

# MEDHYA RASAYANA IN EXAM STRESS W.S.R TO CHITTODVEGA

Dr.Gadde Chetan \* Dr.Shrilatha Kamath T \*\* Dr.Dhaneshwari HA\*\*\*

P.G SCHOLAR\*, HOD & PROFESSOR\*\*, ASSISTANT PROFESSOR\*\*\*

DEPARTMENT OF KAYACHIKITSA AND MANASA ROGA,

SRI DHARMASTHALA

MANJUNTHESHWARA COLLEGE OF AYURVEDA AND HOSPITAL, KUTHPADY, UDUPI, 574118

## ABSTRACT

*Rajas* and *tama* are two important *dosha* of *mana*. Their vitiation will lead to many *manasika roga*, *chittodvega* is one among them. In current social world competition is the trademark. In this globalisation era clashes between people is remarkably seen.

In the process of achieving the success almost all category of people get afflicted with psychological stress irrespective of their strength and weakness. The student's community is facing the same. Due to these stress factors, derangement in HPA axis will take place resulting in further worsening of the condition.

Exam stress can create lots of complications in student's life like Suicidal tendencies, Personality disorders, Insomnia and other chronic diseases. For combating this situation students need several kinds of help and support from everyone, parents, society, social media, more over the student should have great mental strength to tackle these stressors. Thus it has become a need of the hour to help students to manage their stress during the examination days and to achieve their goal comfortably. By practicing various preventive protocols mentioned in Ayurveda and by following certain *medhya rasayana* which will improve the mental strength. *Guduchi* is one among the *medya rasayana*. This will help in managing the exam stress without causing adverse/side-effect.

**Keywords:** *Rajas, Tama, Manas, Chittodvega, Medhya*

## INTRODUCTION

Ayurveda is a science which believes that body is made up of *dhosha dhatu mala*<sup>1</sup>, any derangement in these will lead to diseases. *Dosha* are again classified into two; *shareerika* and *manasika*. In Ayurveda both *shareera* and *manas* are given equal importance.

*Rajas* and *tama* are two important *dosha* of *mana*, If any imbalance happens it leads to many *manasika roga*, *chittodvega* is one among them<sup>2</sup>. In current social world competition is the trademark. Struggle to Survive and to get success has become the ultimate goal in every field. To achieve that goal almost all category of people get afflicted with psychological stressors irrespective of their strength and weakness. There are two types of stress eustress and distress. Eustress is positive stress. This stress is good for achieving certain goals in life and this stress will have positive impact on life. Distress is the another type of stressor which is having negative impact on life causing ill effect on health. Any stressor which is more than the normal will be causing distress, which will trouble an individual to attain success and produce ill effect on health. These things have impact on endocrine system which leads to several regulatory changes in the hormones. This distress can be seen in few members of student's community during the examination.

In spite of preparedness for the exam, because of the excessive pressure created by parents, institutions and society, students are struggling and facing severe distress while appearing for the exam. Survey reveals that incidence of exam stress has risen from 27% in 2009 to almost 40% in 2010<sup>3</sup>. Exam stress can create lots of complications in student's life like Suicidal tendencies, Personality disorder, Insomnia and other chronic diseases. Every hour one student commits

suicide in India, with about 28 such suicides reported every day. There may be several causes but the main among them is academic stress. Among them the highest rates are in the youth of age 15- 29 years. . Fear of failure is a leading cause for suicide among students. When students pass through an unsuccessful phase, everything seems pessimistic to them. They feel their future is bleak and this may result in committing suicide.<sup>4</sup>

Personality disorders lead to a disturbance in functioning as great as that in the most major mental disorders. They are associated with high rates of separation and divorce; unemployment and inefficiency; and poor quality of life for the individual and his/her family. Students with personality disorders have an increased risk of mortality through suicide, homicide, and accidents. Moreover, when a personality disorder is present, the treatment of other coexisting psychiatric or medical conditions is frequently more complicated, lengthier, or less successful; a pattern that may at times be due to lack of recognition of the personality disorder. The rates are higher in among students 19.1%.<sup>5</sup>

Normal sleep pattern is the key factor to maintain healthy behaviour and physiology. This is lacking in the students of age 18 – 25 years, because of their academic stress students are prone to sleep disturbances. Prevalence of insomnia is found to be 37% in students and is higher among males.<sup>6</sup>

For combating these situations and to prevent complications students need several kinds of help and support from everyone, parents, society, social media. More over the student should have great mental strength to tackle these stressors. Thus it has become a need of the hour to help students to tackle their stress during the examination days and to achieve their goal comfortably. By practicing various preventive protocols mentioned in Ayurveda and following certain *medhya rasayana* which will improve the mental strength.alot has been mentioned in *medhya rasyanas* eg. *Shankapushpi, Yastimadhu, Mandukaparni, guduchi* etc *Guduchi* is one among the *medya rasayana*<sup>7</sup>. This is effective in managing stress related issues by improving *satva guna* without causing adverse/side-effect.

## AIMS AND OBJECTIVES:

To understand the pathophysiology of exam stress and effect of *Guduchi* in exam stress.

## MATERIALS AND METHODS:-

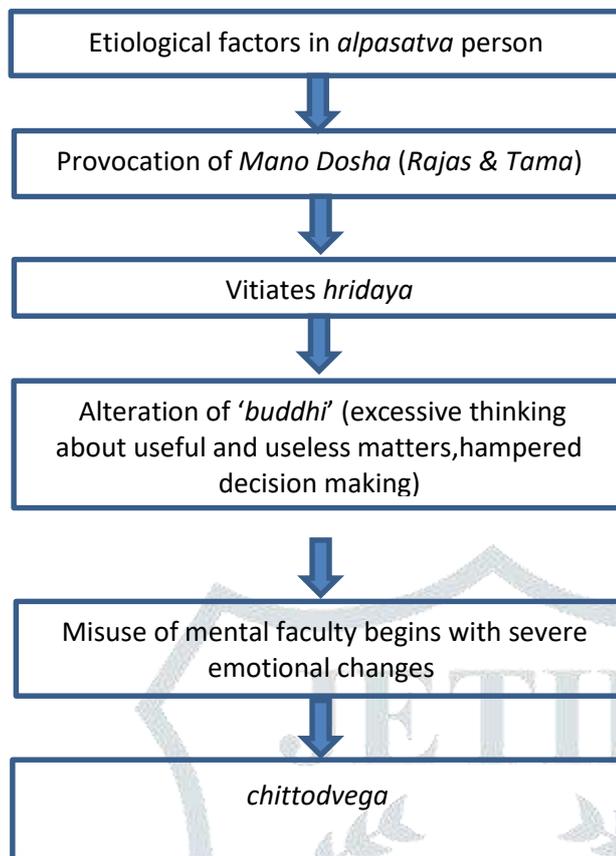
A conceptual study is made after reviewing all *Ayurveda* texts and their commentaries, relevant articles, journals and published articles, internet media.

### A) *Chittodvega*

The literal meaning of this word is 'Unstable mind, which disturbs the process of perception and cognition. This is caused by the imbalance of *mansika dosas* of manas i.e namely *rajas* and *tamas* and it can lead to several diseases as explained. This is one among the *vata vyadi* explained in classics<sup>8</sup>. If this *poorva roopa* is not controlled it will lead to *unmada*<sup>9</sup>.

The etiological factors for *Chittodvega* are <sup>10</sup>

- 1) *ashuchi and vaishamyahara* (unwholesome and improper food),
- 2) *vishama achara* ( abnormal practices)
- 3) *vishama chesta* (abnormal postures)
- 4) *Pragharshanam Deva Guru Dwijanam* (disobeying of God, teacher and Twice born).
- 5) *Manasika nidana* - kama, krodha, lobha..etc (psychogenic factors- desires, anger, greedy)

**Samprapthi**

If *alpasatva* person indulges in etiological factors, the *dosha* gets aggravated and moves to *hridaya* (seat of *buddhi*) provokes *manovohasrotas*. There after misuse of mental faculty begins and one goes in severe emotional changes, which are considered to be the pathological state of mind, causing the *Chittodvega*. There is involvement of *Mano Dosha (Rajas and Tamas)*, in the *Samprapthi* of *Chittodvega*.

**B)Exam stress:**

The term 'exam stress' can be broadly defined as a feeling of anxiety over one's performance in the exams. The results and reaction of parents and friends; these are the stressors which will weigh up on the student to get exam stress. This will contribute to anxiety disorders if left untreated. These anxiety disorders are common among the youth.<sup>11</sup> Student's battle of life with uneasiness and pressure of exams because of competition is the burning problem of present era and lifestyle. To survive and to get success is the ultimate goal in every field. To achieve that objective basically all people get troubled with mental weight paying little heed to their quality and weakness. Students are failing to understand their situation and often ignorance of this will lead to failure.

Due to the pressure created by parents, institutions and society, students are struggling and facing stress while appearing for the exam. Survey reveals that incidence of exam stress has risen from 27% in 2009 to almost 40% in 2010.

**1)Pathophysiology<sup>12</sup>**

Each and every activity we perform daily that is depended upon the hormones. These are secreted by endocrine glands directly into the bloodstream. Hormones are chemical substances that affect the activity of another part of the body (target site). In essence, hormones serve as messengers, controlling and coordinating activities throughout the body. Similarly there are several hormonal cycles which control body activities

The hypothalamic pituitary adrenal (HPA) axis is our central stress response system. The HPA axis is an eloquent and every-dynamic intertwining of the central nervous system and endocrine system. This system works in a fairly straightforward manner. The HPA axis is responsible for the neuroendocrine adaptation component of the stress response. This response is characterized by hypothalamic release of corticotropin-releasing factor (CRF). CRF is also known as CRH or corticotropin-releasing hormone. When CRF binds to CRF receptors on the anterior pituitary gland, adrenocorticotrophic hormone (ACTH) is released. ACTH binds to receptors on the adrenal cortex and stimulates adrenal release of cortisol. In response to stressors, cortisol will be released for several hours after encountering the stressor. At a certain blood concentration of cortisol this protection is ostensibly achieved and the cortisol exerts negative feedback to the hypothalamic release of CRF and the pituitary release of ACTH (negative feedback). At this point, systemic homeostasis returns.

With repeated exposure to stressors, the organism habituates to the stressor with repeated and sustained HPA axis activation. Therefore, it is important to support healthy cortisol levels in order to ensure the hypothalamus and pituitary glands maintain the appropriate level of sensitivity to the negative feedback of cortisol. Secretion of alarm chemicals such as epinephrine and norepinephrine from the adrenal medulla, as well as HPA axis activation persists along with the secretion of CRF, ACTH, and cortisol. Interestingly, with aging, the hypothalamus and pituitary are less sensitive to negative feedback from cortisol and both ACTH and cortisol levels rise as we age.

(Older women secrete more cortisol in response to stress than do older men. Young women, however, produce lower levels of cortisol in response to stress than do young men.)

Under conditions of normal exposure to cortisol, our tissues only experience fleeting glimpses of the alarm catecholamine's and cortisol.

As we are addressing the various health consequences of related to exam stress, it is imperative to also address the axis of response itself. Restoring homeostasis to the HPA axis is the primary goal of integrative care

## 2) Signs of exam stress<sup>13</sup>:-

Release of varied stress hormones within the body to combat things of stress would possibly result in

- 1) High-strung and nervous feeling.
- 2) Muscles become tense,
- 3) Breathing faster
- 4) Mouth dry
- 5) Whereas the guts pounds and sweating will increase
- 6) Headache
- 7) Loss or modification in sleep pattern,
- 8) Loss of appetite
- 9) Loss of concentration
- 10) Depression
- 11) Habit,
- 12) Substance abuse,
- 13) Generally the excessive stress could trigger panic attacks
- 14) Even self-harming behaviour like suicide makes an attempt.

- 15) Writer's cramp
- 16) Troubled thoughts,
- 17) Restlessness.
- 18) Trembling hands may be a typical case of examination concern.

### C) MANAGEMENT

There are different treatment protocols for *manasika vikara*, *daivavyapashraya*, *yukthivyaapashraya* and *satvavajaya* are three modalities of the treatment.<sup>14</sup> *Medhya rasayana a yukthivyapashraya chikitsa* has an important individual role to balance the morbid *dosha* of *manas*. *Guduchi* is one among *medhya rasayana*<sup>15</sup>

Examination stress is better prevented and treated with *Rasayana*.<sup>16</sup> It manages physical issues, yet additionally have wide idea towards mental issues. As a rule definition, *Rasayana* gives *Sreshtha Buddhi*, *Medha*, and *Smriti* along with *Sreshtha Dhathus*. *Charaka Samhitakara* presented the special idea of *medhya*. It isn't just for counteraction yet additionally it can fix the *Chittodvega*. Among numerous *medhya aushadas*, *guduchi* is significant in treating *Chittodvega*.

#### 1) GUDUCHI IN CHITTODVEGA:-

**Drug:** *Guduchi*<sup>17</sup>

**Botanical name:-** *Tinospora cordifolia*

**Family** *Menispermaceae*

**Constituents-** *Terpenoids and alkaloids*,

#### PROPERTIES AND ACTION

**Rasa:-** *Tikta, Kashaya*

**Guna :-** *Lagha*

**Virya :-** *Usna*

**Vipika:** *Madhura*

**Karma :-** *Tridoshashmaka, Samgrahi, Hrudaya, Dipana, Rasayana, Raktashodhak, Jvaraghna*

**Important Formulations** *Amrtarista: Amritottara kvatha curna: Guduchil taila; Guducyadi churna: Guduchi sattva, Chinnodbhavadi kvathacurna*

**THERAPEUTIC USES** –*Kusta Vatarakta; kamala pandu, Medhya*

#### 2) CHEMICAL CONSTITUENTS<sup>18</sup>

It contains *Tinosporine*, *tinoporaside*, *cordifolide*, *cordifolide*, and *hepatacosanol* are important constituents of *gulvel* (Ninivaggi 2001). *Barberine* and *palmatine* are major alkaloids found in the stem. *Glucosides* are *18-norclerodane glucoside* and *sesquiterpenes tinocordioside*, *tinocordifolioside*, *tinocordifolin*, *tinospone*, and *cordioside*, *cordifolisides* and *syringene* (Verma 2011, Pendse 1981). The stem contains immunologically active substances *arabinogalactan* and *(1, 4)-alpha-D-glucan* (Chintalwar 1999, Nair 2006). *Gulvel* contains high fibre (15.9%), sufficient protein (4.5%-11.2%), sufficient carbohydrate (61.66%) and low fat (3.1%). Its nutritive value is 292.54 calories per 100 g. It has high potassium (0.845%), high chromium (0.006%), sufficient iron (0.28%) and sufficient calcium

### 3) PHARMACOLOGICAL ACTION <sup>19</sup>

*Tinospora cordifolia* is claimed to be useful in maintaining healthy brain function and in stress management. The root of gulvel is traditionally used for its anti-stress activity. Its anti-stress activity was confirmed by its effects on brain neurotransmitters in stressed rats. The supportive evidence is in terms of normalisation of stress induced biochemical changes in norepinephrine, dopamine and 5-hydroxytryptamine in experimental rat models and improved levels of 5-hydroxyindoleacetic acid (5-HIAA) (a metabolite of 5-HT) in mice with ethanolic roots extracts. The extracts have been shown to have antidepressant effects on learned helplessness in mice and rat models of depression.

Depressive disorders are characterised by decreased brain levels of monoamines including NE, 5-HT) and DA. Established modern antidepressants act by inhibiting reuptake or breakdown of one and/or more of these amines and increasing their levels at postsynaptic receptors. Tricyclic antidepressants (TCAs) (e.g. imipramine, amitriptyline) non-specifically inhibit the reuptake of brain amines. However TCAs also block dopaminergic D2, histaminergic H1 and muscarinic receptors. These additional actions are responsible for a large number of adverse effects of TCAs. Monoamine oxidase inhibitors (MAO-I) (e.g. phenelzine, isocarboxazid, tranylcypromine) potentiate brain amine levels by inhibiting the breakdown of brain amines. However they produce severe adverse effects. Concurrent use of foods that are rich in amines can also seriously enhance the amine levels leading to profound sympathetic stimulation. Hence too many dietary restrictions are necessary while using monoamine oxidase inhibitors. The newer amine reuptake inhibitors include selective serotonin reuptake inhibitors (SSRIs) (e.g. citalopram, fluoxetine, paroxetine, sertraline and fluvoxamine). These are amongst the best tolerated and commonly used class of antidepressants. SSRIs selectively inhibit reuptake of serotonin and contribute in raising the brain levels of serotonin, and their use is associated with comparatively fewer incidences of adverse effects. Newer antidepressants also include SSNRIs (Harvey 2009). The antidepressant activity of *Tinospora cordifolia* was shown in Swiss albino mice by the tail suppression test and forced swim test on oral administration of its petroleum ether extract in the doses of 50, 100 and 200 mg/kg. The efficacy of its antidepressant activity was comparable to 15 mg/kg of imipramine (a TCA) and 20 mg/kg of sertraline (an SSRI). The dose of 50 mg/kg showed the most potent effect with no change in locomotor function. The antidepressant-like effect of gulvel was significantly reversed on tail suppression test by pre-treatment of Swiss young albino mice with prazosin (an alpha-1 adrenoceptor antagonist), sulpiride (a selective dopamine D2-receptor antagonist), p-chlorophenylalanine (PCPA - a serotonin synthesis inhibitor) and baclofen (GABA-B agonist). The extract reduced the mouse whole brain monoamine oxidase (MAO-A and MAO-B) activities resulting in increased levels of brain monoamines. Inhibition of metabolism of monoamines, particularly serotonin and noradrenaline was also demonstrated. Thus the mechanism of the anti-stress and antidepressant activities of *Tinospora cordifolia* most likely relates to increased levels of norepinephrine, dopamine and serotonin, and decreased level of gamma- amino butyric acid (GABA), resulting from interaction with alpha-1 adrenergic, dopaminergic (D2), serotonergic and GABA-B receptors. Potentiation of brain monoamines by inhibition of the enzyme monoamine oxidase is another suggested mechanism. GABA-B receptor antagonism has been recently suggested as a basis for development of novel antidepressants. Barberine, an alkaloid in gulvel, has been reported to have antidepressant effects. The mechanism seems to involve l-arginine-nitric oxide (NO)-cyclic guanosine monophosphate (cGMP) signalling pathway. Thus barberine is likely to be an active component in the antidepressant effect of gulvel.

*Tinospora cordifolia* is professed to be useful in keeping up sound cerebrum work and in pressure the board. The foundation of gulvel is verifiably utilized for its enemy of stress movement. Its enemy of stress action was affirmed by its impacts on mind synapses in focused on rodents. The aide confirmation is regarding normalization of stress initiated natural science changes in noradrenaline, Intropin and monoamine synapse in trial rodent models and improved degrees of 5-hydroxyindoleacetic corrosive (5-HIAA) (a substance of 5-HT) in mice with ethanolic roots removes. The concentrates are appeared to possess medication consequences for learned defenselessness in mice and rodent models of sorrow. Burdensome issues square measure described by decreased cerebrum levels of monoamines along with NE, 5-HT) and DA. Set up popular antidepressants act by repressing take-up or breakdown of 1 or potentially extra of those amines and expanding their levels at postsynaptic receptors. upper medication antidepressants (TCAs) (for example imipramine, amitriptyline) vaguely repress the take-up of cerebrum amines. yet, TCAs furthermore block dopaminergic D2, histaminergic H1 and muscarinic receptors. These additional activities square measure liable for a curiously large scope of unfavorable impacts of TCAs. catalyst inhibitors (MAO-I) (for example phenelzine, Marplan, tranylcypromine) raise cerebrum methane arrangement levels by hindering the breakdown of mind amines. however, they turn out extreme unfriendly impacts. cooccurring utilization of nourishments that square measure made in methane series can even genuinely improve the amine levels bringing about significant thoughtful incitement. subsequently too a few

dietary limitations square measure vital though exploitation compound inhibitors. The more current methane arrangement take-up inhibitors grasp specific 5-hydroxytryptamine take-up inhibitors (SSRIs) (for example citalopram, Àuoxetine, paroxetine, SSRI and Àuvoxamine). These square measure among the best endured and normally utilized class of antidepressants. SSRIs by choice restrain take-up of 5-hydroxytryptamine and contribute in raising the mind levels of 5-hydroxytryptamine, and their utilization is identified with moderately less occurrences of antagonistic impacts. More current antidepressants furthermore grasp SSNRIs (Harvey 2009). The medication movement of *Tinospora cordifolia* was appeared in Swiss unordinary individual mice by the tail concealment investigate and constrained swim investigate oral organization of its unrefined ether extricate inside the portions of fifty, 100 and 200 mg/kg. The effectivity of its medication action was treasure fifteen mg/kg of Tofranil (a TCA) and twenty mg/kg of SSRI (a SSRI). The portion of fifty mg/kilogram demonstrated the first powerful outcome with no alteration in move work. The stimulant like aftereffect of gulvel was significantly turned around on tail concealment investigate pre-treatment of Swiss youthful abnormal individual mice with alpha-adrenergic impeding specialist (an alpha-1 adrenoreceptor foe), sulpiride (a particular Intropin D2-receptor opponent), p-chlorophenylalanine (PCPA - a 5-hydroxytryptamine union inhibitor) and baclofen (GABA-B agonist). The concentrate diminished the mouse entire cerebrum protein (MAO-A and MAO-B) exercises prompting enlarged degrees of mind monoamines. Hindrance of digestion of monoamines, eminently 5-hydroxytryptamine and vasoconstrictive was also incontestible. thusly the component of the counter pressure and medication exercises of *Tinospora cordifolia* apparently identifies with increased degrees of noradrenaline, Intropin and 5-hydroxytryptamine, and reduced degree of gamma-amino immersed unsaturated fat (GABA), following from collaboration with alpha-1 adrenergic, dopaminergic (D2), serotonergic and GABA-B receptors. synergism of cerebrum monoamines by hindrance of the impetus protein is another trained component. GABA-B receptor hostility has been as of late educated as a reason for improvement of novel antidepressants. Barberine, partner degree natural compound in gulvel, has been reportable to claim medication impacts. The component seems to include l-arginine-nitric substance compound (NO)- cyclic nucleoside monophosphate (cGMP) flagging pathway. consequently barberine is likely going to be a vigorous component inside the medication consequence of gulvel.

## CONCLUSION:

*Chittodvega* is mainly caused as a result of vitiation of *rajas* and *tamas*. The pathology is same in almost all the *manasika vikara*. The anxious symptoms are more seen in exam stress and hence it can be considered as *chittodvega*. Exam stress will lead to several complications when anxiety/depression causing distress is not controlled. Psychological stressors will trigger the HPA axis. As mentioned above *guduchi* is *medhya*, it can be taken as *rasayana* and because of the several pharmacological active compounds which can help the students in combating the exam stress. Thus *guduchi* is considered to be the best drug to combat the different *manasika vikara* like *chittodvega*.

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