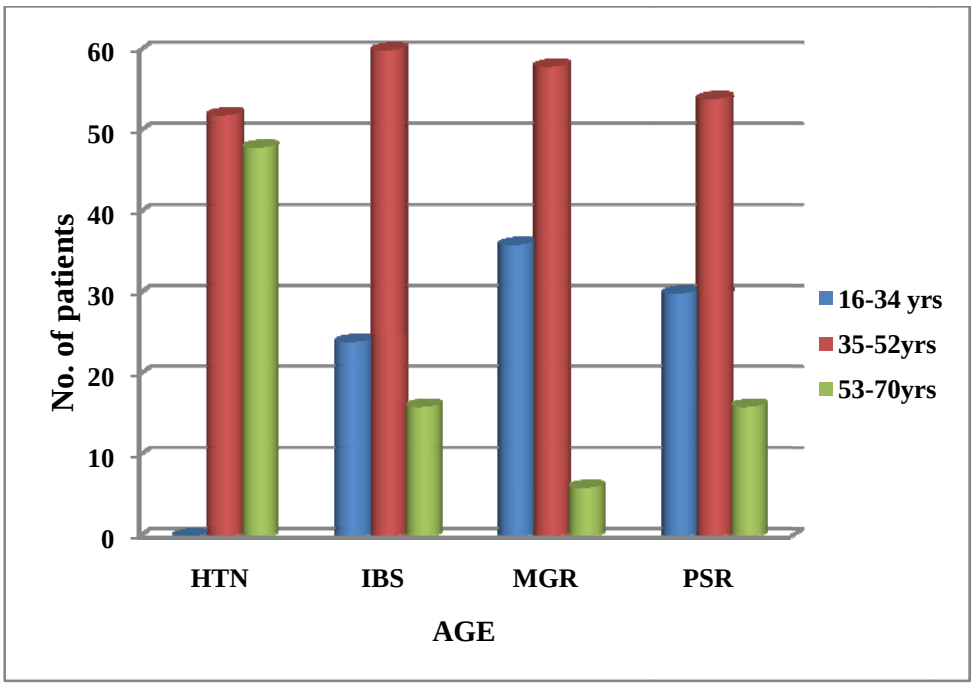


Illustration No.3 ; Showing the incidence of Gender

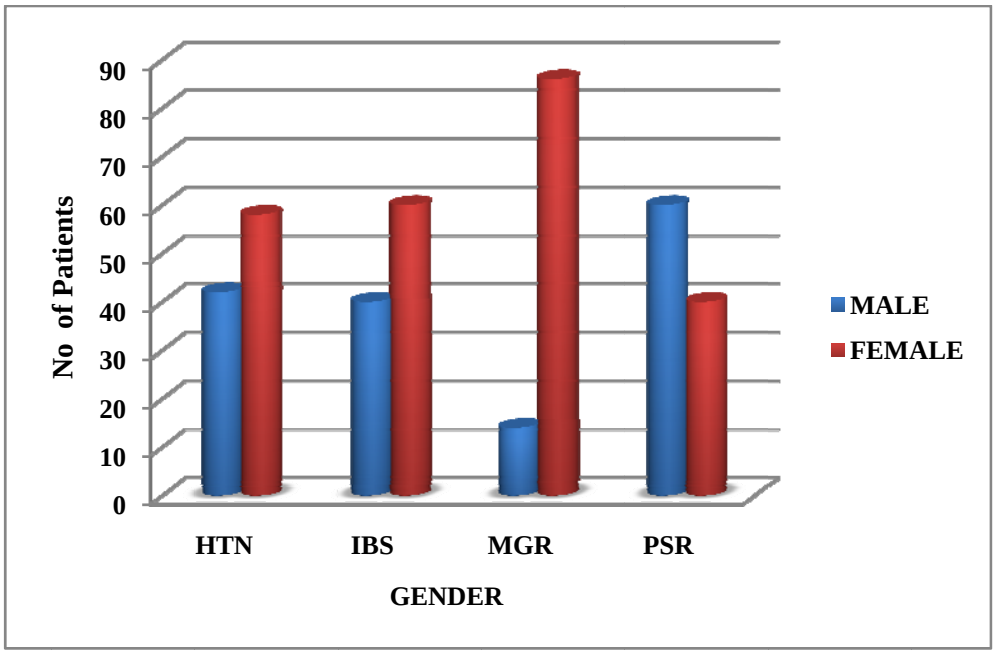


Illustration No.4; Showing the incidence of Religion

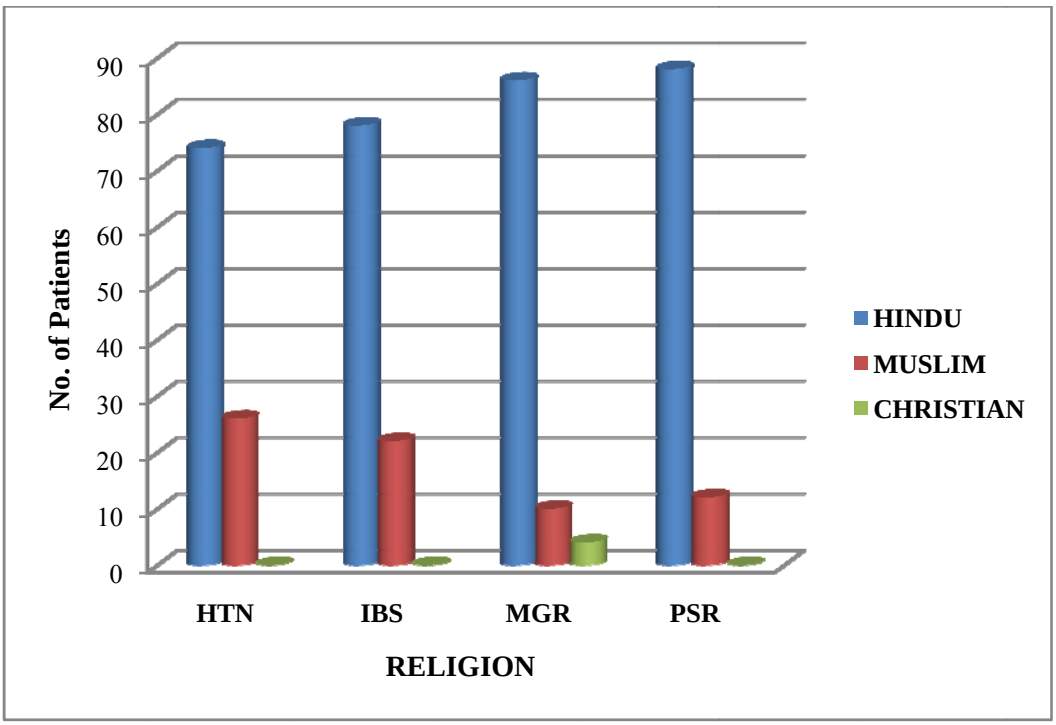


Illustration No.5; Showing the incidence of Marital status

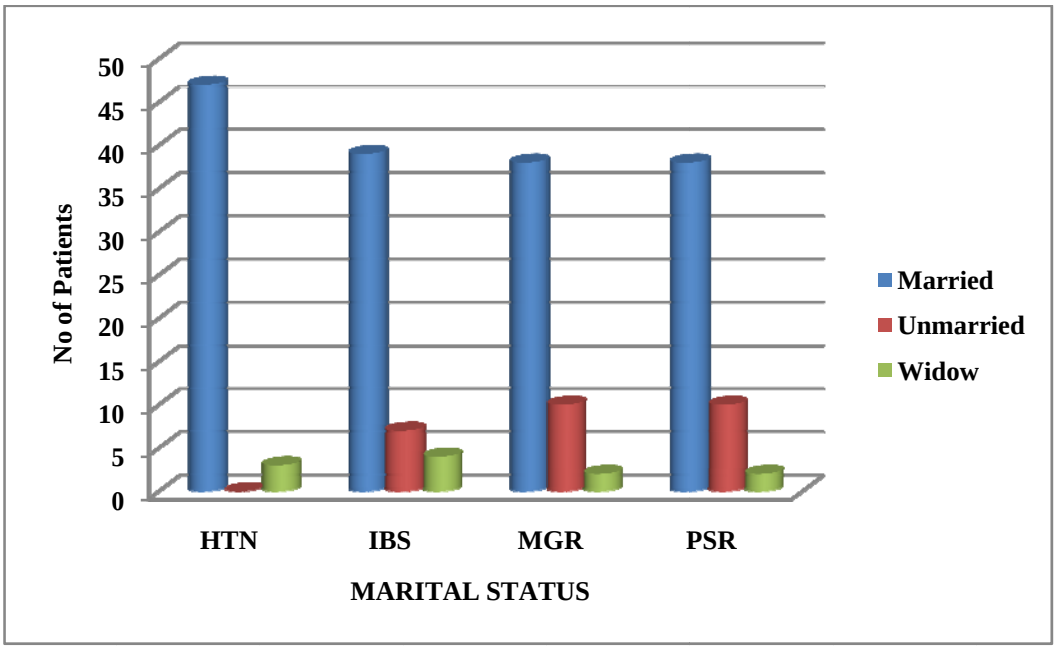


Illustration No.6; Showing the incidence of Occupation

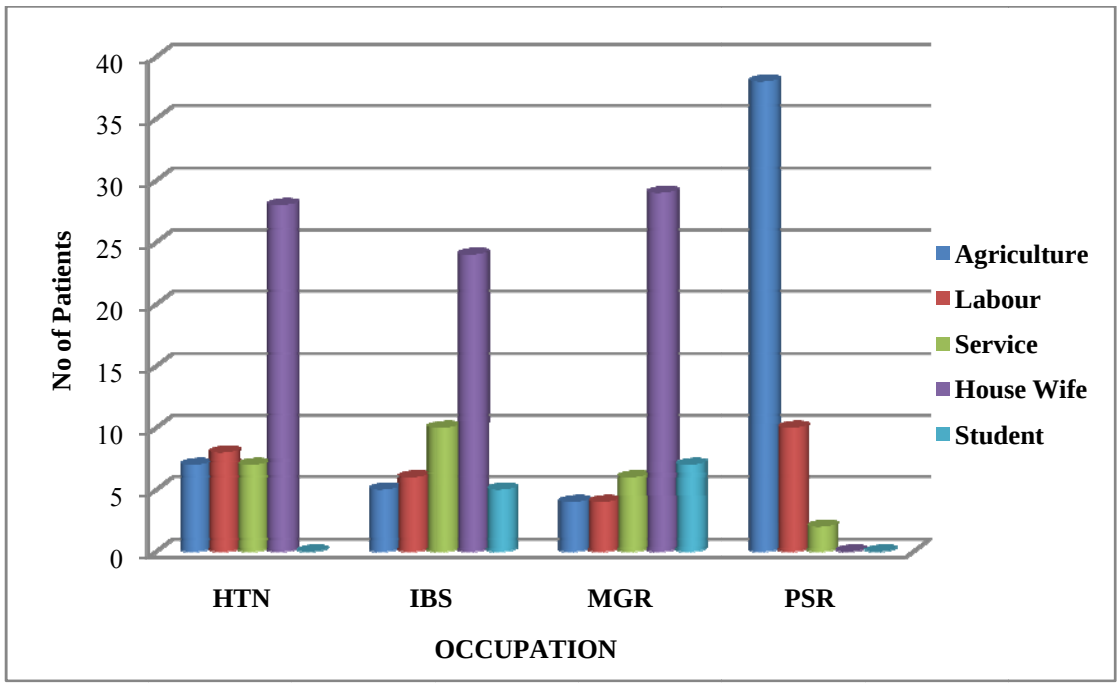


Illustration No.7; Showing the incidence of Socio economic status

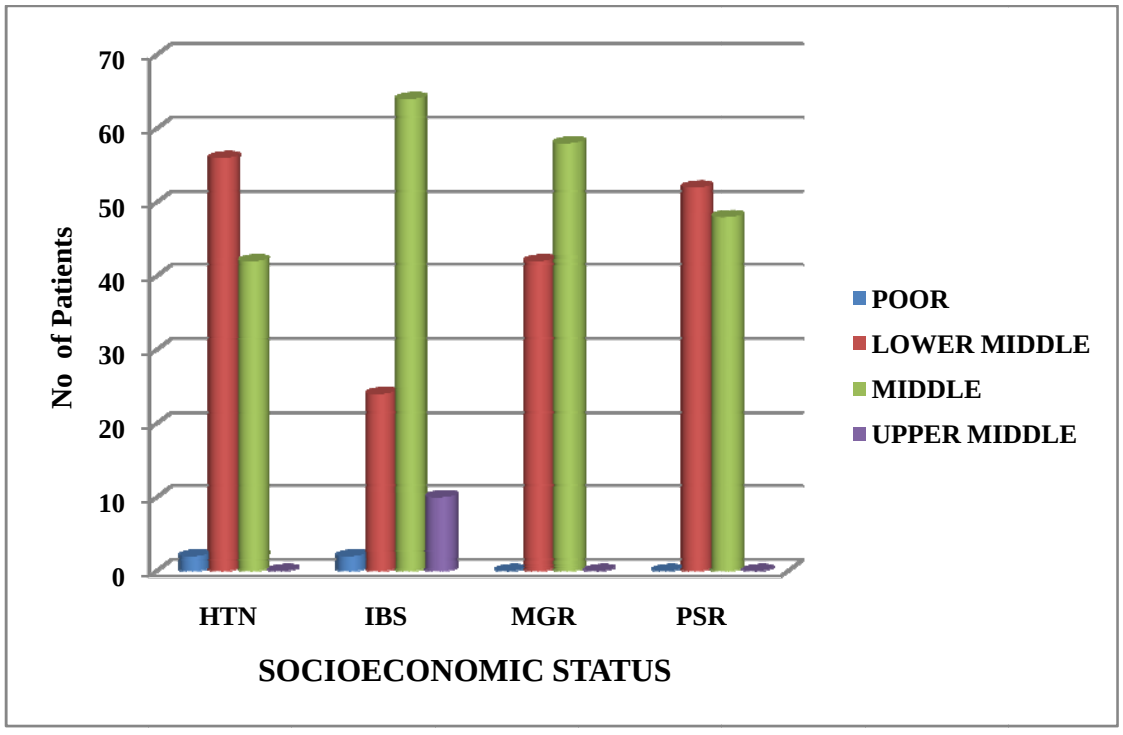


Illustration No.8; Showing the incidence of Locality

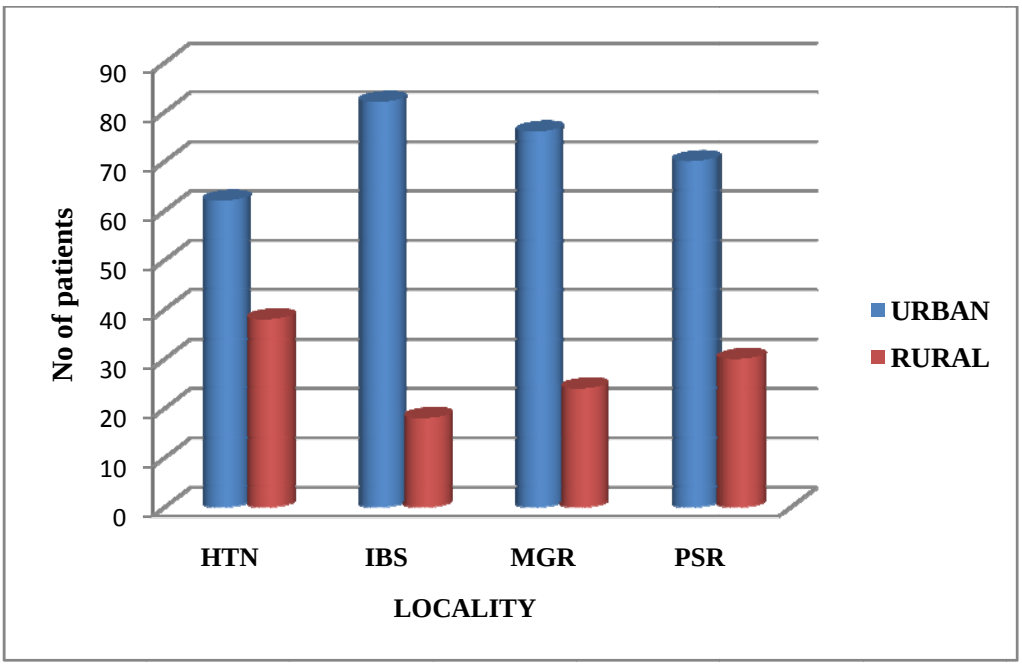


Illustration No.9; Showing the incidence of Education

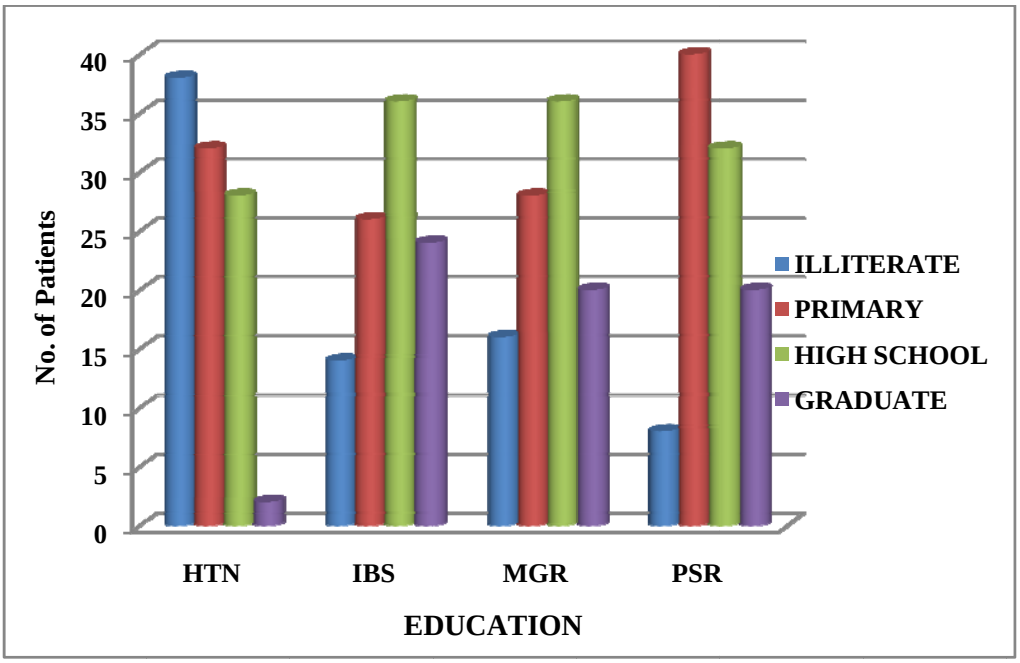


Illustration No.10; Showing the incidence of Diet pattern

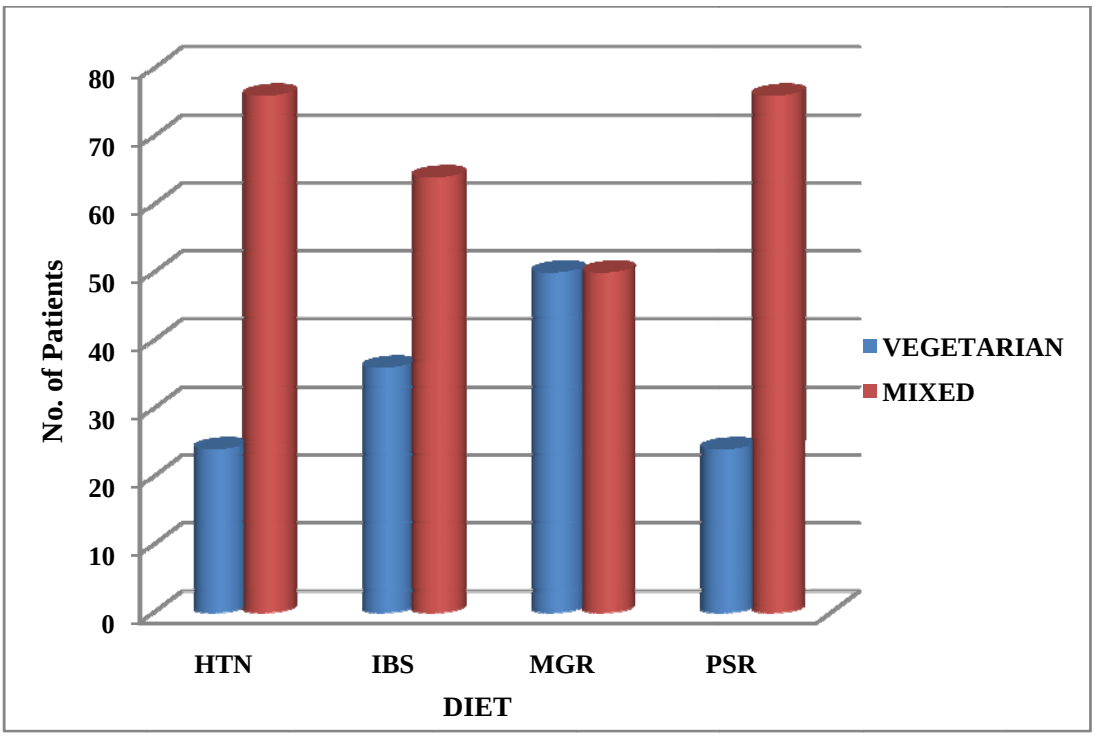


Illustration No.11; Showing the incidence of Nature of physical work

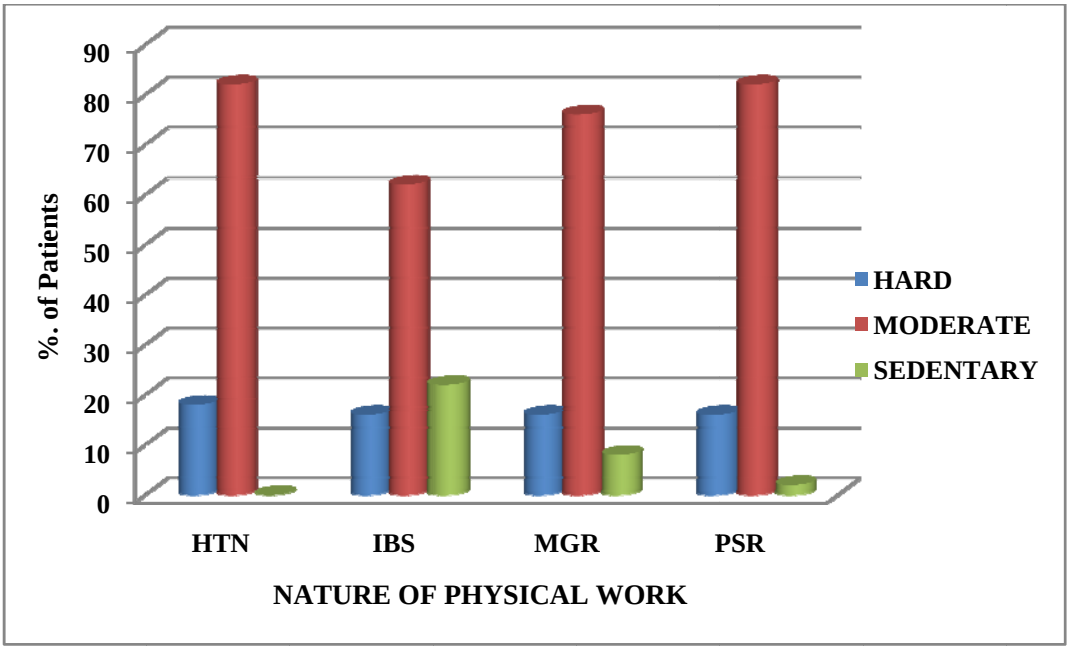


Illustration No.12; Showing the incidence of Prakruti

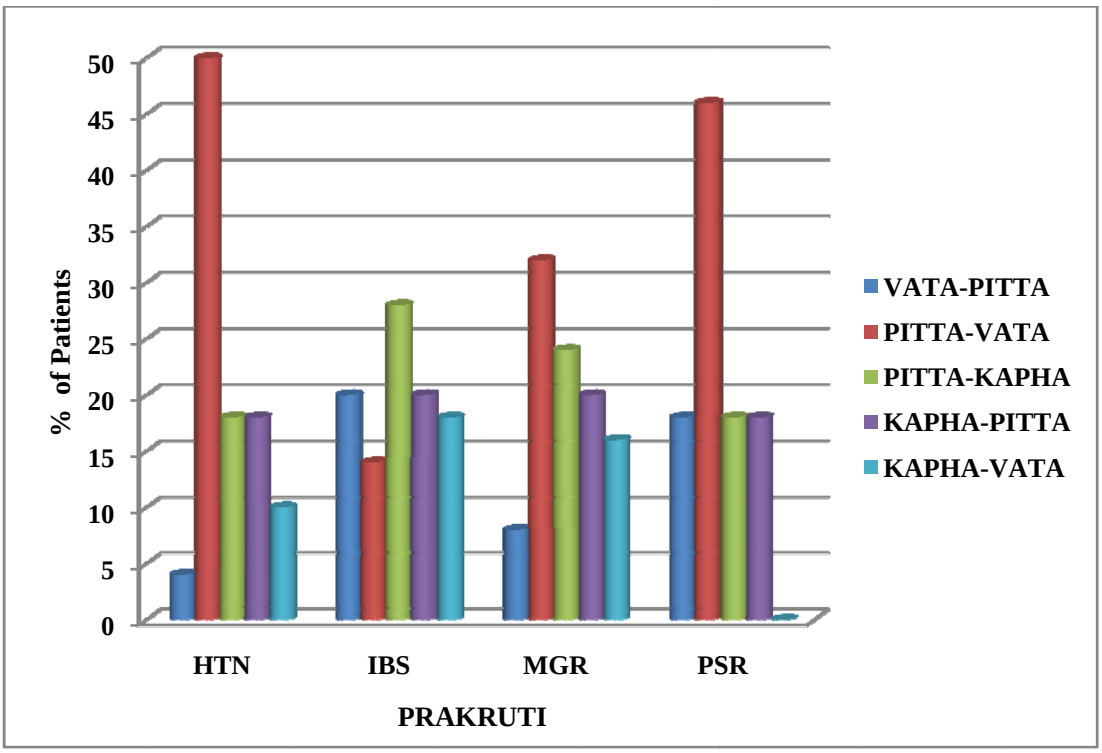


Illustration No.13; Showing the result of Sathva

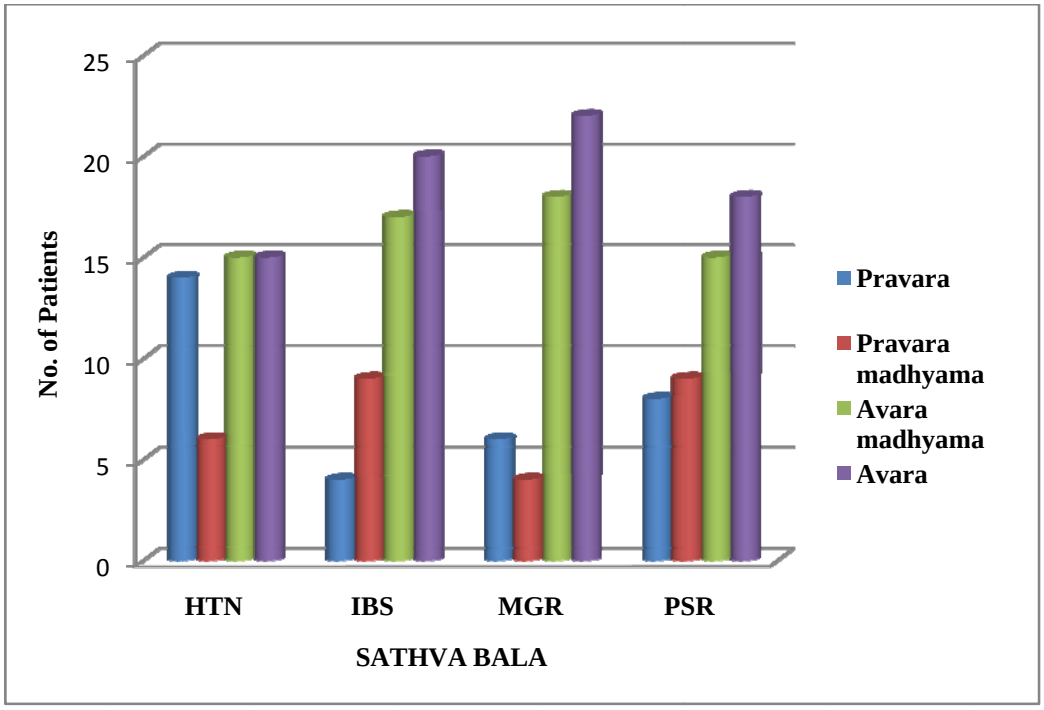
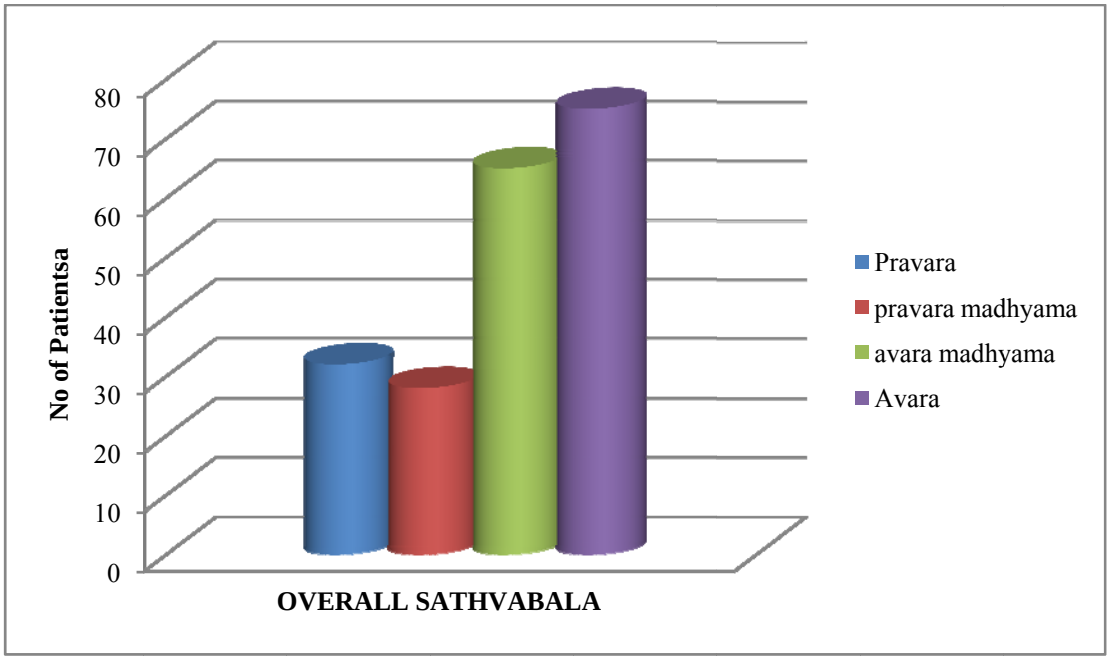


Illustration No.14; Showing the over all result of Sathva



DISCUSSION

Discussion on the title

"A conceptual study of Psychosomatic disorders - An Ayurvedic perspective and assessment of *Sathva* in specific Psychosomatic disorders".

Psychosomatic medicine emphasizes the unity of mind and body and the interaction between them. Overall, the conviction is that the psychological factors are important in the development of all diseases; either the role is in the initiation, progression, aggravation or exacerbation of diseases, or in the predisposition or reaction to a disease.

Manas and *Sharira* are regarded as separate entities in Ayurveda, but not in the sense of separation, because, an organism is the complex combination of mind, soul and body. So, technically speaking the Ayurvedic theory cannot be regarded as a dualistic approach, firstly because soul is also a part of the complex human organism, secondly the theory of Ayurveda is of integration and not of separate existence.

Sharirika and *Manasika Doshas* are found to be affecting mutually each other. It seems that Ayurveda has followed the psychosomatic approach where much emphasis is given to the integration aspect of these two factors. In somatic disease the psychological aspects have not been neglected, similarly in psychological disease the organic aspects have been given due consideration.

One can find huge information in Ayurveda, which establishes that the Ayurvedic approach to disease is definitely psychosomatic in nature. But there was a need for the scattered literature to be compiled, rearranged and reorganized to form a concept and hence this study was undertaken to conceptualize Psychosomatic disorders from the perspective of Ayurveda.

In the present study, the term *Sathva* has been used to denote *Sathvabala* (stress threshold) of an individual based on *Aptopadesha pramana* and *Upadesha tantrayukti,* as explained in the context of *dashavidha pariksha* of *Charaka samhita*. *Sathvabala pariksha* is an important factor which determines the stress threshold of a person to disease. Hence this study was carried out based on the hypothesis that persons suffering from psychosomatic disorders will have low stress threshold and hence the four psychosomatic disorders namely Essential Hypertension, Irritable bowel syndrome, Migraine and Psoriasis were taken for the present study.

Discussion on Review of literature

Mind influences the physiology and pathology of the physical body. Hence to understand the concept properly the interrelationship between mind and body is explained both in physiological and pathological states.

In Ayurveda *Manas* is considered as *Tantraka- Niyamaka* of body. Physical and psychological disorders affect each other. This is explained by a simile stating that "if hot Ghee is poured in a bowl then the bowl will also become hot and if Ghee is poured in a hot bowl then Ghee will liquefy due to heat"[20a]. The same condition is for *Manas* and *Sharira.* If the heat i.e. disease is present in any one of them it will affect the other one definitely. In this context ghee is simulated to mind and vessel to the body.

Physiology of Manas:

Psychology has identified and studied three components of mind: cognition, conation and affect.

'Cognition' can be considered to the process of knowing and understanding; the process of encoding, storing, processing, and retrieving information. It is generally associated with the question of "what".

'Conation' can be considered to the connection of knowledge and affect to behaviour and is associated with the issue of "why." It is the personal, intentional, planful, deliberate, goal-oriented, or striving component of motivation, the proactive (as opposed to reactive or habitual) aspect of behaviour. It is closely associated with the concept of volition, defined as the use of will, or the freedom to make choices about what to do.

'Affect' can be considered to be the emotional interpretation of perceptions, information, or knowledge. It is generally associated with one's attachment (positive or negative) to people, objects, ideas, etc.

Manas is chiefly responsible for the whole process of cognition, conation and affect. *Chakrapani*, the commentator of *Charaka Samhita* in the chapter *Indriyopakramaniya adhyaya,* mentions three different functions of Manas, where in *Sukhadi jnanam* can be considered to affect, *Chintya chintanadi* to cognition and *Indriya prerana* to the psychomotor activity[171]. *Manas* is termed as *atindriya*, and also *antarindriya,* since it collects information through the external faculties, processes them and presents the perceived knowledge to the *atma*. *Atma,* the abode of knowledge initiates the *buddhi* to take decisions based on the presented facts.

Relationship between *Manas* and *Sharirika doshas:*

Vata is considered as *Niyantraka* and *Preraka* of *Manas*. Out of five types of *Vayu* especially *Prana, Udana* and *Vyana* have greater influence on *Manas.* They are very much related to seat of *Manas* i.e. *Hrudaya* and *Shiras*. *Prana Vayu* moves in the *Urah, Shira pradesha* regulating the organs situated in these places along with the

control of mental thoughts and assists better concentration. The emotions provoke all the *doshas. Chinta* and *Shoka* vitiate *Vayu. Krodha* increases *Pitta,* while *Bhaya* increases *Vata*. The emotions primarily act upon the *Manas* and *Manasika Doshas* i.e., *Raja* and *Tama*, which inturn vitiate the *Sharirika Doshas.*

The concept of *Sadhaka Pitta* appears to be psychophysiological in outlook. This variety of *Pitta* may be a substance or a complex of substances, which seems to be essential in connection with some of the higher mental faculties and emotional states. According to *Sushruta samhita, Sadhaka Pitta* is the main factor which facilitates all desires of the individual. On that reference, commentator *Dalhana* in *Nibandha Sangraha* comments that it gives the *Artha Chatushtaya*. Again it is said that, the *Pitta* is located in *Hrudaya*, known as *Sadhakagni*, whose function is to enable one to achieve one's aspiration. While commenting upon this, *Dalhana* has further elaborated the functional aspect of *Sadhaka pitta* as it does its functions by dispelling the *Kapha* and *Tamas* of the *Hrudaya* and thus enables the *Manas* to perceive things clearly[172]. *Dalhana* has clearly correlated *Manas* and *Hrudaya* with the functioning of *Sadhaka pitta*. *Ashtanga hrudaya* also states that the location of *Sadhaka pitta* is in *Hrudaya* and is attributed with *Buddhi* (intelligence), *Medha* (memory and intellect), *Abhimana* (self esteem and ego factor) and the capacity that enables one to achieve one's aspiration[36a].

Normal mental functions like firmness, enthusiasm, knowledge, intellect, forgiveness, non-greediness are under the control of *Kapha* with the interaction of *Tamas. Kapha* during the vitiated state produces many types of disorders at the level of *Manas*. During the state of *Vruddhi,* it influences *Buddhi* and *Smruti,* hampers the normal functioning of *Manas*. During the state of *Kshaya,* it represents the lassitude, ignorance, lack of skills, courage and patience. Out of five types of *Kapha,* especially

Avalambaka, Tarpaka and Bodhaka varieties have greater influence on the conative, cognitive and emotional activities of *Manas.* Among them the seat of *Avalambaka Kapha* is *Hrudaya* and *Phuppusa*, which is also the seat of Manas. *Jnanendriyas* are located in *shira* which is the seat of *Tarpaka Kapha* also. *Bodhaka Kapha* influences the *Manas* to produce desire towards different types of *Ahara.*

By this one can say that Sharirika doshas have impact on *Manas* both physiologically and psychologically.

Discussion on Relationship between *Manas* and *Sharirika prakruti:*

The concept of *prakruti* gives us an insight into likes, dislikes, emotional and intellectual capabilities, the attitudes, orientation, urges, inclinations, temperaments, behavioural patterns, habits, manners and conduct of an individual. The psychological traits and behaviour vary from person to person. Ayurvedic classical texts have narrated them as *Manasika Prakruti* separately, however while describing the *daihika* or *doshaja prakruti* some specific mental activities are mentioned. E.g. *Pitta Prakruti* person owns the nature of *"Kshipra kopa-prasada"* and *Vata* dominant person is narrated as *"Kalilola"*. These are present in an individual from birth, which remains unchanged throughout one's life and is not harmful in normal conditions, while it paves way for the oncoming diseases. Sudden or gradual onset of stress and frustration may precipitate spontaneous changes.

The persons having *Vata/Pitta Prakruti* are more susceptible to *manasika vyadhis* because their *Manas* gets affected easily and they overreact to emotional feelings, whether it is *sukha* or *dukha.* Whereas, in persons having *Kapha Prakruti* these diseases occur minimally because their *Manas* do not get affected easily and they react minimally to emotional feelings.

Vata Prakruti individuals, because of their over exciting and enthusiastic nature get frustrated very frequently. They often have a negative attitude about themselves. They will have more worries and negative imaginations abut their condition. They often seek for attention and sympathy more than developing their own understanding. They are happy in receiving advice but not consistent in following it. They require a lot of assurance.

Pitta Prakruti individuals because of their *manasika bhavas,* are highly intelligent and expect to be convinced of the validity of everything. They need to use their critical insight to understand the cause of their problems. They become more arrogant, possessing more ego, fearlessness, claim unduly and proudly.

Kapha Prakruti individuals are slow to respond and have difficulty in discussing their problems. They are prone to addictions and depressions that prevent them from developing the proper initiative to improve them. They need more frequent counselling to stimulate them to get started, but once started they continue well on their own accord.

From above all descriptions one can notice that *Manas* plays an important role in regulating the bodily activities at the metaphysical, intellectual and physical level. The perfect harmony of Mind is responsible for the perfect harmony of body because body is merely an out picturing of the mind.

Discussion on relationship between *Manas* and *Srotas:*

In Ayurveda, the concept of *Srotas* has been propagated very specifically. Body is composed of numerous *Srotas,* which have a significant role in the maintenance of the equilibrium of body elements. They are responsible for the maintenance of health as well as for the diseased condition. Their functions include nourishment, circulation, excretion and reproduction. In brief, the concept of *Srotas*

includes microscopic, macroscopic, anatomical, physiological and pathological consideration. *Manovaha srotas* is considered as a subtle srotas which is spread-out through out the body except *nakha* and *kesha* which is also called as *Sanjnavaha srotas.*

Charaka samhita emphasizes the concepts to understand and explain the *Srotas* and their role in the maintenance of health and bringing out a pathological condition. While explaining the *srotodushti nidanas, Charaka samhita* mentions that over worrying *(Chintyanam Cha Atichintanat)*[61a] is one of the nidana of *rasavaha Srotodushti. Rasavaha srotodushti* is an aftereffect of *ajirna,* which is caused by the disturbed state of mind. Eventhough the food is in proper quality and wholesome, it may not get properly digested if the person is affected by *Chinta* (worry), *Shoka* (grief), *Bhaya* (fear) etc. The causes of *ama* include *Kama* (lust), *Krodha* (anger), *Lobha* (greed), *Moha* (confusion) and *Shoka* (grief). *Svedavaha Srotas* is also important since *Krodha, Shoka* and *Bhaya* causes *Svedavaha srotodushti*. This shows the importance of *manasika* components while differentiating bodily characteristics.

Discussion on the relationship between *Manas* and *Sara:*

The eight kinds of *sara* have been enumerated based on the preponderance of a particular *dhatu* in the body. Enumeration of *twak, rakta, mamsa, meda, asthi, majja* and *shukra sara* is based on the strength of physical body where as *sathva sara* is based on the psychological strength. Eventhough *sathva sara* is mentioned separately, some psychological characters are attributed to each *sara.* This again shows the importance of *manasika* components while differentiating bodily characteristics.

Discussion on the Relationship of *Manas* with *ahara* and *ahara vidhi:*

As *hitakara, pathyatama* and *satmya* qualities, *Ahara* plays an important role in maintenance of health. If *Ahara* is not consumed in prescribed way it may leads to diseases. *Ahara*, as well as the method of its intake have impact on physiological and pathological level of *Manas.*

Ahara vidhi can be defined as a system, method, manner, way, arrangement, rule, law, command, conduct, condition or statement for diet intake. *Ahara vidhi vishesa ayatana* means, the causative factors responsible for the wholesome and unwholesome effect of the methods for food intake. *Matravat ahara* does proper nourishment of the senses. To eat in a congenial place is needed for the sound psychological condition during meals. Otherwise the unpleasant place can lead to the disturbed mind *(Manovighata). Ishta* term suggests favoured, beloved, liked, etc. The place should be pleasant, which can provide calm and healthy state of mind for good concentration towards food. The most important statement is that the food should be eaten with enough concentration towards it, as well as towards the eating process. Talking and laughing diverts the attention from the meals leading to quick or slow eating process. By this, the secretion of digestive juices gets disturbed and finally the system also gets affected which affects body as well as mind.

The emotions affect *agni* and mainly *annavaha* and *purishavaha srotas*. When envy, hate, fear become habitual, they are capable to start organic as well as functional changes leading to many diseases. These emotions are able to induce striking modifications in every tissue of body. Digestive system is the most sensitive system of the body to respond to such emotions. Hence, rightly the abdomen is called 'the sounding board of the emotions'. More than any other system, it reflects the disturbances in emotional sphere since it is supplied with autonomic nerve fibres -

both of the sympathetic and parasympathetic systems which form the communication between brain centres and the viscera.

Discussion on the interrelationship of *Manas* and *Sharira*

Manas and *Sharira* are so interlinked that if one is affected, the other also gets affected. This can be understood by a simile where in *Manas* is simulated to a frightful serpent whose head is long in the form of *trushna*. Its head is *dwesha, visha* is *kama* and *krodha,* fangs are *vitarka,* eyes are full of *raga, asya* is with *moha* which dwells in the cavity in the form of one's own body[19a].

It is said that "When allowed to persist for long time, these psychic disorders viz. *Kama* etc. and somatic disorder like *Jvara* etc. may get affected with each other". *Chakrapani* opines four possibilities in this context i.e.

(i) *Shariranam Sharirena* (ii) *Manasanam Manasena*

(iii) *Shariranam Manasena* (iv) *Manasanam Sharirena*[17b]

Among these it is to be pointed out that there is involvement of both mental as well as physiological aspects of man in varying degrees in all kinds of disease.

Charaka samhita has mentioned many instances where it has been shown that somatic disorders also affect the psychic conditions of human being e.g. *Vata vrudhi* causes *anidra*. *Pitta vruddhi* causes *murcha* and *Kapha vruddhi* causes *tandra* and *nidra*. There are many somatic diseases where mental symptoms have been pointed out along with the physical symptoms. Various diseases like *jwara, atisara, vatika Shiroroga, chardi, ama, ajirna, dhvajabhanga, klaibya, akamata*, delayed healing of *vrana* are produced due to emotional disturbances. Vitiation of *Manasika Doshas* i.e. *Rajas* and *Tamas* takes place due to *Krodha, Raga* etc, thus initially disturbing the *Manas*, which further affects the behaviour of man and in this way favourable conditions are developed for the origin of physical disorders.

One of the above described *manasika bhavas* may be a potent cause to aggravate other *manasika bhavas*, because they are intermingled in nature which is very well explained in *Bhagavad Gita* as, "Man dwelling on Sense objects develops attachment for them, from attachment springs up desire and from desire (if unfulfilled) ensures anger. From anger arises infatuation, from infatuation confusion of memory, from confusion of memory loss of intellect, from loss of intellect one goes to complete ruin."[173]

Discussion on Psychosomatic disorders

Psychiatry has demonstrated that everyone has his 'breaking point' and that illness is determined by the impact of an upsetting event on a sensitized individual. If the personality is sensitive enough, because of neurotic disposition, a comparatively minor episode may be the precipitating factor for a psychotic, psychoneurotic or psychosomatic illness. So it is of the greatest importance to know the patient's ability to adjust to certain life situations, his pattern of reacting to them, the degree of anxiety in their psychological make-up and the nature and seriousness of the conflicts, which is very well explained in *Sathva pariksha* which helps in assessing the same.

The mind is not created independently of the body but is very definitely linked with it. When feelings and thoughts exist which cannot be expressed by word or action, they may find expressions through some organ or organ system. The result is a 'language of the organs' which may express itself in illness if the personality is not sufficiently developed to solve its problems through other channels. The organ which 'speaks' is most likely to be the organ which was most susceptible to stressors and whose function was in ascendance with mind. But constitutional, hereditary and environmental factors may also determine the 'choice of organ'. Thus a particular system affected in a given person depends not only on the specificity of the emotions,

but also on anatomical and physiological derangements in an organ or system of organs which may be probably produced by both general and local factors. In Ayurvedic point of view, this can be correlated with the *Khavaigunyata* where *dosha dushya sammurchana* takes place.

Some disorders characterized by physiological changes originate, at least in part, from emotional factors which is clearly told by *Chakrapani* as *Shariranam manasena* in the context of *paraspara anubandha* of *Sharira* and *Manas* which was explained previously. The below mentioned table shows the theorized psychological factors in classical psychosomatic disorders:

Table No.23; Showing theorized psychological factors in classical Psychosomatic disorders.

Disease	Psychological factors	Presumed psychosomatic mechanism
Hyperacidity (Peptic ulcer)	Inhibited dependence; general stress	Increased acid secretion
Essential hypertension	Conflict over hostility; general stress	Vasoconstriction
Bronchial asthma	Conflict over wish for protection or separation; anxiety; general stress	Bronchospasm
Migraine	Conflict over control; general stress	Vasoconstriction and vasodilatation
Thyrotoxicosis (Graves' disease)	Conflict over premature self-sufficiency	Increased thyroid-stimulating hormone secretion
Diarrhoea (ulcerative colitis)	Conflict over an obligation	Gastrointestinal cholinergic activation

Psychological state influences the body organs through a combination of three interrelated mechanisms: neural, hormonal, and immunological mechanisms. Voluntary movements (for example, clenching the teeth) are mediated through the motor neurons by the conscious command of the brain. In stress, clenching of the teeth, mediated by the same motor neurons, may also occur, but the act may not be voluntary and conscious. Stress usually causes an activation of the sympathetic nervous system and the hypothalamo-pituitary-adrenal axis followed by a decrease in immunocompetence. Immune mechanisms may be suppressed in part through corticosteroid activation, but a decrease in T-lymphocyte activity in stress may not be mediated by hormones.

Persons susceptible to Psychosomatic disorders:

Psychologically a well adjusted normal person likes to be efficient, effective and flexible, and is able to profit from his experience of the past. If such a person is exposed to any stressful situation, he faces them with reasonable amount of courage by adopting fight or flight response. As soon as the circumstances change, these emotional responses diminish and disappear.

However if a person is psychologically weak he will have too many responses which would not be proportional to the stimuli and whose effects remain in the person for an abnormally long time. In such persons the abnormal responses are unpredictable and irrational. Many persons, especially those who have an introvert personality, do not outwardly show that they are uncomfortable, tense or unhappy. Such person's external behaviour may be completely different from what they feel internally. He or she may appear outwardly calm, but feels quite upset internally. It is these persons who are likely to develop most of the psychosomatic diseases. On the other hand extroverts are less likely to be affected by psychosomatic diseases.

Discussion on Somatoform disorders

Many people run to the doctor even though nothing is really wrong with them. This is usually a harmless tendency. But for a few individuals, the preoccupation with their health or appearance becomes so great that it dominates their lives and hence their problem falls under the general heading of somatoform disorders. 'Soma' means the body, and the problems preoccupying these people seem, initially, to be physical disorders. This can be correlated with the commentary of *Chakrapani* wherein he states '*Shariraanaam maanasena'* i.e. at a later time *Manas* influences *Sharira.*

Cloninger et al[174] identified three features that assist in characterizing somatization disorder but rarely include general medical disorders. The three features are,

a. Early onset and chronic course without development of physical or structural abnormalities of the disorder
b. Involvement of multiple organ systems, and
c. Absence of laboratory abnormalities characteristic of the suggested disorder.

In somatization disorder, the patient recurrently complains of multiple somatic symptoms that are referrable to every organ system in the body and which, upon medical investigation, turn out not to be a diagnosable physical disease. This disorder is distinguished from conversion disorder by the chronicity and multiplicity of its symptoms. The symptoms do not usually symbolize psychological conflicts but may represent general dysphoria and distorted illness behavior.

Discussion on *Sathvabala*

The concept of *sathva pariksha* is an important part of *rogi pariksha* irrespective of the *vyadhi* mentioned in the context of *dashavidha pariksha.*

Classifying the individuals based on strength of *Manas* as *pravara sathva, madhyama sathva* and *avara sathva* helps physician to adopt appropriate *chikitsa.* The characteristic features of them are as follows;

Table No.24; Showing the characteristic feature of *pravara sathva, madhyama sathva* and *avara sathva.*

Pravara sathva	***Madhyama sathva***	***Avara sathva***
Smrutimaan	*Paravad vyathasahishnu*	*Swatah Vyatha asahishnu*
Bhatimaan	*Paraashvasanaa vyathasahishnu*	*Para ashvasanaa vyatha asahishnu*
Krutajna	-	*Sannihita bhaya, shoka, lobha,moha, maana*
Buddhimaan	-	*Attainment of vishada, vaivarnya, unmada, prapatana by seeing the following; (a)raudra, bhairava, dwishta,bibhatsa, vikruti sankathamaakarnya (b) pashu purusha mamsamaavekshya (c) pashu purusha shonitamaavekshya*
Shuchi	-	
Mahotsaha	-	
Daksha	-	
Dheera	-	
Samaravikrantayodhina	-	
Tyakta vishada	-	
Suvyavasthitagati	-	
Gambhira buddhi	-	-
Gambhira chesta	-	-
kalyanabhinivesha	-	-

People with *pravara sathva* eventhough have severe disease, the manifestation seems to be in a milder form; on the other hand the disease appears to be severe and exaggerated in people with *avara sathva.*

In this study, *Sathvabala* is classified into (1) *Avara sathva*, (2) *Madhyama sathva* (for the sake of convenience which is further sub classified into *avara-madhyama sathva* and *pravara-madhyama sathva*) and (3) *Pravara sathva*. The concept of *laghu vyadhita* and *guru vyadhita* can be understood here based on the reason that *guru vyadhita* person will have *pravara Sathvabala*. On the contrary *laghu vyadhita* person will have *avara sathvabala*. Hence the person with *avara* and *avara madhyama sathva* can be considered for *laghu vyadhita* and persons with *pravara-madhyama* and *pravara sathva* for *guru vyadhita*. This is shown in table as follows;

Table No.25; Showing the different grades of *Sathva* in *Laghu Vyadhita* and *Guru Vyadhita*

Avara sathva	***Avara-madhyama sathva***	***Pravara-madhyama sathva***	***Pravara***
St B (-)	St B (-)(+)	St B (+)(+)	St B (+) (+) (+)

Laghu Vyadhita ***Guru Vyadhita***

St B represents *sathvabala*

(+) is *pravara*

(-) is *avara*

Discussion on Stress

Stress remains one of the biggest cause of psychosomatic disorders. Stress is a fundamental part of living that can have both positive and negative effects on an individual's health. Stress can be positive, acting as a catalyst in producing helpful changes. However, stress is negative when there is a disproportion between what an individual wants or feels capable of doing and the constraints of the environment. This causes an excessive amount of pressure and demand on the individual. If this pressure is unrelieved, unmanaged, or chronically experienced, the stress may have deleterious effects on the individual's health and well-being. Stress is the unaware response to a demand. Stress becomes a problem when the demand exceeds an individual's ability to respond or to cope effectively.

Normally any type of stress would lead to series of changes in the body so as to make a person adapt himself efficiently to the changed environment. The series of changes are alarm reaction, stage of resistance and stage of recovery or exhaustion. If proper adaptation leading to full recovery does not take place, the person goes into a stage of exhaustion leading to development of one of the diseases of stress.

As a science, psychosomatic medicine aims at discovering the precise nature of the relationship of the emotions and bodily functions. To a certain degree every emotion finds some bodily expressions. The individual will show his emotions in some visible form, perhaps in his posture and attitude. The emotions and their physical expressions tell us how the mind is acting and reacting in a situation, which it interprets favourable or unfavourable.

Stress and Immune system

When the central nervous system receives cognitive stimuli, neurotransmitters convey that information by hormonal pathways to receptors on immune cells. This causes immunological changes. The immune system helps to maintain homeostasis within the body. During stress certain hormones such as cortisol and epinephrine, are released in higher amounts. These hormones are known to depress T-cell activity, and thus depressing one's immune system.

The behavioural characteristics in individuals may influence their immune response to stress. It is suggested that personality characteristics may have a role in how the immune system responds to stress. Passive individuals may have lower cortisol levels, and consequently, have fewer alterations in their immune systems in response to stressors. Both the mind and body respond to stressors, and the physiological pathways of the neuroendocrine and immune systems communicate between them.

It must be pointed out that stress alone does not necessarily determine how well or poorly the immune system will function. The important factor is the ability of the individual to cope with stress. How an individual perceives a stressful event may be more important than the existence of the stress itself. Individuals with high stress levels and excellent coping skills may have minimal effects on the functioning of their immune systems. A low level of stress in individuals who have poor coping skills may have significant alterations in their immune functioning, increasing their susceptibility to disease. This can be understood by the *Tapta Ajya Ghata Nyaya* which tells that body gets influenced or affected by mind.

Stress and neurotransmitters

Sheldon[175] defines mainly three types of personalities, with reference to biochemical basis of psychosomatic constitution. These personalities rely upon relative preponderance of three Neuro hormones, which may be responsible for total personality, including its constituents- psyche and physique. These Neuro hormones are - acetylcholine, catecholamine (non- adrenaline) and histamine. In an absolutely normal person, which is normally rare to find, the three Neuro hormones are expected to be in balanced proportion, without preponderance of any. Sheldon describes these three personalities as dominant, submissive, and dependent, according to the preponderance of catecholamine, acetylcholine, and histamine respectively.

These three Neuro hormones and related enzymes form a link in transactions between mind and body i.e. translating emotional stimuli to physical and physiological changes, somatic symptoms and later pathological changes of psychosomatic disease concerned.

Preponderance of one or the other hormone is responsible for psychosomatic make up of an individual, as well as his susceptibility to different types of illnesses, their form, course and prognosis. When disturbing and harmful emotional stimuli are often repeated, they result into causing disease in a target organ, through over secretion of Neuro hormones, characteristic of the concerned personality. The target organ may be an organ carrying genetically inherent biological vulnerability or an organ injured by physical illness.

Discussion on process of stress response

Communication between mind and the body is carried out by the chemicals called neurotransmitters. Three neurotransmitters, namely norepinephrine, serotonin, and dopamine, are essential for Neuro-communication. In addition to these neurotransmitters, the hypothalamus, a key structure in the nervous system, plays a significant role in psychoneuroimmunology. The hypothalamus is affected strongly by the emotional and cognitive states. It is surrounded by and interconnected with the limbic system, a part of the nervous system that controls the emotional state of an individual. It is also adjacent to the cerebral cortex, which provides cognitive and interpretive processes.

A stimulus is produced by the stressful thoughts and emotions which is first recognised by the central nervous system as a stressor. The brain becomes sensitized to these stressors and is stimulated by signals from inside the body (organs) or outside the body from cranial nerves (smell, hearing, sight, taste) and peripheral nerves (touch). These stressors from the cerebral cortex and limbic structures lead to numerous other processes within the brain, as well as to the rest of the body. The entire body is now on the alert. The reactions to these stressors are stored in the memory.

As stressors are activated or reactivated, the previously conditioned responses are retrieved from the memory, primarily by the hippocampus, which is responsible for storing long-term memory. The hippocampus stores memories that are associated with trauma or stress. When a stressful thought reoccurs, the sympathetic nervous system secretes norepinephrine. This neurotransmitter strengthens the stressful memory and activates the stress response. Finally, each time there is a stressor similar

to a previously stored one, the subsequent stressor reinforces the traumatic result from the first stressor.

General coping strategies

Cognitive appraisal is a mental process by which people assess two factors:

1. Whether a demand threatens their well being
2. Whether a person considers that they have the resources to meet the demand of the stressor

Coping strategies may protect an individual by eliminating or modifying the conditions that produce stress or by keeping the emotional consequences within manageable bounds. There is some consensus surrounding the major categories of coping strategies, namely;

(a) Problem-focused coping, designed to manage or solve the problem by removing or circumventing the stressor (e.g., carefully planning and spacing one's study schedule in preparing for an exam)

(b) Emotion-focused coping, designed to regulate, reduce, or eliminate the emotional stress associated with the stressful situation (e.g., seeking emotional support from friends)

(c) Avoidance-oriented coping, referring to either the use of person-oriented strategies (e.g., avoidance or seeking of others) or task-oriented strategies (e.g., watching TV, engaging in non-relevant tasks) designed to circumvent or avoid the stressful situation.

Problem-focused coping would be expected to alter the actual terms of the individual's stressful relationship with the environment; this should lead, in turn, to more favourable cognitive appraisals and a more positive response to the situation.

Coping may affect outcomes through its impact on the frequency, intensity, duration, and patterning of physiological stress reactions and the resultant affective and somatic outcomes.

Accordingly, current transactional models of stress view stress as a multivariate process involving inputs (i.e., person variables, environmental variables), outputs (i.e., immediate and long-term effects), and the mediation activities of appraisal and coping. Coping processes are of prime importance in the adaptational outcomes. It plays a crucial role in mediating between stressful situations and adaptational outcomes, which helps an individual to adapt him to a stressful situation by reducing distress and improving daily functioning.

Discussion on disease review

Essential Hypertension

Within the sympathetic system, two major types of receptors exist: alpha & beta. Alpha receptors which control vasoconstriction are located in blood vessels throughout the body. Beta receptors are classified according to location: beta (heart) and beta (peripheral vessels and bronchioles). In the heart, beta receptors increase heart rate and improve myocardial contractility; in the bronchioles and blood vessels, they cause dilatation. The way a body organ or structure responds to stimulation depends on the predominant receptor e.g. in cutaneous blood vessels alpha receptor predominates.

It has become clear over recent years that autonomic regulation of the cardiovascular system is not confined to the brain stem cardiovascular control centres, but is organized longitudinally within the central nervous system, with higher cortical and subcortical regions having an important influence. This may provide the substrate through which psychophysiological factors play a part in hypertensive aetiology.

Irritable bowel syndrome (IBS)

The nervous system responds to stress rapidly. The nerves related to the gut control the normal contractions of the colon and causes abdominal discomfort at stressful times. People often experience cramps when they are nervous or upset. In people with IBS, the colon can be overly responsive to even slight conflict or stress. Stress makes the mind more aware of the sensations that arise in the colon, making the person perceive these sensations as unpleasant.

The gut and the central nervous system (CNS) are connected through several pathways that involve the same neurotransmitters, endocrine and other neurochemical messengers and nerve cells. Together these two systems form multiple structural pathways called the brain-gut axis, feeding information from gut to brain, including the major centres involved in motivation, emotional processing, thinking and memory formation, and back down again to the gut.

IBS is affected by the immune system which in turn is affected by stress. The emotional factors trigger the disease even if they have little to do with digestion process. Symptoms such as pain, nausea, vomiting, bloating, diarrhoea, constipation, inconsistent passage of stools are common in anxiety-based, and other kinds of disorders, including gastrointestinal (GI) disorders. This does not necessarily mean that a person with a functional GI disorder such as IBS is psychologically unhealthy, or maladjusted. Quite the contrary, experiencing conflicts and confusion over one's feelings or responses to situations are part of normal adult development, and in some cases, when the conflict or confusion is not resolved easily, the functioning of the body may become somewhat disrupted or disordered.

Migraine

Recent knowledge about the relationship between migraine and stress suggests that stress is a key precipitating and aggravating factor that causes or worsens migraine. The common symptoms seen in migraine are change of mood such as alertness, tension, depressive tendency, irritability and fatigue.

Different chemicals help transmit pain-related information to the brain, including endorphins -natural painkilling proteins. The people, who suffer from severe headaches, or other chronic pain, have lower levels of endorphins than people who are generally pain-free.

The nervous system responds to a trigger by creating a spasm in the nerve-rich arteries at the base of the brain. The spasm constricts several arteries supplying the brain, including scalp and carotid arteries. When arteries constrict, blood flow to the brain is reduced. At the same time, blood-clotting particles called platelets clump together in a process and release a chemical called serotonin, which is a powerful constrictor of arteries. This reduces blood as well as oxygen supply to the brain producing symptoms such as distorted vision or speech. Reacting to hypoxia, certain arteries within the brain dilate to meet the brain's needs triggering the release of pain-producing substances called prostaglandins from various tissues and blood cells.

Chemicals that cause inflammation and swelling, and substances that increase sensitivity to pain are also released. The circulation of these chemicals and the dilation of the scalp arteries stimulate the pain-sensitive nociceptors thus resulting in throbbing pain in the head.

Psoriasis

Psoriasis is a major problem among the society till today because of its ugly appearance which may disturb personal, familial and social life of the patient. The aetiology of psoriasis is still poorly understood, but there is clearly a genetic component to psoriasis. Role of T cells in the pathophysiology of psoriasis is well established. The disease is not life threatening but is responsible for great deal of unhappiness, feeling of depression at some point of life. Psychological problems can arise from the feelings of the patients about his/her appearance, social rejection, guilt, embarrassment for self and family and emptiness. Psychological stress can affect the course of the disease as well as contribute to psychological problems such as depression, anxiety and unfocused anger. Hence, psychological aspect is important in the etiopathogenesis and management of psoriasis.

Discussion on Materials and Methods

The present study is a conceptual and an observational study. The observational study was conducted in 200 patients, which constituted 50 cases from each of the following four psychosomatic diseases namely Essential hypertension Irritable bowel syndrome, Migraine and Psoriasis thus making 200 patients in total.

Reason for selection of *Sathva* questionnaire

The *sathva* assessment questionnaire was developed as a part of research work carried out in the Department of Basic Principles, Government Ayurveda Medical College, Mysore published in the year 2008, under the title "Assessment and application of sathva based on a conceptual model". This scale to assess *sathva* is an Indian scale based on the theoretical data available in *Charaka samhita.* In the previous work, it was used in healthy volunteers. In this study it is used in cases of

psychosomatic disorders to assess their *Sathvabala.* As this scale was appropriate to assess the *sathvabala,* it was used in this study.

The questionnaire was used to assess *Smruti, Bhakti, Krutajnata, Shuchi, Mahotsaha, Daksha, Dheera, Samara vikranta yodhina, Tyakta vishada, Suvyavasthita gati* and *gambheera buddhi chesta,* and *Kalyanabhinivesha* for *pravara sathva. Madhyama sathva* individuals cope up themselves by seeing others and even they are capable of it. *Avara sathva* individuals never get consoled and also on listening to horrifying stories develop *vaivarnya, vishada* and *bhrama.*

All the individuals were asked to fill the questionnaire. Scoring was done based on the scoring pattern of the questionnaire. For the convenience of the study, the grading of sathva was done into *pravara sathva, pravara madhyama sathva, avara madhyama sathva* and *avara sathva*.

Discussion on instructions

- Confidentiality was assured since each individual has right to protect his personal information and the answers given by him may project his strength and weakness.
- No time limit was fixed to complete the questionnaire. They were advised to give the first answer that comes to their mind, after thoroughly reading and understanding the question so as to avoid manipulation of their own answer.
- They were instructed to answer all the questions and to mark only one answer to each question so as not to miss the parameters and also assessment of the scoring.

Discussion on Inclusion criteria and Exclusion criteria

- The patients fulfilling the diagnostic criteria of four psychosomatic disorders namely Essential hypertension, Irritable bowel syndrome, Migraine & Psoriasis were selected for the study. Though all the diseases fall under the umbrella of psychosomatic disorders, these four were selected as representative of the same. The prevalence rate of these diseases is also high. Hence these four psychosomatic disorders were taken for the study.
- Age group between 16-70 years was taken for the study considering that the individuals are well matured to understand and answer the questions.
- Established systemic and psychiatric illnesses were excluded as there may be disturbance in thought and perception of the patient leading to irrelevant answers.

Discussion on Diagnostic criteria

The diagnostic criteria for the four psychosomatic disorders was taken from the diagnostic and statistical manual IV (DSM IV) criteria, which is the most accepted standard criteria.

Discussion on Statistical methods

Frequencies

The Frequency procedure provides statistics and graphical displays that are useful for describing many types of variables. The Frequency procedure is a good place to start looking at data.

Descriptive statistics

The descriptive procedure displays univariate summary statistics for several variables in a single table and calculates standardized values (z scores).

Chi-square test

The Chi-Square Test procedure tabulates a variable into categories and computes a chi-square statistic. This goodness-of-fit test compares the observed and expected frequencies in each category to test either that all categories contain the same proportion of values or that each category contains a user-specified proportion of values.

Cross tabulations

The Crosstabs procedure forms two-way and multiway tables and provides a variety of tests and measures of association for two-way tables.

One-Way ANOVA

The One-Way ANOVA procedure produces a one-way analysis of variance for a quantitative dependent variable by a single factor (independent) variable.

Discussion on Observations

***Age*:** In this study maximum numbers of patients, i.e. HTN 26(52.00%) IBS 12(24.00%), MGR 18(36.00%), PSR 15(30.00%) were between the age group of 35-52 years, which suggests the fact that incidence of these psychosomatic disorder is more in this age group. The statistical value is highly significant (**p value 0.000**)

***Gender*:** In this study maximum numbers of patients i.e. HTN 29(58.00%), IBS 30(60.00%), MGR 43(86.00%) were females which suggest that women are more susceptible to these psychosomatic disorders. Out of 50 cases of PSR, majority of the patients were of males 30(60.00%). The statistical value is highly significant (**p value 0.000**)

Religion: In this study maximum numbers of patients i.e. HTN 37(74.00%), IBS 39(78.00%), MGR 44(88.00%) and PSR 43 (86.00%) were Hindus indicating geographical predominance of Hindus among the selected population. Hence, any consolidated comment cannot be given because there is no specific role of religion in psychosomatic disorders.

Occupation: In this study it was observed that majority of the patients HTN 7(14.00%) IBS 24(48.00%) and MGR 29(58.00%) were housewives which suggest that women at home are more sensitive to the family issues. Majority of the patients of PSR 38(76.00%) were agriculturists which suggest that there may be some other contributing factors for the causation of the disease other than sathvabala. The statistical value is highly significant (**p value 0.000**)

Marital status: In this study maximum numbers of patients i.e. HTN 47(94.00%), IBS 39(78.00%), MGR 38(76.00%) and PSR 38 (76.00%) were married which suggests that marital and family conflicts may be the contributing factor for affecting the sathva. The statistical value is highly significant (**p value 0.000**)

Socio-economic Status: In the present study it was found that majority of the patients i.e. HTN 28(56.00%) and PSR, 26(52.00%) belonged to lower middle class. IBS 32(64.00%), MGR 29(58.00%) belonged to middle class. The statistical value is highly significant (**p value 0.002**). This may be because of life style modifications by frequent exposure to triggering factors.

Education: In the present study it was found that the majority of patients of HTN 19(38.00%) were illiterates, IBS 18(36.00%) and MGR 18(36.00%) were high school

and PSR 20(40.00%) were primary educated. The statistical value is significant (p value 0.003)

Locality : In the present study it was found that majority of the patients, HTN 31(62.00%), IBS 41(82.00%), MGR 38(76.00%) and PSR 35(70.00%) belonged to urban area. The statistical value is significant **(p value 0.000)** This is because of life style changes in urban locality, with continuous exposure to triggering factors of psychosomatic disorders, either diet or environmental factors and may be because of increased awareness for treatment in urban area.

Diet pattern: In the present study it was found that majority of the patients i.e. HTN 38(76.00%), IBS 32(64.00%) and PSR 38(76.00%) and equal number of patients of MGR 25(50.00%) were on mixed diet.

Nature of Physical work: In the present study it was found that majority of the patients i.e. HTN 41(82.00%), IBS 31(62.00%), MGR 38(76.00%), PSR 41(82.00%) were moderately working. The statistical value is significant (**p value 0.002**)

Prakruti: In the present study it was found that majority of the patients i.e. HTN 25(50.00%), MGR 16(32.00%) and PSR 23(46.00%) had *pitta-vata prakruti,* and IBS 14(28.00%) had *pitta-kapha prakruti*. The statistical value is significant **(p value 0.004).**

Discussion on results

Sathva: Considering HTN as a psychosomatic disorder, from this study it is observed that majority of the cases, 15(30.00%) patients were having avara sathva and 15(30.00%) had avara-madhyama sathva i.e. more towards the avara sathva

itself which supports the proposed hypothesis.14(28.0%) patients had pravara sathva which suggest that stress is not the only cause for the disease. The influence of other contributing factors such as genetic factors and lifestyle modifications should also to be considered for the manifestation of the disease.

In IBS, 20(40.00%) cases had avara sathva and 17(34.00%) cases had avara madhyama sathva. This suggests that the contribution of psychological factors is significant and agrees with the brain gut axis theory. Again, this result suggests that there is a subgroup of patients (avara- madhyama sathva) in whom the psychological disturbances represents the primary dysfunction. Hence greater attention needs to be paid to the time relationship between abdominal and psychological disturbances. If they occur simultaneously, then it may be suggested that psychological disturbances plays a major role in the aetiology of the bowel symptoms and treatment of the same would lead to resolution of the bowel symptoms.

In 50 cases of MGR, 22(44.00%) cases had avara sathva and 18(36.00%) cases had avara madhyama sathva. It can be said that in these patients migraine attacks were triggered by mental stress and also the events were perceived as stressful due to functional brain changes occurring in the very early phase of a migraine attack.

In PSR, 18(36.00%) cases had *avara sathva* and cases had 15(30.00%) *avara madhyama sathva.* This suggests that feelings of stigma, shame and embarrassment regarding their appearance may be the factor for their *sathva* to be low.

Overall, out of 200 patients of psychosomatic disorder, 75(37.5.00%) patients had avara sathva. 65(32.5.00%) patients had avara madhyama sathva which suggests that these persons will have low stress threshold to the disease. Also their condition

may worsen or exacerbate because of the low stress threshold. The statistical value is significant (**p value 0.003**).

Thus it can be concluded that *Sathvabala* has a role to play in the onset, course, exacerbation or management of diseases. The disease and *Sathvabala* moves in a vicious cycle where *Sathvabala* may influence the disease in its onset, course, exacerbation and management, inturn, disease may influence *Sathvabala* because of its severity.

CONCLUSION

The following conclusions were arrived after completion of the research work.

- *Sharira & Mana* are related with each other through the fundamental functional entities viz. the *dosha, prakruti, sara, srotas* etc.
- The interrelationship between *Manas* and *Sharira* is established at different levels.
- There is influence of mind over body and body over mind at physiological and pathological level.
- The psychosomatic disorders and somatoform disorders come under the purview of *paraspara anubandha* of *Sharira* and *Manas*
- *Sathvabala* of an individual has a great impact on health.
- *Sathvabala* refers to stress threshold of the individual.
- The disease may influence the stress threshold of a person and stress may be one of the cause for acute exacerbation of the symptoms.
- The persons with psychosomatic disorders will have *avara sathva*.
- *Sathva* play a major role in causation, onset or exacerbation of diseases.
- In the present study, there was equal distribution of *pravara sathva* and *avara sathva* in cases of HTN
- *Avara sathva* and *avara madhyama sathva* had major role in IBS, Migraine and Psoriasis.

RECOMMENDATION FOR FURTHER STUDY

- Study can be done considering the applied aspect of *Manas* and *Sharira.*
- The study can be done in different age groups to see the inter relationship of *Vaya* and *Sathvabala.*
- The same study can be carried out in large samples of different diseases.
- The study can be carried out by doing pre-test and post test assessment of *Sathvabala* with certain management strategies.
- The study can be carried out to develop specific counselling methods to be adopted in different grades of *Sathva* in different psychological setup.

SUMMARY

The present study entitled "A conceptual study of Psychosomatic disorders - An Ayurvedic perspective and assessment of Sathva in specific Psychosomatic disorders" was aimed at understanding the relationship between *Manas* and *Sharira* at different levels. A questionnaire which was developed in the Department of Basic Principles, Government Ayurveda Medical College, Mysore published in the year 2008, under the title "Assessment and application of sathva based on a conceptual model" was used to assess the *Sathvabala* of the individuals.

The study had two components. The first was a conceptual study which included the conceptual and comprehensive aspects of *Manas* and *Sharira* and their relationship from Ayurvedic perspective. The second component was an observational study consisting of a sample size of total 200 individuals of four psychosomatic disorders namely HTN, IBS, Migraine and Psoriasis were considered for the study. The *Sathvabala* of these individuals was observed. The results were analyzed statistically based on the scores obtained from the questionnaire.

Overall, out of 200 patients of psychosomatic disorder, 75(37.5.00%) patients had avara sathva, 65(32.5.00%) patients had avara madhyama sathva, 28(14.00%) patients had pravara madhyama sathva and 32(16.00%) patients had pravara sathva.

In this study, majority of the cases i.e. HTN 15(30.00%), IBS 20(40.00%), MGR 22(44.00%), and PSR 18(36.00%) belonged *avara sathva* and HTN 15(30.00%), IBS 17(34.00%), MGR 8(36.00%) and PSR 15(30.00%) patients belonged to *avara madhyama sathva*. This suggests that the individuals with psychosomatic disorders have low stress threshold to the disease. Also their condition may worsen or exacerbate because of the low stress threshold.

In this study, HTN 14(28.0%), IBS 4(8.0%), MGR 6(12.0%) and PSR 8(16.0%) patients belonged to *pravara sathva* and HTN 6(12.0%), IBS 9(18.0%), MGR 4(8.0%) and PSR 9(18.0%) patients belonged to *pravara madhyama sathva.* This suggests that even if they are suffering from psychosomatic disorder they are able to cope up with the diseased condition and also that stress is one of the important cause for the onset or aggravation the disease. The influence of other contributing factors such as genetic factors and lifestyle modifications should also to be considered.

It is conclusion derived on the basis of detailed observation & deep study is submitted under the chapter on Conclusion. Future perspective of the study is highlighted as an aid for the future research workers.

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ANNEXURE-I

Sathva Assessment Questionnaire

Instructions

- The questionnaire is presented and has been assured of confidentiality.
- Advised to give the first answer that comes to their mind, after thoroughly reading and understanding the questions.
- Only one answer to each question.

Questionnaire

1. Do you feel that your memory is better than, most of the people you know.

a) Better than others b) Same as others c) Uncertain d) Poor

e) Very poor

2. Do you easily forget, what you have read/heard/seen. (may be one or both or all).

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

3. Does your interest in people and ways to do things seem to change very fast and frequently? (May be any one or both)

a) Always b) Most of the times c) Occasionally d) Rarely

e) Never

4. Apart from your work do you have other hobbies, interests and leisure time activities?

a) Very much b) Some c) Little d) Very little e) Nil

5. Whenever a family member, an intimate friend or a colleague makes a critical statement, how do you feel?

a) Always accept positively b) I accept, most of the time

c) Accept sometimes d) Feel bad e) Feel very bad and depressed

6. Whenever a family member/friend/teacher helps you in some way, how do you feel?

a) A high sense of gratitude b) Gratitude c) Uncertain

d) Feel it is their duty e) Feel that they never intended to help

7. Do you always consider the impact of your decision on others?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

8. Do you have ability to resist temptations for things, such as food dress?

a) Never b) Rarely c) Occasionally d) Most of the times e) Always

9. Considering everything do you feel that you lead a serene, peaceful and contented life?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

10. Do you feel things such as taking bath, grooming, wearing neat and clean clothes are important components of daily routine?

a) Strongly yes b) Yes c) Uncertain d) Not very important e) Not at all important

11. Are you very enthusiastic in taking up new ventures in your life?

a) Never b) Rarely c) Occasionally d) Most of the times e) Always

12. Do you always feel that you have lots of energy at times, when you need it?

a) Strongly yes b) Yes c) Sometimes d) Rarely e) Never

13. Do you actively take part in the activities of family / work place?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

14. Do you consider you are able to manage your problems, as most people you know?

a). Better than others b) Same as others c) Uncertain d) Poor e) Very poor

15. Do you feel that you could 'pull yourself through' If you had to deal with an emergency?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

16. Do you feel that even the most traumatic experiences of your life have retained your personality as earlier it was?

a) Strongly yes b) Yes c) Sometimes d) No e) Not at all

17. Do you fight for a Social or a Personal cause, whenever you feel an injustice is being done?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

18. No matter, how difficult the stumbling blocks are, are you committed to your work?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

19. Do you feel very low and depressed?

a) Never b) Rarely c) Occasionally d) Most of the times e) Always

20. Even if something upsets you, are you able to control your emotions quickly?

a) Never b) Rarely c) Occasionally d) Most of the times e) Always

21. Do you feel you have a confident gait and body language? (may be any one or both)

a) Strongly yes b) Yes c) Uncertain d) No e) Strongly No

22. Do you have different ticks and tacks such as biting nails/ winking eyes/ others?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

23. Do you learn new things very quickly?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

24. When a problem gets strong and when there is lots to do, do you try different methods to solve it?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

25. Do you positively enjoy your routine life with respect to family/work/leisure time activities?

a) Strongly yes b) Yes c) Sometimes d) Rarely e) Never

26. Do you have strong faith and commitment towards moral values of mankind such as non-violence truthfulness etc...?

a) Strongly yes b) Yes c) Uncertain d) Rarely e) Never

27. When you have a problem, how do you feel?

a) Always capable of solving it b) Most of the times capable of solving it c) Occasionally capable of solving it d) Very rarely capable of solving it. e) Cannot solve it

28. Do you always feel your health is always running down and you see a doctor frequently?

a) Strongly yes b) Yes c) Sometimes d) Rarely e) Never

29. Does your family members/friends comment that you cannot resist any physical and mental trauma?

a) Always b) Most of the time c) Sometimes d) Rarely e) Never

30. Are you afraid of for seeing blood, wild animals in a zoo, people fighting?

a) Strongly yes b) Yes c) Sometimes d) Rarely e) Never.

31. Do you get scared, while listening/ watching horrifying movies which are just imaginary and not virtual ?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never.

32. Do you get into anxiety, depression, crying without reason, which seem to be without a strong reason?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never.

33. Do you get easily upset, when people criticize you?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never.

34. Whenever you are excited and out of control, do you show it in your voice and manners?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

35. Do you constantly feel under stress?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

36. When you are upset, do you develop pallor, giddiness, perspiration, fainting?

a) Always b) Most of the time c) Occasionally d) Rarely e) Never

ಸತ್ತ್ವ ನಿರ್ಧರಣಾ ಪ್ರಶ್ನೋತ್ತರಗಳು

1.ನಿಮಗೆ ಪರಿಚಯಸ್ಥರಾದ ಜನರಿಗಿಂತಲೂ ನಿಮ್ಮ ನೆನೆಪಿನ ಶಕ್ತಿ ಉತ್ತಮವೆಂದು ನೀವು ಭಾವಿಸುತ್ತೀರಾ?

ಎ)ಬೇರೆಯವರಿಗಿಂತಲು ಉತ್ತಮ ಬಿ)ಬೇರೆಯವರಂತೆಯೇ

ಸಿ)ನಿಶ್ಚಯವಲ್ಲದ ಡಿ)ಕಡಿಮೆ ಇ)ಅತೀ ಕಡಿಮೆ

2.ನೀವು ಓದಿದ/ಕೇಳಿದ/ನೋಡಿದ ವಿಷಯವನ್ನು ಸುಲಭವಾಗಿ ಮರೆಯುವವರೇ ? (ಯಾವುದಾದರೂ ಒಂದು ಅಥವಾ ಎರಡೂ ಅಥವಾ ಎಲ್ಲಾ ಪ್ರಸಂಗದಲ್ಲಿ)

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

3)ನಿಮ್ಮ ಆಸಕ್ತಿಯು ಜನರಲ್ಲಿ ಹಾಗೂ ನೀವು ಮಾಡುವ ಕ್ರಿಯೆಗಳಲ್ಲಿ ಬದಲಾವಣೆ ಪದೇ ಪದೇ ತ್ವರಿತವಾಗಿ ಸಂಭವಿಸುತ್ತದಾ? (ಯಾವುದಾದರೂ ಒಂದು ಅಥವಾ ಎರಡೂ ಅಥವಾ ಎಲ್ಲಾ ಪ್ರಸಂಗದಲ್ಲಿ)

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

4)ನಿಮ್ಮ ಕೆಲಸದ ಹೊರತಾಗಿ ನಿಮಗೆ ಇತರೆ ಹವ್ಯಾಸ, ಆಸಕ್ತಿ, ವಿರಾಮದ ಕ್ಷಣದ ಚಟುವಟಿಕೆಗಳಿವೆಯೇ?

ಎ)ತುಂಬಾ ಹೆಚ್ಚು ಬಿ)ಕೆಲವು ಸಿ)ಸ್ವಲ್ಪ ಡಿ) ತುಂಬಾ ಕಡಿಮೆ

ಇ)ಇಲ್ಲ

5)ನಿಮ್ಮ ಕುಟುಂಬದ ಸದಸ್ಯ, ನಿಮ್ಮ ಆತ್ಮೀಯ ಸ್ನೇಹಿತ ಅಥವಾ ಸಹೋದ್ಯೋಗಿ ಖಂಡಿಸಿದರೆ ನೀವು ಹೇಗೆ ಭಾವಿಸುತ್ತೀರಿ?

ಎ)ಯಾವಾಗಲೂ ಧನ್ಯಾತ್ಮಕವಾಗಿ ತೆಗೆದುಕೊಳ್ಳುತ್ತೇನೆ

ಬಿ)ನಾನು ಸ್ವೀಕರಿಸುತ್ತೇನೆ ಸಿ) ಕೆಲವು ಸ್ವೀಕರಿಸುತ್ತೇನೆ ಡಿ)ಕೆಟ್ಟದಾಗಿ ಭಾವಿಸುತ್ತೇನೆ

ಇ)ತುಂಬಾ ಕೆಟ್ಟದಾಗಿ ಭಾವಿಸಿ ಕುಂದಿ ಹೊಗುತ್ತೇನೆ

6)ಯಾವಾಗಲಾದರೊಮ್ಮೆ ನಿಮ್ಮ ಕುಟುಂಬದ ಸದಸ್ಯ–ಸ್ನೇಹಿತ–ಶಿಕ್ಷಕ ಯಾವುದೋ ವಿಧದಲ್ಲಿ ಸಹಾಯ ಮಾಡಿದರೆ ನೀವು ಹೇಗೆ ಭಾವಿಸುತ್ತೀರಿ?

ಎ) ಉತ್ತಮ ಜ್ಞಾನಪೂರ್ಣಕೃತಜ್ಞತೆಯಿಂದ ಬಿ) ಕೃತಜ್ಞತೆಯಿಂದ

ಸಿ)ಅನಿಶ್ಚಿತತೆಯಿಂದ ಡಿ)ಅದು ಅವರ ಕರ್ತವ್ಯವೆಂದು ಭಾವಿಸುತ್ತೇನೆ

ಇ)ಅವರು ಎಂದಿಗೂ ಸಹಾಯ ಮಾಡುವ ಉದ್ದೇಶವಿರುವುದಿಲ್ಲವೆಂದು ಭಾವಿಸುತ್ತೇನೆ

7)ನಿಮ್ಮ ಜೀವನದಲ್ಲಿನ ನಿರ್ಧಾರದಿಂದ ಇತರರ ಮೇಲಾಗುವ ಪ್ರಭಾವದ ಬಗ್ಗೆ ನೀವು ಯವಾಗಲಾದರೂ ಆಲೋಚಿಸುತ್ತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ

8) ನೀವು ಆಹಾರದ–ಉಡುಪಿನ ವಿಷಯದಲ್ಲಿ ನಿಮ್ಮ ಮೋಹವನ್ನು ಹತ್ತಿಕ್ಕುವ ಶಕ್ತಿ ಹೊಂದಿದ್ದೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

9) ಜೀವನದ ಆಗುಹೋಗುಗಳನ್ನು ಪರಿಗಣನೆಗೆ ತೆಗೆದುಕೊಂಡು ನೀವು ಪ್ರಶಾಂತ,ಶಾಂತಿಯುತವಾದ ಮತ್ತು ಸಂತೃಪ್ತ ಜೀವನ ನಡೆಸ ಬಲ್ಲೆನೆಂದು ಭಾವಿಸುವಿರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

10) ನಿತ್ಯದ ಚಟುವಟಿಕೆಗಳಲ್ಲಿ ಸ್ನಾನ,ಅಂದವಾದ ಮತ್ತು ಶುಭ್ರವಾದ ವಸ್ತ್ರ ಧರಿಸುವುದು ಮುಖ್ಯವಾದ ಅಂಶವೆಂದು ನೀವು ಭಾವಿಸುತ್ತೀರಾ?

ಎ)ಖಂಡಿತವಾಗಿಯೂ ಹೌದು ಬಿ)ಹೌದು ಸಿ)ನಿಶ್ಚಯವಿಲ್ಲದ ಸಂದಿಗ್ಧ

ದಿ)ತುಂಬಾ ಪ್ರಾಮುಖ್ಯವಲ್ಲದ್ದು ಇ)ಮುಖ್ಯವೇ ಅಲ್ಲದ್ದು

11)ನಿಮ್ಮ ಬದುಕಿನಲ್ಲಿ ಹೊಸ ಸಾಹಸಗಳನ್ನು ಕೈಗೆತ್ತಿಕೊಳ್ಳಲು ನೀವು ತುಂಬಾ ಉತ್ಸಾಹ ಹೊಂದಿರುತ್ತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

12) ನಿಮಗೆ ಅಗತ್ಯವಿದ್ದಾಗ,ಅಂತಹ ಸಮಯದಲ್ಲಿ ನೀವು ಯಾವಾಗಲೂ ಹೆಚ್ಚಿನ ಶಕ್ತಿ ಹೊಂದಿರುತ್ತೀರೆಂದು ಭಾವಿಸುತ್ತೀರಾ?

ಎ)ಖಂಡಿತವಾಗಿಯೂ ಹೌದು ಬಿ)ಹೌದು ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

13)ನಿಮ್ಮ ಕೆಲಸದ ಸ್ಥಳದಲ್ಲಿ ಕುಟುಂಬದ ಆಗು ಹೋಗುಗಳಲ್ಲಿ ನೀವು ಆಸಕ್ತಿಯಿಂದ ಪಾಲ್ಗೊಳ್ಳುವಿರಾ?

ಎ)ಖಂಡಿತವಾಗಿಯೂ ಹೌದು ಬಿ)ಹೌದು ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

14)ನಿಮ್ಮ ಪರಿಚಯದ ಬಹುತೇಕ ಮಂದಿಯಂತೆ ನೀವು ಸಹಾ ನಿಮ್ಮ ಸಮಸ್ಯೆಗಲನ್ನು ಪರಿಹರಿಸಿಕೊಲ್ಲ ಬಲ್ಲೆನೆಂದು ಭಾವಿಸುವಿರಾ?

ಎ)ಬೇರೆಯವರಿಗಿಂತ ಉತ್ತಮ ಬಿ) ಬೇರೆಯವರಂತೆಯೇ ಸಿ) ಸಂದಿಗ್ಧ

ಡಿ)ಕನಿಷ್ಠವಾಗಿ ಇ) ತುಂಬಾ ಕನಿಷ್ಟವಾಗಿ

15)ಅತೀ ತುರ್ತು ಸಮಸ್ಯೆಯನ್ನು ನೀವು ನಿಭಾಯಿಸ ಬೇಕಾದಲ್ಲಿ, ನೀವು ಅದನ್ನು ಸ್ವತಃ ನಿಭಾಯಿಸಬಲ್ಲೆನೆಂದು ಭಾವಿಸುತ್ತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

16) ನಿಮ್ಮ ಬದುಕಿನ ಅನೇಕ ನೋವಿನ ಅನುಭವಗಳಿಂದಲೂ ಸಹ ನಿಮ್ಮ ವ್ಯಕ್ತಿತ್ವ ಮೊದಲಿನಂತಯೇ ಉಳಿದಿದೆ ಎಂದು ಭಾವಿಸುವಿರಾ?

ಎ)ಖಂಡಿತವಾಗಿಯೂ ಹೌದು ಬಿ)ಹೌದು ಸಿ)ಕೆಲವು ಸಲ

ಡಿ) ಇಲ್ಲ ಇ) ಖಂಡಿತ ಇಲ್ಲ

17) ಸ್ವಂತದ ಅಥವಾ ಸಾಮಾಜಿಕ ಕಾರಣಕ್ಕಾಗಿ ಅನ್ಯಾಯವಾಗಿದೆ ಎಂದು ತಿಳಿದಾಗ ಅದರ ವಿರುದ್ಧ ಹೋರಾಡುತ್ತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

18) ನಿಮ್ಮ ಕೆಲಸಲದಲ್ಲಿ ಎದುರಾಗುವ ಅಡಚಣೆಗಳನ್ನು ಲೆಕ್ಕಿಸದೆ ನಿಮ್ಮ ಕೆಲಸಗಳಲ್ಲಿ ಮುಂದುವರೆಯುವಿರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

19) ನಿಮ್ಮನ್ನು ನೀವು ತೀರಾ ಕನಿಷ್ಟ ಮತ್ತು ಚಿಂತಿತರೆಂದು ಭಾವಿಸುತ್ತೀರಾ?

ಎ) ಎಂದಿಗೂ ಇಲ್ಲ ಬಿ) ಅಪರೂಪಕ್ಕೊಮ್ಮೆಸಿ)ಕೆಲವು ಸಲ

ಡಿ) ಹೆಚ್ಚಿನ ಸಮಯ ಇ) ಯಾವಾಗಲೂ

20) ಯಾವುದಾದರೂ ವಿಷಯ ನಿಮ್ಮನ್ನು ಘಾಸಿ ಮಾಡಿದರೆ ನಿಮ್ಮ ಭಾವನೆಗಳನ್ನು ಶೀಘ್ರವಾಗಿ ನಿಯಂತ್ರಿಸಬಲ್ಲಿರಾ?

ಎ) ಎಂದಿಗೂ ಇಲ್ಲ ಬಿ) ಅಪರೂಪಕ್ಕೊಮ್ಮೆಸಿ)ಕೆಲವು ಸಲ

ಡಿ) ಹೆಚ್ಚಿನ ಸಮಯ ಇ) ಯಾವಾಗಲೂ

21) ನೀವು ವಿಶ್ವಾಸಾರ್ಹ ನಡೆ ಮತ್ತು ಅಂಗಿಕ ಚಹರೆ ಹೊಂದಿರುವಿರೆಂದು ಭಾವಿಸುತ್ತೀರಾ?(ಇವುಗಳಲ್ಲಿ ಯಾವುದಾದರೊಂದು ಅಥವಾ ಎರಡೂ)

ಎ)ಖಂಡಿತವಾಗಿಯೂ ಹೌದು ಬಿ)ಹೌದು ಸಿ)ಸಂದಿಗ್ಧ

ಡಿ)ಇಲ್ಲ ಇ) ಖಂಡಿತ ಇಲ್ಲ

22) ನೀವು ಉಗುರು ಕಚ್ಚುವ/ಕಣ್ಣು ಮಿಟುಕಿಸುವ ಅಥವಾ ಇತರ ಯಾವುದೇ ವಿಭಿನ್ನವಾದ ಅಭ್ಯಾಸಗಳನ್ನು ಹೊಂದಿದ್ದೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

23) ಹೊಸ ವಿಷಯಗಳನ್ನು ನೀವು ತುಂಬಾ ಶೀಘ್ರವಾಗಿ ಕಲಿಯಬಲ್ಲಿರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

24) ಯಾವಾಗ ಒಂದು ಸಮಸ್ಯೆ ಕಠಿಣವಾಗಿದ್ದು ಮತ್ತು ಯಾವಗ ಹೆಚ್ಚು ಪ್ರಯತ್ನ ಪಡಬೇಕಿದ್ದಲ್ಲಿ, ಅದನ್ನು ನಿವಾರಿಸಲು ನೀವು ವಿಭಿನ್ನ ಪ್ರಯತ್ನಗಳಿಗೆ ಕೈ ಹಾಕುವಿರಾ ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹೆಚ್ಚಿನ ಸಮಯ ಸಿ)ಕೆಲವು ಸಲ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

25) ವಿಶ್ರಾಂತಿ ಸಮಯದ ಚಟುವಟಿಕೆ, ಕೆಲಸ, ಕುಟುಂಬದ ಒಡನಾಟದೊಂದಿಗೆ ನೀವು ನಿಮ್ಮ ಬದುಕನ್ನು ಧನ್ಯಾತ್ಮಕವಾಗಿ ಅನುಭವಿಸುತ್ತೀರಾ?

ಎ)ಖಂಡಿತವಾಗಿಯೂ ಹೌದು ಬಿ)ಹೌದು ಸಿ)ಬಹಳಷ್ಟು ವೇಳೆ

ಡಿ) ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ) ಎಂದಿಗೂ ಇಲ್ಲ

26) ನೀವು ಮಾನವೀಯತೆಯ ನೈತಿಕ ಮೌಲ್ಯಗಳಾದ ಅಹಿಂಸೆ ಮತ್ತು ಪ್ರಾಮಾಣಿಕತೆಯ ಬಗ್ಗೆ ಅಚಲ ನಂಬಿಕೆ ಮತ್ತು ಧೃಡ ವಿಶ್ವಾಸ ಹೊಂದಿದ್ದೀರಾ?

ಎ)ಖಂಡಿತವಾಗಿಯೂ ಹೌದು ಬಿ)ಹೌದು ಸಿ) ಸಂದಿಗ್ಧ

ಡಿ) ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ) ಎಂದಿಗೂ ಇಲ್ಲ

27) ಯಾವಾಗಲಾದರೂ ನಿಮಗೊಂದು ಸಮಸ್ಯೆ ಎದುರಾದರೆ, ನಿಮಗೆ ಹೇಗನ್ನಿಸುತ್ತದೆ?

ಎ) .ಯಾವಾಗಲೂ ಪರಿಹರಿಸಲು ಸಮರ್ಥನಿದ್ದೇನೆ ಬಿ) ಬಹುತೇಕ ಸಮಯ ಅದನ್ನು ನಿಭಾಯಿಸಲು ಸಮರ್ಥನಿರುತ್ತೇನೆ

ಸಿ) ಅನ್ಯರೊಂದಿಗೆ ವ್ಯವಹರಿಸಿ ಪರಿಹರಿಸಿಕೊಂಡು ಸಮಾಧಾನಗೊಳ್ಳುತ್ತೇನೆ ಡಿ) ಅನ್ಯರಿಂದ ಬಹುವಿಧ ಆಶ್ವಾಸನೆ ಪಡೆದ ನಂತರ ಸಮಾಧಾನಗೊಳ್ಳುತ್ತೇನೆ

ಇ) ಬಹುವಿಧ ಆಶ್ವಾಸನೆ ಪಡೆದ ನಂತರವೂ ಪರಿಹಾರ ಸಮಾಧಾನಗೊಳ್ಳುವುದಿಲ್ಲ.

28) ನೀವು ಯಾವಾಗಲೂ ನಿಮ್ಮ ಆರೋಗ್ಯವು ಇಳಿಮುಖವಾಗುತ್ತಿದೆ ಎಂದು ಭಾವಿಸಿ ವೈದ್ಯರನ್ನು ಪದೇ ಪದೇ ಭೇಟಿಯಾಗುತ್ತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹಲವು ಬಾರಿ ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

29) ದೈಹಿಕ ಮತ್ತು ಮಾನಸಿಕ ಹೊಡೆತವನ್ನು ನೀವು ಎದುರಿಸಲಾರಿರಿ ಎಂದು ನಿಮ್ಮ ಸ್ನೇಹಿತರು, ಕುಟುಂಬದ ಸದಸ್ಯರು ಟೀಕೆ ಮಾಡುತ್ತಾರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹಲವು ಬಾರಿ ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

30) ಜನರು ಹೊಡೆದಾಡುವುದನ್ನು, ಮೃಗಾಲಯದಲ್ಲಿ ಕಾಡು ಪ್ರಾಣಿಗಳಿರುವುದನ್ನು ಮತ್ತು ರಕ್ತವನ್ನು ನೋಡಲು ನೀವು ಹೆದರುತ್ತೀರಾ?

ಎ)ಖಂಡಿತವಾಗಿಯೂ ಹೌದು ಬಿ)ಹೌದು ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

31) ನಿಜವಲ್ಲದ ಕೇವಲ ಕಾಲ್ಪನಿಕವಾದ ಭಯಾನಿಕ ಚಲನಚಿತ್ರಗಳನ್ನು ನೋಡಲು/ ಕೇಳಲು ನಿಮಗೆ ಹೆದರಿಕೆಯಾಗುತ್ತದಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹಲವು ಬಾರಿ ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

32) ಯಾವುದೇ ಪ್ರಬಲ ಕಾರಣವಿಲ್ಲದೆ ನೀವು ವಿನಾಕಾರಣ ವ್ಯಾಕುಲತೆ/ ಖಿನ್ನತೆ, ಕಾರಣವಿಲ್ಲದೇ ಆಳುವಿಕೆಗೆ ಒಳಗಾಗುತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹಲವು ಬಾರಿ ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

33) ಜನ ನಿಮ್ಮನ್ನು ಟೀಕೆ ಮಾಡಿದಾಗ, ನೀವು ಸುಲಭವಾಗಿ ಖಿನ್ನತೆಗೆ ಒಳಗಾಗುತ್ತೀರಾ ಹೇಗೆ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹಲವು ಬಾರಿ ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

34) ಯಾವಗಾಲಾದರೂ ನೀವು ಉದ್ವಿಗ್ನಗೊಂಡರೆ ಮತ್ತು ನಿಯಂತ್ರಣ ಕಳೆದುಕೊಂಡರೆ, ಅದನ್ನು ನೀವು ನಿಮ್ಮ ಧ್ವನಿ ಮತ್ತು ನಡವಳಿಕೆಗಳಲ್ಲಿ ಅದನ್ನು ತೋರ್ಪಡಿಸುತ್ತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹಲವು ಬಾರಿ ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

35) ನೀವು ಸತತವಾಗಿ ಒತ್ತಡಕ್ಕೆ ಒಳಗಾಗಿದ್ದೀರೆಂದು ಭಾವಿಸುತ್ತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹಲವು ಬಾರಿ ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

36) ನಿಮ್ಮ ಸ್ಥಿತಿ ಏರುಪೇರಾದಾಗ ಮುಖ ಬಾಡುವುದು, ತಲೆ ತಿರುಗುವಿಕೆ ಬೆವರಿನಿಂದ ಕೂಡಿದ ಪ್ರಜ್ಞಾಹೀನ ಸ್ಥಿತಿಗೆ ಒಳಗಾಗುತ್ತೀರಾ?

ಎ)ಯಾವಾಗಲೂ ಬಿ)ಹಲವು ಬಾರಿ ಸಿ)ಕೆಲವೊಮ್ಮೆ

ಡಿ)ಅಪರೂಪಕ್ಕೊಮ್ಮೆ ಇ)ಎಂದಿಗೂ ಇಲ್ಲ

Scores of sathva assessment

01. a) 1 b) 2 c) 3 d) 4 e) 5
02. a) 5 b) 4 c) 3 d) 2 e) 1
03. a) 5 b) 4 c) 3 d) 2 e) 1
04. a) 1 b) 2 c) 3 d) 4 e) 5
05. a) 1 b) 2 c) 3 d) 4 e) 5
06. a) 1 b) 2 c) 3 d) 4 e) 5
07. a) 1 b) 2 c) 3 d) 4 e) 5
08. a) 1 b) 2 c) 3 d) 4 e) 5
09. a) 1 b) 2 c) 3 d) 4 e) 5
10 a) 1 b) 2 c) 3 d) 4 e) 5
11. a) 1 b) 2 c) 3 d) 4 e) 5
12. a) 1 b) 2 c) 3 d) 4 e) 5
13. a) 1 b) 2 c) 3 d) 4 e) 5
14. a) 1 b) 2 c) 3 d) 4 e) 5
15. a) 1 b) 2 c) 3 d) 4 e) 5
16. a) 1 b) 2 c) 3 d) 4 e) 5
17. a) 1 b) 2 c) 3 d) 4 e) 5
18. a) 1 b) 2 c) 3 d) 4 e) 5
19. a) 1 b) 2 c) 3 d) 4 e) 5
20. a) 5 b) 4 c) 3 d) 2 e) 1
21. a) 1 b) 2 c) 3 d) 4 e) 5
22. a) 5 b) 4 c) 3 d) 2 e) 1
23. a) 1 b) 2 c) 3 d) 4 e) 5
24. a) 1 b) 2 c) 3 d) 4 e) 5
25. a) 1 b) 2 c) 3 d) 4 e) 5
26. a) 1 b) 2 c) 3 d) 4 e) 5
27. a) 1 b) 2 c) 3 d) 4 e) 5
28. a) 5 b) 4 c) 3 d) 2 e) 1
29. a) 5 b) 4 c) 3 d) 2 e) 1
30. a) 5 b) 4 c) 3 d) 2 e) 1
31. a) 5 b) 4 c) 3 d) 2 e) 1
32. a) 5 b) 4 c) 3 d) 2 e) 1
33. a) 5 b) 4 c) 3 d) 2 e) 1
34. a) 5 b) 4 c) 3 d) 2 e) 1
35. a) 5 b) 4 c) 3 d) 2 e) 1
36. a) 5 b) 4 c) 3 d) 2 e) 1

GRADES OF SATHVA

Scores are classified into four categories:-

Category	**Range of scores**
Pravara sathva	35-84
Pravara madhya sathva	85-108
Avara madhyama sathva	109-132
Avara sathva	133-180

LETTER OF CONSENT

I……., exercising my free power to choice, hereby give my consent to be included as a subject in the study titled "A conceptual study of psychosomatic disorders- An Ayurvedic perspective and assessment of sathva in specific psychosomatic disorders". I have been informed in my vernacular language to my satisfaction by the attending investigator.

I am agreeable to the data collected on me to be used by the investigator of the trial for scientific purpose.

Signature of the volunteer signature of the Witness

Signature of the Investigator

ANNEXURE II

DEPARTMENT OF POST GRADUATE STUDIES IN AYURVEDA SIDDHANTA

GOVERNMENT AYURVEDA MEDICAL COLLEGE

MYSORE

A CONCEPTUAL STUDY OF PSYCHOSOMATIC DISORDERS - AN AYURVEDIC PERSPECTIVE AND ASSESSMENT OF SATHVA IN SPECIFIC PSYCHOSOMATIC DISORDERS.

CASE SHEET PROFORMA OF ESSENTIAL HYPERTENSION

Head of the Department	:	Dr. Naseema Akhtar M.D (AYU)
Guide	:	Dr. V. Rajendra M.D (AYU)
Co-guide	:	Dr. V. A Chate M.D (AYU)
Researcher	:	Dr. Athika Jan.

ATURA VIVARANA

Case. No.	:		O. P. No.	:
Name	:		I. P. No.	:
Age	:		Ward No	:
Sex	:	M / F	Bed No	:
Religion	:			
Occupation	:			
Marital status	:	M / U / W / D		
Educational Status	:	U/ P/ HS/ G		
Socio-Economic Status:		P/ LM/ M/ UM/ R		
Locality:		Urban/Rural		

Postal Address and Phone No:

Diagnosis: Fresh/Treated:

PRADHANA VEDANA

ANUBANDHA VEDANA

ADYATANA VYADHI VRUTTANTA

POORVA VYADHI VRUTTANTA

CHIKITSA VRUTTANTA

- Case : Fresh / Treated / Under Treatment
- Previous Medication: Western medicine / Homeopathy / Ayurveda / Others
- Details of the treatment:
- Response to treatment: No Response / Mild / Moderate / Good
- Present Status of the disease:

KULA VRUTTANTA

VAIYAKTIKA VRUTTANTA

- Ahara: Shakahara( ) Mishrahara ( )
- Vihara:
  - Nature of physical activities: Hard ( ) Moderate ( ) Sedentary ( )
- Nidra: Prakruta ( ) Ati ( ) Alpa( ) Divaswapna ( )
- Agni: Samagni ( ) Mandagni ( ) Teekshnagni ( ) Vishamagni ( )
- Koshta: Mridu ( ) Madhyama ( ) Krura ( )
- Vyasana
- Arthava Vrittanta:
- Prasoothika Vrittanta:
- Anya:

MAANASIKA VRUTTANTA

ASHTASTHANA PAREEKSHA

- Nadi:
- Mutra:
- Mala:
- Jihva:
- Shabda:
- Sparsha:
- Druk:
- Akruti:

DASHAVIDHA PAREEKSHA

- Prakruti
- Vikruthi
- Sara: Avara / Madhyama / Pravara
- Samhanana: Avara / Madhyama / Pravara
- Pramana: Ht: Wt:
- Satmya:
- Sattva: Avara / Madhyama / Pravara
- Aharashakti:
    - Abhyavaharana : Avara / Madhyama / Pravara
    - Jarana: Avara / Madhyama / Pravara
- Vyayamashakti: Avara / Madhyama / Pravara
- Vaya: Yrs. Baalya / Yauvana / Vaardhakya

DIAGNOSTIC CRITERIA FOR ESSENTIAL HYPERTENSION

Systolic ≥ 140mmHg.

Diastolic ≥ 90mmHg.

(More than three records)

SIGNATURE OF RESEARCHER **SIGNATURE OF THE OBSERVER**

DEPARTMENT OF POST GRADUATE STUDIES IN AYURVEDA SIDDHANTA

GOVERNMENT AYURVEDA MEDICAL COLLEGE

MYSORE

A CONCEPTUAL STUDY OF PSYCHOSOMATIC DISORDERS - AN AYURVEDIC PERSPECTIVE AND ASSESSMENT OF SATHVA IN SPECIFIC PSYCHOSOMATIC DISORDERS.

CASE SHEET PROFORMA OF IRRITABLE BOWEL SYNDROME

Head of the Department	:	Dr. Naseema Akhtar M.D (AYU)
Guide	:	Dr. V. Rajendra M.D (AYU)
Co-guide	:	Dr. V. A Chate M.D (AYU)
Researcher	:	Dr. Athika Jan.

ATURA VIVARANA

Case. No.	:		O. P. No.	:
Name	:		I. P. No.	:
Age	:		Ward No	:
Sex	:	M / F	Bed No	:
Religion	:			
Occupation	:			
Marital status	:	M / U / W / D		
Educational Status	:	U/ P/ HS/ G		
Socio-Economic Status:		P/ LM/ M/ UM/ R		
Locality:		Urban/Rural		

Postal Address and Phone No:

Diagnosis: Fresh/Treated:

PRADHANA VEDANA

ANUBANDHA VEDANA

ADYATANA VYADHI VRUTTANTA

POORVA VYADHI VRUTTANTA

CHIKITSA VRUTTANTA

- Case : Fresh / Treated / Under Treatment
- Previous Medication: Western medicine / Homeopathy / Ayurveda / Others
- Details of the treatment:
- Response to treatment: No Response / Mild / Moderate / Good
- Present Status of the disease:

KULA VRUTTANTA

VAIYAKTIKA VRUTTANTA

- Ahara: Shakahara( ) Mishrahara ( )
- Vihara:
  - Nature of physical activities: Hard ( ) Moderate ( ) Sedentary ( )
- Nidra: Prakruta ( ) Ati ( ) Alpa( ) Divaswapna ( )
- Agni: Samagni ( ) Mandagni ( ) Teekshnagni ( ) Vishamagni ( )
- Koshta: Mridu ( ) Madhyama ( ) Krura ( )
- Vyasana
- Arthava Vrittanta:
- Prasoothika Vrittanta:
- Anya:

MAANASIKA VRUTTANTA

ASHTASTHANA PAREEKSHA

- Nadi:
- Mutra:
- Mala:
- Jihva:
- Shabda:
- Sparsha:
- Druk:
- Akruti:

DASHAVIDHA PAREEKSHA

- Prakruti
- Vikruthi
- Sara: Avara / Madhyama / Pravara
- Samhanana: Avara / Madhyama / Pravara
- Pramana: Ht: Wt:
- Satmya:
- Sattva: Avara / Madhyama / Pravara
- Aharashakti:
    - Abhyavaharana : Avara / Madhyama / Pravara
    - Jarana: Avara / Madhyama / Pravara
- Vyayamashakti: Avara / Madhyama / Pravara
- Vaya: Yrs. Baalya / Yauvana / Vaardhakya

DIAGNOSTIC CRITERIA FOR IRRITABLE BOWEL SYNDROME

- Abdominal pain /discomfort in association with frequent diarrhoea or constipation
- Change in bowel habits
- Urgency for bowel movements
- A feeling of incomplete evacuation (tenesmus)
- Bloating /abdominal distention

SIGNATURE OF RESEARCHER **SIGNATURE OF THE OBSERVER**

DEPARTMENT OF POST GRADUATE STUDIES IN AYURVEDA SIDDHANTA

GOVERNMENT AYURVEDA MEDICAL COLLEGE

MYSORE

A CONCEPTUAL STUDY OF PSYCHOSOMATIC DISORDERS - AN AYURVEDIC PERSPECTIVE AND ASSESSMENT OF SATHVA IN SPECIFIC PSYCHOSOMATIC DISORDERS.

CASE SHEET PROFORMA OF MIGRAINE

Head of the Department	:	Dr. Naseema Akhtar M.D (AYU)
Guide	:	Dr. V. Rajendra M.D (AYU)
Co-guide	:	Dr. V. A Chate M.D (AYU)
Researcher	:	Dr. Athika Jan.

ATURA VIVARANA

Case. No.	:		O. P. No.	:
Name	:		I. P. No.	:
Age	:		Ward No	:
Sex	:	M / F	Bed No	:
Religion	:			
Occupation	:			
Marital status	:	M / U / W / D		
Educational Status	:	U/ P/ HS/ G		
Socio-Economic Status:		P/ LM/ M/ UM/ R		
Locality:		Urban/Rural		

Postal Address and Phone No:

Diagnosis: Fresh/Treated:

PRADHANA VEDANA

ANUBANDHA VEDANA

ADYATANA VYADHI VRUTTANTA

POORVA VYADHI VRUTTANTA

CHIKITSA VRUTTANTA

- Case : Fresh / Treated / Under Treatment
- Previous Medication: Western medicine / Homeopathy / Ayurveda / Others
- Details of the treatment:
- Response to treatment: No Response / Mild / Moderate / Good
- Present Status of the disease:

KULA VRUTTANTA

VAIYAKTIKA VRUTTANTA

- Ahara: Shakahara( ) Mishrahara ( )
- Vihara:
  - Nature of physical activities: Hard ( ) Moderate ( ) Sedentary ( )
- Nidra: Prakruta ( ) Ati ( ) Alpa( ) Divaswapna ( )
- Agni: Samagni ( ) Mandagni ( ) Teekshnagni ( ) Vishamagni ( )
- Koshta: Mridu ( ) Madhyama ( ) Krura ( )
- Vyasana
- Arthava Vrittanta:
- Prasoothika Vrittanta:
- Anya:

MAANASIKA VRUTTANTA

ASHTASTHANA PAREEKSHA

- Nadi:
- Mutra:
- Mala:
- Jihva:
- Shabda:
- Sparsha:
- Druk:
- Akruti:

DASHAVIDHA PAREEKSHA

- Prakruti
- Vikruthi
- Sara: Avara / Madhyama / Pravara
- Samhanana: Avara / Madhyama / Pravara
- Pramana: Ht: Wt:
- Satmya:
- Sattva: Avara / Madhyama / Pravara
- Aharashakti:
    - Abhyavaharana : Avara / Madhyama / Pravara
    - Jarana: Avara / Madhyama / Pravara
- Vyayamashakti: Avara / Madhyama / Pravara
- Vaya: Yrs. Baalya / Yauvana / Vaardhakya

DIAGNOSTIC CRITERIA FOR MIGRAINE

- **MIGRAINE WITHOUT AURA**

A. At least five attacks fulfilling criteria B-D

B. Headache attacks lasting for 4-72 hours

C. Headache has at least two of the following characteristics:

1. Unilateral location
2. Pulsating quality
3. Moderate or severe pain intensity
4. Aggravation by or causing avoidance of routine physical activity

D. During the headache, at least one of the following [is present]:

1. Nausea and/or vomiting
2. Photophobia and phonophobia

- **MIGRAINE WITH AURA**

Aura consisting of at least one of the following, but no motor weakness:

- Fully reversible visual symptoms including positive features (e.g. flickering lights, pots or lines) and/or negative features (i.e. loss of vision)
- Fully reversible sensory symptoms including positive features (pins and needles) and/or negative features (numbness)

SIGNATURE OF RESEARCHER **SIGNATURE OF THE OBSERVER**

DEPARTMENT OF POST GRADUATE STUDIES IN AYURVEDA SIDDHANTA

GOVERNMENT AYURVEDA MEDICAL COLLEGE

MYSORE

A CONCEPTUAL STUDY OF PSYCHOSOMATIC DISORDERS - AN AYURVEDIC PERSPECTIVE AND ASSESSMENT OF SATHVA IN SPECIFIC PSYCHOSOMATIC DISORDERS.

CASE SHEET PROFORMA OF PSORIASIS.

Head of the Department	:	Dr. Naseema Akhtar M.D (AYU)
Guide	:	Dr. V. Rajendra M.D (AYU)
Co-guide	:	Dr. V. A Chate M.D (AYU)
Researcher	:	Dr. Athika Jan.

ATURA VIVARANA

Case. No.	:		O. P. No.	:
Name	:		I. P. No.	:
Age	:		Ward No	:
Sex	:	M / F	Bed No	:
Religion	:			
Occupation	:			
Marital status	:	M / U / W / D		
Educational Status	:	U/ P/ HS/ G		
Socio-Economic Status:		P/ LM/ M/ UM/ R		
Locality:		Urban/Rural		

Postal Address and Phone No:

Diagnosis: Fresh/Treated:

PRADHANA VEDANA

ANUBANDHA VEDANA

ADYATANA VYADHI VRUTTANTA

POORVA VYADHI VRUTTANTA

CHIKITSA VRUTTANTA

- Case : Fresh / Treated / Under Treatment
- Previous Medication: Western medicine / Homeopathy / Ayurveda / Others
- Details of the treatment:
- Response to treatment: No Response / Mild / Moderate / Good
- Present Status of the disease:

KULA VRUTTANTA

VAIYAKTIKA VRUTTANTA

- Ahara: Shakahara( ) Mishrahara ( )
- Vihara:
  - Nature of physical activities: Hard ( ) Moderate ( ) Sedentary ( )
- Nidra: Prakruta ( ) Ati ( ) Alpa( ) Divaswapna ( )
- Agni: Samagni ( ) Mandagni ( ) Teekshnagni ( ) Vishamagni ( )
- Koshta: Mridu ( ) Madhyama ( ) Krura ( )
- Vyasana
- Arthava Vrittanta:
- Prasoothika Vrittanta:
- Anya:

MAANASIKA VRUTTANTA

ASHTASTHANA PAREEKSHA

- Nadi:
- Mutra:
- Mala:
- Jihva:
- Shabda:
- Sparsha:
- Druk:
- Akruti:

DASHAVIDHA PAREEKSHA

- Prakruti
- Vikruti
- Sara: Avara / Madhyama / Pravara
- Samhanana: Avara / Madhyama / Pravara
- Pramana: Ht: Wt:
- Satmya:
- Sattva: Avara / Madhyama / Pravara
- Aharashakti:
    - Abhyavaharana : Avara / Madhyama / Pravara
    - Jarana: Avara / Madhyama / Pravara
- Vyayamashakti: Avara / Madhyama / Pravara
- Vaya: Yrs. Baalya / Yauvana / Vaardhakya

DIAGNOSTIC CRITERIA FOR PSORIASIS

- Raised areas of inflamed skin covered with silvery white scaly skin (plaques) ( )
- Smooth inflamed patches of skin occurring in skin folds, armpits and is aggravated by friction and sweat ( )
- Numerous small oval (tear drop shaped) spots appearing over the trunk, limbs and scalp. ( )
- Raised bumps that are filled with non-infectious pus (pustules) occurring at hands and feet. ( )

SIGNATURE OF RESEARCHER **SIGNATURE OF THE OBSERVER**

ANNEXURE III

KEY WORDS OF MASTER CHART

AGE- 16-34=1, 35-52=2, 53-70=3

GEN- Gender- Male-1, Female-2

RLG-Religion- 1 -Hindu, 2- Muslim 3- Christian

OCN-Occupation- 1 -Agriculture, 2- Labour, 3 –Servicemen, 4-House wife, 5- Student

MS- Marital status-1- Married, 2-Unmarried, 3- Widow

SES-Socioeconomic status- 1 -Poor, 2- Lower Middle class, 3 – Middle class, 4-Upper Middle class 5-Rich

EDU-Education- 1- illiterate, 2- Primary School, 3- High School, 4- Graduate

LOC- Urban-1, Rural-2

NPW-Nature of physical work- Hard-1, Moderate-2, Sedentary-3

PRK-Prakruti- 1 –Vata-pitta, 2- pitta-Vata, 3 -pitta kapha, 4 - kapha Pitta, 5-kapha- vata , 6- vata-kapha

ST- Sathva

Master chart- Essential hypertension

Code	AGE	GEN	RLG	OCN	MS	SES	EDU	LOC	DIET	NPW	PRK	ST
1	2	2	2	2	3	2	1	1	2	2	5.1	108
2	3	1	1	3	1	3	4	1	2	2	4.1	82
3	3	1	2	2	1	2	1	2	2	1	5.1	135
4	3	1	1	1	1	2	1	2	2	1	4.1	107
5	3	1	1	3	1	3	3	1	2	2	5.1	84
6	3	1	1	2	1	2	3	2	2	1	4	104
7	2	2	2	4	1	2	1	1	2	2	5	81
8	3	1	1	1	1	1	2	2	1	1	6	80
9	2	1	1	1	1	3	2	2	2	2	4	139
10	3	2	1	4	1	3	2	2	1	2	4.1	133
11	3	1	1	1	1	2	2	2	2	1	5	108
12	3	2	1	4	1	2	1	2	2	2	6	110
13	2	1	1	1	1	2	2	1	1	1	4.1	78
14	2	2	1	4	1	3	2	2	1	2	5.1	109
15	3	1	1	1	1	2	3	2	2	1	4.1	136
16	2	1	1	3	1	3	3	2	2	2	6	132
17	2	2	2	4	1	3	3	1	2	2	5	79
18	3	1	2	2	1	2	2	1	2	2	4.1	110
19	2	2	1	4	3	3	3	2	1	2	5.1	81
20	3	2	1	4	1	2	2	1	1	2	4.1	79
21	2	2	2	4	1	2	2	1	2	2	5	134
22	2	2	1	4	1	2	1	1	1	2	4.1	139
23	2	2	1	4	1	2	1	2	2	2	4.1	112
24	3	1	1	1	1	3	1	1	2	2	4.1	136
25	3	2	1	4	1	3	1	1	2	2	5	111
26	2	2	2	4	1	3	2	1	2	2	5	112
27	3	1	1	2	1	3	1	1	2	2	4.1	135
28	3	1	1	3	1	3	3	1	2	2	4.1	82
29	2	2	1	4	1	2	2	2	2	2	4.1	79
30	3	2	1	4	1	2	1	1	2	2	4.1	81
31	3	2	2	4	1	2	1	1	2	2	5	114
32	3	2	1	4	1	3	2	2	2	2	5.1	109
33	2	2	1	4	1	3	2	1	1	2	4.1	80
34	2	2	1	4	1	3	3	1	2	2	5.1	111

35	2	1	2	3	1	2	2	1	2	2	5	103
36	2	2	1	4	1	2	1	1	1	2	4.1	110
37	2	1	1	3	1	3	3	1	2	2	4.1	136
38	2	1	2	2	1	2	2	1	2	1	4.1	135
39	3	2	2	4	1	2	1	2	2	2	4.1	137
40	3	2	1	4	1	2	1	2	2	2	4.1	135
41	2	2	1	4	1	2	1	2	2	2	4.1	138
42	2	2	2	4	1	2	1	1	2	2	4.1	111
43	2	2	2	4	1	2	2	2	2	2	4.1	114
44	2	1	1	2	1	2	3	1	1	1	5	145
45	3	2	1	4	3	3	3	1	2	2	6	116
46	3	2	1	4	1	3	1	1	1	2	4.1	134
47	2	2	1	4	1	2	1	1	2	2	5.1	80
48	2	2	1	4	1	3	3	1	2	2	4.1	111
49	2	1	1	2	1	3	3	1	1	2	6	78
50	3	1	1	3	1	2	3	1	2	2	5.1	106

Master chart- Irritabla bowel syndrome

code	AGE	GEN	RLG	OCN	MS	SES	EDU	LOC	DIET	NW	PRK	ST
1	1	2	1	4	2	3	3	1	2	2	5	139
2	1	2	2	4	1	3	2	1	2	2	5	133
3	2	2	2	4	1	3	3	1	2	2	4	134
4	2	2	1	4	1	3	3	1	1	2	4.1	135
5	1	2	2	4	1	2	2	1	2	2	4.1	133
6	3	1	1	3	1	3	3	2	2	2	5.1	111
7	1	2	1	5	2	3	4	1	2	2	5	113
8	2	2	1	4	1	2	3	1	2	2	4	115
9	2	2	1	4	1	2	2	1	2	2	5	109
10	2	1	1	1	1	3	3	1	1	1	4	114
11	2	1	1	3	1	3	4	1	2	2	4	135
12	3	1	1	3	1	3	2	2	1	2	6	140
13	1	2	1	4	1	3	3	1	2	2	5	134
14	1	2	1	4	1	3	3	1	2	2	4.1	135
15	2	2	1	4	1	3	3	2	2	2	6	114
16	3	1	1	1	1	2	2	1	2	2	4	139
17	2	1	1	3	1	3	4	1	2	2	5	135
18	2	1	1	1	1	3	1	2	2	2	5.1	105
19	2	1	1	3	1	4	4	1	1	3	6	91
20	1	1	1	2	1	3	1	1	2	2	5.1	114
21	3	2	1	4	1	3	3	1	2	2	5	100
22	3	2	1	4	3	2	1	2	1	2	4	78
23	1	2	2	5	2	3	4	1	2	3	4	112
24	3	2	1	4	3	3	1	1	1	3	5.1	95
25	1	2	2	5	2	3	4	1	2	3	5	114
26	2	1	1	3	2	3	4	1	1	2	4.1	79
27	2	2	2	4	1	2	2	1	2	2	5	135
28	2	1	1	3	1	4	4	1	1	3	6	120
29	2	2	1	4	1	3	3	1	1	1	4.1	73
30	2	1	1	2	1	3	2	1	1	1	4	100
31	2	2	1	4	1	2	2	1	2	2	4.1	114

32	2	2	2	4	1	3	3	1	2	2	5.1	136
33	2	2	2	4	3	3	2	1	2	3	5	115
34	1	2	1	5	2	4	4	1	1	3	6	97
35	1	2	2	2	1	3	3	1	2	2	4.1	137
36	2	1	1	2	1	2	2	2	1	1	5.1	138
37	2	1	1	3	1	1	3	1	1	3	5	137
38	2	2	1	4	1	3	2	1	2	2	5	94
39	1	2	1	5	2	3	4	1	1	2	4	101
40	2	1	2	2	1	2	2	1	1	1	5.1	85
41	2	1	1	3	1	3	4	1	1	3	6	117
42	2	2	1	4	1	3	3	1	1	2	5.1	133
43	2	1	1	3	1	4	4	1	2	2	4	119
44	2	2	2	4	1	3	1	1	2	3	5	133
45	2	1	1	2	1	2	2	1	2	1	5.1	134
46	2	2	1	4	3	4	3	1	1	3	5.1	108
47	3	1	1	1	1	2	1	2	2	1	6	110
48	2	2	1	4	1	3	3	1	2	2	5	121
49	3	1	1	1	1	2	1	2	2	1	6	114
50	2	2	1	4	1	3	3	2	2	2	6	139

Master chart- Migraine

Code	AGE	GEN	REL	OCN	MS	SES	EDU	LOC	DIET	NPW	PRK	ST
1	2	1	1	2	1	2	3	1	1	1	5.1	136
2	2	2	1	4	1	3	4	1	1	2	5.1	138
3	2	1	1	3	1	2	2	1	2	1	5	137
4	2	2	3	3	2	3	4	1	2	1	4.1	133
5	1	2	1	5	2	3	4	1	1	3	4.1	104
6	2	2	1	4	1	3	1	2	1	2	4.1	138
7	2	2	2	4	1	2	2	1	2	2	4.1	79
8	1	2	1	5	2	3	4	1	1	2	6	80
9	2	2	1	4	1	3	3	1	1	2	5	80
10	2	1	1	1	1	3	3	2	1	1	4.1	116
11	2	2	1	4	1	3	3	1	2	2	4.1	113
12	3	2	1	4	1	3	1	1	1	2	5	134
13	2	2	2	4	1	3	1	1	2	2	6	100
14	2	2	2	4	1	2	2	1	2	1	4.1	83
15	1	2	1	5	2	2	3	2	1	2	4.1	109
16	2	2	1	4	1	2	2	2	2	2	6	133
17	1	2	3	5	2	3	4	1	1	2	4.1	112
18	1	2	1	4	1	2	2	1	2	2	5.1	141
19	2	2	1	4	1	3	3	1	2	2	5.1	124
20	2	2	1	4	1	3	2	1	2	2	5.1	133
21	1	2	1	1	1	3	3	2	2	1	4	110
22	1	2	1	5	2	3	4	1	1	1	5	115
23	2	2	1	4	1	2	3	1	1	2	5.1	109
24	1	1	1	5	2	3	4	1	2	2	5	122
25	1	2	1	4	1	2	2	2	2	2	5.1	138
26	1	2	1	4	1	2	2	2	2	2	4.1	83
27	3	2	1	2	1	3	3	2	1	2	5	112
28	2	1	1	2	1	3	2	1	1	2	4	81
29	2	2	1	4	1	3	3	1	1	3	6	133
30	1	2	2	4	1	3	2	1	2	2	5.1	0
31	2	2	1	4	1	3	3	1	1	2	4	138
32	2	2	1	2	1	2	1	1	1	2	5	134

33	1	2	1	4	1	2	2	1	2	2	6	91
34	2	2	1	4	1	3	3	1	2	2	4.1	135
35	1	2	1	5	2	3	4	1	2	2	5.1	135
36	1	F	1	4	1	3	3	1	2	2	4.1	136
37	2	F	1	4	1	3	3	1	1	2	5	134
38	2	2	1	4	1	2	2	1	1	2	5	135
39	2	2	1	4	1	2	3	1	1	2	4.1	138
40	1	2	1	4	1	3	2	1	1	2	5.1	134
41	3	2	1	4	3	2	1	2	2	2	5	138
42	1	2	1	3	2	3	4	1	1	2	4.1	109
43	2	2	1	4	1	3	3	1	2	2	6	103
44	2	2	1	4	1	2	1	2	1	2	4.1	135
45	1	2	1	1	1	2	1	2	2	2	4.1	103
46	2	2	1	1	2	2	1	2	2	1	6	111
47	2	2	1	4	1	2	2	1	2	2	5	109
48	2	2	2	3	3	2	4	1	2	2	5	117
49	2	1	1	3	1	2	3	1	1	3	4	122
50	1	1	1	3	1	3	3	1	1	3	6	120

Master chart- Psoriasis

Code	AGE	GEN	RLG	OCN	MS	SES	EDU	LOC	DIET	NW	PRK	ST
1	1	1	1	2	1	2	3	1	2	2	4	133
2	2	1	1	2	1	2	3	1	2	2	4.1	136
3	2	1	1	2	2	3	4	2	2	2	4	112
4	2	2	1	3	1	3	4	1	1	2	4.1	101
5	1	1	1	5	2	2	4	2	2	2	4	113
6	2	1	1	3	1	3	2	2	2	2	4.1	79
7	1	1	2	2	2	2	2	1	2	1	4	133
8	2	1	1	3	1	3	2	2	2	2	4	134
9	2	1	2	2	1	2	2	1	2	1	4.1	103
10	2	1	1	4	1	3	2	1	1	2	5	117
11	2	2	1	4	1	3	3	1	2	2	4.1	113
12	1	1	1	3	2	3	4	1	2	2	5.1	135
13	2	2	1	4	1	2	2	1	2	2	5.1	139
14	1	1	1	2	2	2	3	1	2	2	4.1	102
15	2	1	1	2	2	2	2	2	2	2	4.1	109
16	1	2	1	4	1	3	3	1	2	2	5.1	72
17	3	2	1	4	1	2	1	2	2	2	4.1	113
18	2	2	1	4	1	3	3	1	2	2	4.1	116
19	1	2	1	4	1	3	3	1	2	2	4.1	82
20	2	1	1	2	1	3	2	1	1	2	5.1	80
21	3	2	1	3	2	3	4	1	1	2	5	137
22	3	2	1	4	3	2	1	2	2	2	4.1	116
23	2	2	1	3	1	2	4	1	1	2	5.1	120
24	3	1	1	3	1	3	2	2	2	2	4.1	105
25	2	2	1	4	1	3	3	1	1	2	5	82
26	1	1	2	2	1	3	3	1	2	2	4.1	135
27	3	1	1	2	1	2	2	1	2	2	5	133
28	1	2	1	4	1	3	2	1	1	2	5.1	135
29	3	2	1	4	1	2	1	2	2	2	4.1	111
30	2	1	1	2	1	3	3	1	2	2	4.1	134
31	1	1	1	5	2	3	4	2	2	2	4.1	118

32	2	2	1	4	1	2	3	2	1	2	5	135
33	2	1	1	1	1	2	2	2	1	2	4.1	134
34	3	1	1	1	1	2	2	2	2	2	5	79
35	2	1	1	1	1	2	1	2	2	1	4.1	134
36	1	2	1	4	1	3	3	1	2	2	5	142
37	3	2	1	4	3	3	3	1	2	2	4	105
38	2	1	1	2	1	2	3	1	2	2	5.1	138
39	1	1	1	5	2	3	4	1	2	2	4.1	103
40	1	2	2	4	1	2	2	1	2	1	5.1	110
41	2	1	1	2	1	2	2	1	2	1	5	103
42	2	1	1	1	1	2	2	1	1	1	4.1	105
43	2	1	1	1	1	2	2	2	2	1	4	111
44	2	1	1	3	1	3	4	1	2	2	4.1	134
45	2	1	2	3	1	2	2	1	2	2	5	137
46	2	1	1	3	1	2	2	1	2	1	4	81
47	2	2	1	4	1	3	3	1	2	2	4.1	109
48	1	2	2	5	2	3	4	1	2	3	4	120
49	1	1	1	2	1	2	2	1	1	2	4.1	100
50	2	2	1	4	1	2	3	1	1	2	5.1	82