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Psychological Factors Linking With Digestion W.S.R To *Charaka Samhita*

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ABSTRACT: -

“Rasavahini Dushyanti Chintyanam Cha Atichintanaat” Ch.Vi. 5/13

This verse directly indicating that psychological factors like *Ati-Chinta* or excessive stress affect *Rasavahini*. *Hṛdaya* (heart) and *Dasha Dhamani* (arteries) have been considered as *Moolasthan* (origin) of *Rasavaha Srotas*. *Hṛdaya* is organ heart which is situated in the middle mediastinum of thorax and pumps the blood along with *Rasa Dhātu* (Plasma) throughout the body continuously. *Hṛdaya* works as storage and pumping action of *Rasa Dhātu*, after that *Daśa Dhamanīes* transports that *Rasa Dhātu* which is pure minutest essence of properly digested food through all corners of body. In *Ayurveda*; *Charaka samhita* states at various places that *Jatharagni* can be affect by many of psychological factors like *Chinta* (Anxiety), *Shoka* (grief), *Bhaya* (fear), *Krodha* (anger), *Dukha* (sorrow), *Ahridya ashan gandha* (unpleasant food, smell and sights) etc. They also very well known about the relation of *mana* with digestion. They also told about the brain-gut connection with various psychosomatic disorders like *Amavat* (rheumatoid arthritis), *Unmad* (mental disorders), *Atatvaabhinivesha* (Obsessive compulsive disorder), *Apsmar* (Epilepsy), *Ajirna* (Indigestion), *Hridya roga* (heart disease) .

Keywords: *Psychology, Ayurveda, Mana, Digestion*



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INTRODUCTION

All the classical texts and modern science also accepted the linking of relationship with psychological factors and digestion. A proper diet with psychological disorders may affect the digestive system. *Charaka samhita* stated that *Mana* (heart) and *Atma* (soul) subordinated with *Hridaya* (Heart here)¹. 'Hridaya' word used in *Ayurveda* for both organs; brain and heart. It is also stated that the *Prana* or Life of a human being is resting in *Hridaya* (heart) and *Shiro Pradesha* (heart and brain region). When *Acharya Charaka* explained about the characteristics of *Atma* (soul), he told that *Atma* is who controlled the involuntary actions of body, even though all the activity of *Mana* (heart) also.²

MATERIALS & METHODS

All the classical texts of *Ayurveda* with their commentaries, text books and journals.

Mana And Sadhaka Pitta

Synonyms of 'Manasa'³

Sattva, Chetah, Cittam, Hrudayam, Svantam, Hrut, Manasam, Manah.

Situated In:

- *Charaka* has explained that *Prana* and all *Indriyas* (senses) are situated in *Uttamanga* (best part) i.e., among all *Indriyas*, 'Manasa' is also situated in *Uttamanga* i.e. *Shira*(head).⁴ But in thirtieth Chapter *Acharya Charaka* clearly

indicating that *Atma, Chetasa, Chintya* is subordinated with *hridaya*⁵

- He also indicated in the origin of *Unmad* (epilepsy) disease; When aggravated *Doshas* reached at *Hridaya* (heart) and vitiates *Manovahisrotasa*.
- *Charaka* explained the chief function of *Mana* is to think or speculation. Association of thinking is linking with subject into proper and improper way like excessive, deficient or even deviant; i.e. cause of ultimate decision (*Mano-Budhhi*), natural or abnormal perception respectively⁶

All the above discussion related to site of *mana* is showing that brain is the functioning part of *mana* while the heart is subordinated with *mana* directly or vice-versa.

Functions of 'Manasa'⁷

Indriyabhigraha (control of sense organs), *Svasya nigraha* (self restraint), *Uha* (hypothesis) and *Vicara* (consideration) represent the functions of mind.

- **Indriyabhigraha-** 'Manasa' is called the controller of *Indriyas* because it indicates to send and receive impulses and inspirations to the cognitive senses; so as to facilitate them for the perception of objects.
- **Svasya Nigraha-** 'Manasa' has got a specialty that is of *Svasya nigraha* i.e. self control. It is necessary to have right orientation towards

desired objects and restraining from those after the purpose is fulfilled.

- **Uha** - *Acarya Cakrapani* has explained that the knowledge of perceived objects obtained by complete examination by mind is called *Uha* or simply it means the *Jnana* of *Indriyas*.
- **Vichara** - *Cakrapani* has stated that thinking upon perceived objects for its reception (*Upadeya*) or rejection (*Heya*) is *Vicara*.

The *Manasa* acts in three stages-

1. Perception (Cognitive or Sensory)
2. Discussion and Determination.
3. Stimulation or Initiation (Conation or Motor Reflex).

1. Perception (Cognitive or Sensory)-

In this stage *Indriya* (sense organs) receives *Artha* (objects of sense organs) if it is stimulated by '*Manasa*'. *Caraka* also explains that '*Manasa*' is a key factor to *Indriya* (sense organs) for the reception of *Arthas*. For the occurrence of perception the connection among *Atma*, *Indriya*, '*Manasa*' and *Arthas* is very essential.

2. Discussion and Determination-

After the perception the procedure of the actual analysis starts. These processes i.e. *Cintyam*, *Vicaryam*, *Uhyam*, *Dhyeyam*, *Samkalpyam* etc. highlight the various objects of mind according to its capacity. It gives the determination to the perception.

3. Stimulation or Initiation (Conation or Motor Reflex) –

This part of the physiology of '*Manasa*' is related to *Karmendriyas* (sense organs). '*Manasa*' is called *Ubhayendriya* (both) because it connects *Jnanendriyas* (sexual organs) and *Karmendriyas*. After the determination of knowledge perceived by *Jnanendriyas*; further necessary and desired

actions are to be done by *Karmendriyas*. In this way beginning from the cognitive and sensory perception up to the stimulation of motor reflexes '*Manasa*' performs whole process of knowledge.

SADHAKA PITTA

It is one among the sub types of *Pitta* associated with certain mental faculties and emotions. The word *Sadhaka* derived from the root word '*Saadha*' - which means 'to accomplish'. It is the one which helps to achieve *Chaturvidha Purushartha* i.e. *Dharma* (righteousness, moral values), *Artha* (prosperity, economic values), *Kama* (pleasure, love, psychological values) and *Moksha* (liberation, spiritual values). This type of *pitta* associated with certain mental faculties and emotions. Looking into the functions of *Sadhaka Pitta* [*Ojokrita Pitta* or *Medhakrita Pitta*] it can be understood that these functions are much more advanced function related with higher brain centers carried out by neurotransmitters.⁸

Psychological Factors Linking With Digestion With Ayurvedic Concept:

- All the food articles are completely digested after reaching the *Amashaya* (stomach). Once the digestion is complete, the digested essence of food reaches all the organs of the body by means of the vessels.⁹
- *Rasavaha srotas* have their root in *Hridaya* i.e. heart and ten *Dhamanis* i.e. major arterial trunks.¹⁰
- *Annavaha srotamsi* are affected due to overeating, untimely eating, unwholesome food and derangement of digestive fire. Those who eat food that is heavy, cold, over-unctuous and in excessive quantity by and perform excessive mental work suffer from disorders of *Rasavaha Srotas*.¹¹

- Stress induced indigestion and complications: According to *Acharya Sushruta* due *Rasa kshaya* of a person suffered from *Hritpida* [Cardiac Disorder] or *kampa* [hypertension]; and in Extreme condition of *Rasakshaya* can be a cause of *Shosha* [Loss of weight], *Shunyata* [Numbness] and *Trishna* [Thirst].¹²

It can be said that any wholesome food, even taken in the right quantity, does not get digested if the mental state of the person is riddled with anxiety, grief, fear, bed and restlessness or irritable due to lack of sleep.¹³ Mental factors like food intake while the mind being afflicted with passion/desires, anger, greed, infatuation, envy, bashfulness, grief, conceit, excitement, and fear are also the cause of formation of ama. Any unwholesome food, even if taken in right quantity also leads to ama formation. An individual who regularly consumes an incompatible diet, multiple heavy meals (in short intervals) and eats even before the previous meal is digested, results in a clinical state of indigestion characterized by the manifestation of toxic symptoms termed as "ama visha". Some scholars opine that ama originates from highly vitiated dosha itself by their conjugation; as visha (Aflatoxins) develops in (stored up, edible) *kodo millet (kodrava)*.¹⁴ The food that possesses pleasant smell (taste, appearance, consistency,) etc., nourishes the similar entities in the body such as the sensory organs of smell by *Gandha* etc (e.g. taste, vision, touch etc. senses by respective *Mahabhuta*).¹⁵ ***Manoabhigata* [Psychological Trauma]** also a Cause that affect the channels of nervous system; Food with incompatible, contaminated and unclean properties; possession by spirits like gods, teachers and *Brahmanas*; mental trauma due to recurrent exposure to fear or exhilaration and adopting difficult posture are the general

causes of *Unmada*.¹⁶ By the above causative factors, the *Doshas* get vitiated in the person possessing low level of *Sattva Guna* (weak minded people) in turn vitiate *Hridaya* (mind), which is the seat of intellect. There from the channels carrying mental factors (*Mano-Vaha Srotasas*), quickly delude the mind of the person.¹⁷

Some of the conditions in which these factors can produce;

Exogenous (Psychological) Diarrhoea

The exogenous type of *Atisara* (Diarrhoea) is of mental origin and is of two types. One of these is caused by fear and the other is caused by grief. Their signs and symptoms are similar to those of the *Vatika* type of *Atisara*. Thus *Atisara* or diarrhea is of two types, viz., *Nija* or endogenous (like *Vataja*, *Pittaja*, *Kaphaja* and *Sannipataja Atisara* and *Agantuja/Manasa* or exogenous.¹⁸

***Arochaka* (Anorexia)¹⁹**

All the mental factors associated with *Vatadi Dosh*a affect the digestion and produce anorexia.

General Cause of Anorexia:

Vatadi dosha and Grief, Fear, Over greed, Anger, Unpleasant Food, Smell and Sights are in general causes.

Signs of anorexia caused by mental factors:

Grief, fear, over-greed, anger etc. and unpleasant food and smell leads to loss of desire for food even though the condition of mouth is normal.

General management of anorexia:

General treatment of psychological anorexia: Delicious favorite foods pleasing the heart, gladdening the patient should be given.

Major psychological factors that produce psychosomatic conditions are;

Shoka²⁰

Shoka (grief) is a cause of increase *vata* and produce *Vatika Roga* like *Shiro Roga* (disorders of head) , *Hridya Roga* (cardiac diseases), *Alasaka*, *Aanaha* (Distention of the abdomen) etc and in *Charaka Agrya Dravya*; *Shoka* is took superior placed in *Shoshanam* (desiccation) *Charaka Agrya* .

Krodha:²¹

Krodha (anger) is mentioned as a cause of increased *Pitta* and produce *paittika* disorders like *Ajirna*(indigestion), *Amlapitaa* (peptic disorders), *Paitika Shiro Roga* , *Hridya Roga* (cardiac diseases) etc.

DISCUSSION

The brain and the endocrine system control digestive processes. The brain controls the responses of hunger and satiety. The endocrine system controls the release of hormones and enzymes required for digestion of food in the digestive tract.

Enteric nervous system:²²

A subdivision of the peripheral nervous system that directly controls the gastrointestinal system.

- The enteric nervous system (ENS), which is embedded in the lining of the gastrointestinal system, can operate independently of the brain and the spinal cord.
- The ENS consists of two plexuses, the sub mucosal and the myenteric. The myenteric plexus increases the tone of the gut and the velocity and intensity of contractions. The submucosal plexus is involved with local conditions and controls local secretion, absorption, and muscle movements.

- While described as a second brain, the enteric nervous system normally communicates with the central nervous system (CNS) through the parasympathetic (via the vagus nerve) and sympathetic (via the prevertebral ganglia) nervous systems, but can still function when the vagus nerve is severed.
- The ENS includes efferent neurons, afferent neurons, and interneurons, all of which make the ENS capable of carrying reflexes and acting as an integrating center in the absence of CNS input.

Regulation of ENS Function

The parasympathetic nervous system is able to stimulate the enteric nerves in order to increase enteric function. The parasympathetic enteric neurons function in defecation and provide a rich nerve supply to the sigmoid colon, the rectum, and the anus.

Conversely, stimulation of the enteric nerves by the sympathetic nervous system will inhibit enteric function and capabilities. Neurotransmitter secretion and direct inhibition of the enteric plexuses cause this stall in function. If the gut tract is irritated or distended, afferent nerves will send signals to the medulla of the brain for further processing.

Gastrointestinal Reflex Pathways

The digestive system functions via a system of long reflexes, short reflexes, and extrinsic reflexes from gastrointestinal (GI) peptides that work together.

Starting Events for the Nervous System and Hormone System²³

- Thinking of food (i.e., smell, sight) stimulates the cerebral cortex.
- The cerebral cortex sends messages to the hypothalamus, the medulla, and the parasympathetic nervous system via the vagus nerve, and to the stomach via the gastric glands in the walls of the fundus and the body of stomach.
- The gastric glands secrete gastric juice.

Neurotransmitters²⁴

Glutamate is the primary excitatory neurotransmitter in the brain, while GABA is the principal inhibitory neurotransmitter. These are the chemical substances that act as mediators for the transmission of nerve impulses from one neuron to another neuron through synapses. Here are few examples with their involvement in different functions viz.

1. Nor epinephrine (NE) - Plays roles in arousal (awakening from deep sleep), dreaming, and regulating mood.
2. Dopamine (DA) - Is active during emotional responses, addictive behaviors, and pleasurable experiences.
3. Serotonin- Involved in sensory perception, temperature regulation, control of mood, appetite, and the induction of sleep.
4. Nitric oxide (NO) – It plays a role in memory and learning.

Different psychological factors like *Chinta* (Anxiety), *Shoka* (grief), *Bhaya* (fear), *Krodha* (anger), *Dukha* (sorrow), *Ahridya ashan gandha* (unpleasant food, smell and sights) etc. affect these Neurotransmitters and played a important role to regulate the centers of food digestion.

Signaling pathways involved in the mechanism of satiation²⁵

Energy homeostasis depends on food we consume. Hypothalamus and brainstem are mainly involved to maintain the energy levels. The arcuate nucleus (ARC) of hypothalamus plays important role to control intake of food. ARC has orexigenic neurons (appetite stimulating) and anorexigenic neurons (appetite inhibiting). During digestion, food nutrients stimulate G-protein coupled receptor present on enteroendocrine cell, which stimulates release of gut hormone. Gut hormones influences the vagus nerve, hypothalamus and brainstem. Stimulatory and inhibitory neurons present in hypothalamus interact with peripheral signals which results in alteration of eating drive. Vagal afferents stimulated by the gut hormone and sensitive to the stomach's mechanical stretch further connect with the nucleus of the brainstem. Brainstem passes neural signals to hypothalamus. Numerous hormonal and neural signals influence ARC nucleus, which projects to a number of regions including hypothalamic paraventricular nucleus where some essential energy regulating pathways arise.

Gastrointestinal tract releases various peptide hormones. Stomach has its hormonal and neural control mechanism. Presence of food nutrients along with distention of stomach release gut hormones such as PPY, GLP-1, and oxyntomodulin (OXM). These are mainly responsible for phenomenon of satiation. These peptides decrease hypothalamic orexigenic signaling and increase anorexigenic signaling. Negative feedback mechanism results due to these peptides also contribute to increase satiety between meals. Effect of these gut hormones in union with CNS effect results in satiation and

satiety. The enteroendocrine cells released hormones interact at different brain levels through circulation and or through primary afferent neurons. Along with induction of satiation and meal termination, gut hormones also produce a positive feeling of reward and satisfaction. Nutrient sensors and their signaling to brain are vital to give feeling of satisfaction.

Relationship between formation of *Ama* and *Mana* in a modern context is;

The Gut-Brain Axis (GBA) consists of bidirectional communication between the central and the enteric nervous system, linking emotional and cognitive centers of the brain with peripheral intestinal functions. Recent advances in research have described the importance of gut microbiota in influencing these interactions. This interaction between microbiota and GBA appears to be bidirectional, namely through signaling from gut-microbiota to brain and from brain to gut-microbiota by means of neural, endocrine, immune, and humoral links. In clinical practice, evidence of microbiota GBA interactions comes from the association of dysbiosis with central nervous disorders (i.e. autism, anxiety-depressive behaviors) and functional gastrointestinal disorders. In particular, irritable bowel syndrome can be considered an example of the disruption of these complex relationships

The central nervous system and in particular hypothalamic pituitary adrenal (HPA) axis (in dashed line) can be activated in response to environmental factors, such as emotion or stress. HPA is finalized to cortisol release and is driven by a complex interaction between amygdala (AMG), hippocampus (HIPP), and hypothalamus (HYP), constituting the limbic system. HYP secretion of the corticotrophin-releasing factor (CRF) stimulates

adrenocorticotrophic hormone (ACTH) secretion from pituitary gland that, in turn, leads to cortisol release from the adrenal glands. In parallel, central nervous system communicate along both afferent and efferent autonomic pathways (SNA) with different intestinal targets such as enteric nervous system (ENS), muscle layers and gut mucosa, modulating motility, immunity, permeability and secretion of mucus. The enteric microbiota has a bidirectional communication with these intestinal targets, modulating gastrointestinal functions and being itself modulated by brain-gut interactions. Strong evidence suggests that gut microbiota has an important role in bidirectional interactions between the gut and the nervous system. It interacts with CNS by regulating brain chemistry and influencing neuro-endocrine systems associated with stress response, anxiety and memory function.²⁶ Intake of food while the mind being afflicted with passion/desires, anger, greed, infatuation, envy, bashfulness, grief, conceit, excitement and fear are also the cause of formation of *Ama*.²⁷

CONCLUSION

Psychological disorders like Stress and Anxiety; Grief and anger like factors directly affect Gut activity So that it is assume that Gut is a “Second Brain” of the body. Later on, Researches find a relationship between digestion and Psychological factors i.e. Gut-Brain Axis (GBA) on this phenomenon. A poor Psychological habit affect the formation of Absolute *Rasa Dhatu* or *Prasad Bhaga* and produce *Ama-dosha*; which is highly harmful for our body and originated the psychosomatic disorders like Insomnia, Psoriasis, Eczema, Stomach ulcers, IBS, Obesity, High Cholesterol, Thyroid disease, PCOD, Hypertension, Constipation, *Migraine*, Diabetes

and many more linked disorders. Ayurveda can provide a healthy diet; mental relaxation therapies and herbal medication to prevention and cure in such type of diseases.

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