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IJAPC

e ISSN 2350 0204

VOLUME 12 ISSUE 1 2020

GREENTREE GROUP PUBLISHERS (GGP)



Critical Analysis of Ayurvedic Management of Anxiety Coexisting with Depression: A Case Study

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ABSTRACT

In the present case study, 27 year female patient consulted the outdoor patient department of CBPACS with the complaint of chronic stress. The case was showing the features of anxiety. Patient was presented with the complaints of increased heart rate, palpitation, severe dryness of mouth, decreased attention and concentration, irritability, decreased confidence, lack of interest to communicate, Intolerance to even normal sounds and fearfulness, weight loss, feeling of weakness, lack of sleep during night. Proper history revealed stress in personal life. The case was diagnosed as anxiety (*Chittodvega*) associated with mild depression. Diagnostic criteria used for assessment of anxiety is Hamilton Anxiety Rating Scale (HAM-A). The score obtained is 35, which is interpretive of severe grade of anxiety. The symptoms of *Rasa kshaya* were present due to chronic exposure to excessive stress, so the treatment of *Rasa Kshaya* was given. *Nidana parivarjaana*(removal of cause of stress)which is an essential part of treatment in *manas roga* was done by counseling (a part of *Satvavajaya Chikitsa*), along with the line of treatment of *manas roga*. *Medhya dravyas*, *shirodhara*, *matra basti* and meditation were administered to calm down the anxious state of mind. Counselling & *Harshana chikitsa* of the patient were done to cope with the depressive feeling. The changes in lifestyle (*vihar*) prescribed were equally important that includes increased physical activity that brings changes in the body physiology and suppression of continuous state of sympathetic stimulation. The fact that need special attention is that no allopathic treatment was used and complete cure is achieved in the present case.

KEYWORDS

Chittodvega, *Anxiety*, *Satvavajaya chikitsa*, *Medhya Rasayana*.



Greentree Group Publishers

Received 24/10/19 Accepted 31/12/19 Published 10/01/2020



INTRODUCTION

There are two types of *doshas* in our body responsible for various activities- *Sharirikadoshas* (*Vata, Pitta, Kapha*) and *ManasDoshas* (*Satva, Rajas, Tamas*). Both the *sharira* and *manasikadoshas* are interrelated with each other¹ (Ch. Su.1/57), hence the concept of psychosomatic disorder is well accepted in ayurveda. In healthy state, among the three humors *Vata* (especially *Prana, Vyana* and *Udana Vata*) is mainly responsible for the activities of the mind i.e. it is the controller and stimulator of mind “*Niyanta praneta cha manasah*” and is responsible for enthusiasm “*Harsha utsahoryoni*”. *Sadhaka Pitta* is directly related to the function of mind and is responsible for intelligence, memory and intellect, self-esteem, enthusiasm. *Kapha* (*Tarpaka* and *Bodhaka Kapha*) is responsible for patience, courage, knowledge, learning, wisdom, cognition, perception, comprehensiveness, understanding, talent, greedlessness, stability, enthusiasm, etc. *Chitta* is mind and *Udvega* is anxiety. Hence, *Chittodvega* - ‘Anxious status of a mind’. *Chittodvega* is considered as *rajatama vikara*². Anxiety disorders are characterized by anxiousness, worrisome

thoughts, avoidance behavior, along with the somatic symptoms of autonomic arousal. Although it is normal to experience some level of anxiety at times but persistent anxiety may be indicative of an anxiety disorder. The increasing prevalence of stress in the lifestyle is responsible for all *manas roga*. These anxiety disorders can be divided into three types- Phobic anxiety disorder in which the person suffers from excessive fear of some object or situation. Panic disorder which presents with repeated attacks of severe anxiety not restricted to any particular situation and is manifested as somatic symptoms like chest pain, palpitation, and parasthesia. Generalized anxiety disorder is chronic anxiety associated with uncontrolled worry. Somatic symptoms like muscle tension, bowel disturbance leads to medical presentation³.

Patients with anxiety often also have depression and present case is also an example of anxiety accompanying with depression.

Presentation of the case

A female patient of age 27 years, visited the O.P.D.21 of Chaudhary Brahma Prakash Ayurved Charak Sansthan, New Delhi with the complaint of chronic stress. After taking the proper history, patient revealed stress due to some problem in personal life which



began to reflect as excessive sadness, recurrent crying and stress repeatedly since, June 2018. She also explained the lack of healthy and supportive surrounding environment and prevalent hostile conditions. She was presented with the complaints of tachycardia, breathlessness, palpitation, severe dryness of mouth, decreased attention and concentration, irritability, chest pain, lack of interest to communicate, Intolerance to even normal sounds and fearfulness, weight loss, feeling of weakness, lack of sleep during night.

The symptoms of depression appeared in the present case are summarized as physical as well as mental. Mental symptoms include depressed mood, reduced self esteem, pessimism, guilt, anhedonia (Loss of enjoyment) and suicidal thoughts (sometimes). Physical symptoms are reduced appetite, weight loss, disturbed sleep and psycho-motor retardation, fatigue, loss of libido and bowel disturbance (constipation).

Diagnosis

Severe Anxiety (Chittodvega) with accompanying mild depression.

Diagnostic criteria used for assessment of anxiety is Hamilton Anxiety Rating Scale (HAM-A). On assessment total score obtained is 35, which is interpretive of severe grade of anxiety. The diagnostic

criteria used for depression is Beck depression inventory scale. The score obtained for depression is 17 which is suggestive of borderline clinical depression.

Samprapti Ghatak

Dosa- sharirika- vata (*prana, udana, vyana*)

Manasika- Raja, tama

Pitta- Sadhaka

Kapha- Tarpaka

Dushya- Manas, Rasadi Dhatu

Agni- Jatharagni- Mand, Vishama

Srotas-Manovaha, Sarvasrotodusti

Udhava sthana- Hridaya, Mashtishka

Vyakta Sthana- Manas, sarva sharir

Causes and symptoms

Chittodvega is a *manas vikara*(mental agony) which is manifested due to dissociation with the agreeable ones and association with the disagreeable.(ch.su. 11/45)⁴. This mental agony is due to excessive stress (*atichinta*). *Atichinta* is the one among the various causes of *Rasavaha srotodusti*.The general causes of *Kshaya* are -“*Vyayamo anashanam Chinta Rukshya alpa Pramitashanam*”⁵ (C. Su.17/76). In the present study, the particular cause involved in *rasavaha srotodusti* is the chronic stress due to excessive thinking on irrelevant objects. The *Rasavaha srotodusti* leads to the decreased formation of *Rasa*



Dhatu and the symptoms of *Rasa Kshaya* appeared. There are many causes of *Rasa Kshaya*. The case showed typical symptoms of *Rasa Dhatu Kshaya* – “*Ghattate sahte Shabdham, Nochhayerdravati shulyate. Hridayam Tamyati Swalpa chestasyapi Ras Kshaye*”⁶. Sushrut described it as “*Rasa Kshayae Hritpeeda Kampa Shunyatrishna Cha*”. *Astanga Hridaya* gave an extra feature *Rukshyta, sosha, shramand glani*. *Arundutta* commented on *sosha* as *mukhadinna*. *Rokshyam* is *snehabhava*. *Glani* is interpreted as *Klamah, shabda asahishnuta* is *shabda shravan Dwesha*. *Trishna* is recurrent desire of fluid intake due to dryness of mouth. *Sosha* is weight loss and *shunyata* is – *Amashayasya manaso va iti*”⁷. The main *dosas* of the *Manas* are *Raja* and *Tama*⁸, hence the *Nidnana*, which vitiate *Raja* and *Tama* may be considered as etiological factors of *Chittodvega*. Generalized anxiety disorder (GAD) is a common condition in which genes may play a role. Stressful life or learned behavior may also contribute to the development of GAD. The main symptom is the almost constant presence of worry or tension, even for little or no cause. It may start at any time in life, including childhood. GAD occurs more often in women as compare to men. According to Modern medical science, psychological

symptoms present in the case of anxiety disorder are apprehension, fear of impending disaster, irritability, depersonalization. Somatic symptoms are tremor, sweating, palpitations, breathlessness, dizziness, frequency of micturition, chest pain, diarrhea, initial insomnia and poor concentration⁹.

It can be inferred from the above discussion that the symptoms of chronic stress showed mark similarity with that of *rasa dhatu kshaya* leading to anxiety and depression on progression. The persistent stress causes persistent sympathetic stimulation, which is responsible for all the symptoms appeared in the present case. Chronic sympathetic stimulation, ultimately leads to *rasavaha srotodusti*¹⁰. The formation of *Rasa Dhatu* will not occur in plenty and the symptoms of *Rasa Dhatu Kshaya* will appear that shows mark resemblance with anxiety. Common symptoms of *Rasa Dhatu Kshaya* and anxiety are- Irritability, Inability to concentrate, fatigue, dryness of mouth, recurrent thirst, palpitation, tachycardia, apprehension (*glani*), tremor(*kamp*), fears and depersonalization.

Treatment (Samprapti vighatan/ Chikitsa)

The *chikitsa* of *Rasa Dusti janya vikara* is different from that of *Rasa Dhatu Kshaya*. In case of *Rasa Dhatu Kshaya*, the principle



of treatment is *Samanya Vishesh Siddhant- "Samanyam Vriddhi karanam"- "Swayonivardhandravyopayogah"*¹¹. The predominant *mahabhuta* in *Rasa Dhatu* is "*Aap or Jal Mahabhoot*", that is why, it is a *Saumya Dhatu*. And the patient desires for recurrent fluid intake to replenish the need.

Table 1 Showing prescribed treatment

<i>Aushadh</i>	<i>Aahar</i>	<i>Vihar</i>
<i>Ashwagandha Churna</i> -3gm B.D. with milk.	Healthy fresh and vegetarian diet in plenty amount is recommended as the <i>Ahar</i> also have an impact over the <i>satva</i> .	Increased Physical activity for at least 1hour everyday in the form of morning walk, playing outdoor games and exercise
<i>Brahma Rasayana</i> - 1TSF- B.D.	Increased fluid intake in form of fresh fruit juices, Milk along with nutritional supplementations (like Bournvita etc.)	<i>Yoga intervention- Bhramari pranayam, Ujjayi pranayam, Surya Namaskar</i>
<i>Sankha pushpi syrup</i> - 2TSF – T.D.S.	Fresh fruits and vegetables.	Exposure to healthy environment
<i>Brahmi Ghrit</i> -1TSF -B.D.		

Patient visited OPD for follow up after 15 days. She showed improvement in the symptoms as compared to before. The same medication continued for next one week. After one week, when patient came for follow up, unfortunately she explained that she is continue in agitation and the cause of stress continued & she is unable to cope up the situation. She developed substantial stress and the symptoms are more aggravated than before. This time the patient developed various additional symptoms and the condition worsened. She was now presented with inability to control emotions and depicting the sadness everywhere due to inability to control. Increased temperature of head excessively

The line of treatment was to replenish the *Rasa Dhatu* by *brihangana& tarpanadravya* and to calm down the anxious state by giving *Medhya Rasayana* drugs. The treatment prescribed is given in Table 1.

followed by generalized fever, decreased vision, fine tremors in bilateral limbs, loss of memory (especially short term), recurrent crying, and numbness in brain. She developed pessimistic approach towards life. All these symptoms were indicating severe anxiety along with mild depression.

The exaggerated symptoms need additional treatment was prescribed to calm down the severe anxious state of mind. Anxiety is *chittodvega* (exaggerated psyche). The symptoms presented were due to excess *Raja* and *tama manasika dosa*. This point towards the relative decrease of *Satva Guna* and increased *vata (vata vriddhi)*.



So the principle of treatment targets to increase the *satvaguna* (mental strength), calm down the anoxiousness by alleviating the *vata dosa* i.e. *vata shamana* and stimulation of parasympathetic system through various of *panch karmic* procedures and *yogic* practices.

Following treatment is prescribed for next 10 days including *panch karma* therapy (As give in the table 2)

Table 2 Showing prescription for next 10 days including *panch karma* therapy

Medication / Panch karma procedures	Dose & Duration
Brahma Rasayana	1TSF B.D.
Ekangveer Rasa	2 tab. B.D.
Ashwagandha Churna	3gm B.D.
Pippali Churna	1g along with madhu
Shirodhara	for 8 days with Til tail.
Matrabasti	for 10 days with <i>sahacharadi</i> oil

After completion of 8 days of *shirodhara* and 10 days of *Matrabasti*, patient showed marked improvement in anxiety and almost all the major symptoms like palpitation, tachycardia, dry mouth, sleeplessness, and tremors subsided up to great extent. And are not aggravated until exposure to stressful situation. After completion of this treatment, she was prescribed to continue the follow -up treatment along with meditation procedure. (Table3)

Table 3 Follow- Up treatment-With Additional (Lifestyle modification and *Satvavajaya Chikitsa*)

S. N o.	Aushadi (Medication)	Ahar-vihar (Life style modification & <i>Satvavajaya Chikitsa</i>)

1.	Brahma Rasayana 1TSF B.D.	<i>Satvika Ahara</i> & Meditation (<i>Sudarshan Kriya</i>)
2.	Ekangveer Rasa- 2 tab. B.D.	Develop a strong attitude towards the cause of stress (Change perception towards problem/ stress)
3.	Ashwagandha Churna- 3gm B.D.	Following <i>Sadvritta</i> (Good conducts) & Surrender to the God
4.	Sankha pushpi syrup- 2 TSF – T.D.S.	Increase physical activity (Games and exercise)
5.	Brahmi Ghrit -1 TSF -B.D.	Exposure to healthy environment.

Interpretation of treatment

Brahmi ghrit

Brahmi ghrit has the following contents- *Brahmi swaras, gohrita, Vacha, Kustha,* and *Sankhpushpi*. *Brahmi* is having following characteristic properties- (P.V. Sharma).

Guna- Laghu, Rasa- Tikta, Anurasa – Kashaya, Vipaka- Madhur, Virya- Shita, It is *medhya* by *Prabhav*.

Ghrit used is *Goghrit* that have *balya, hridya, deepan, Chakshyusya, medhya, ojo vardhaka* and *Rasayana* properties¹².

Ashwagandha Churna-It comes under *balya*, and *brahgan gana*. It is having *Tikta, katu, madhur Rasa. Laghu* and *snigdha guna, Ushna virya,* and *madhura vipaka*. It has *kapha vatashamak* properties hence, beneficial in anxiety and depression both¹³.

Sankhpushpi- *Sankhpushpi* is having *Tikta Rasa, Snigdha* and *Pichhila guna,*



Madhura- vipaka, Sheeta virya, Medhya – prabhava drug. It has the *shamak* effect. It subsides the *teevra avastha* of *Unmada* which is suggestive of highly anoxic state.

Pippali- It is *deepaniya, Rasayani, Anushna, snigdha* and *laghu*. It has *kapha vatahara* properties.

Action of Basti- *Basti* introduced in the colon acted upon every system of the body from head to feet and draws out the impurities by its potency¹⁴. The systemic action of *basti* is also supported by *Acharya Sushrut*. The *Virya* of *Basti* administered through the *basti* into the *Pakvashaya* reaches the whole body through the channels (*srotas*), as the active principles in the water when poured at the root of the tree reaches the whole plant¹⁵. The *Basti* stimulate the muscarinic action of parasympathetic nervous system. Holding *basti* continuously for about one *muhurt* increases the parasympathetic tone which appears in form of muscarinic actions and thereby reduces the stress level. It reduces the aggravated *vata* & relieves the patient from various major symptoms of anxiety.

Mode of Action of Shirodhara- Previous studies showed that *Shirodhara* therapy has been found safe and effective treatment modality in irritability, inability to relax, lack of concentration, disturbed sleep, loss of memory, palpitation, headache, dryness

of mouth, upset stomach and restlessness. It has tranquilizing and anxiolytic effect resulting into a kind of relaxation response. As *sirodhara* is performed over the forehead region, it may effect CNS in the following way. It may act directly on the neurons and modify the neuronal functions. It may act reflexly by sending afferent impulses to the CNS, via chemoreceptors, baroreceptors and peripheral nerves and there by eliciting psychic, somatic or visceral responses.

They may affect the nutrition and oxygen supply of CNS by altering its blood supply or affecting its metabolism. At the site of *shirodhara sthapanimarma* is situated. It is the anatomical site of cavernous plexus, optic chiasma and thalamus. *Shirodharamay* stimulate these structures and produce some effect on blood pressure. Stimulation of different areas of the hypothalamus can cause every known type of neurogenic effect on cardiovascular system, including changes in arterial pressure and heart rate. Stimulation in the posterior and lateral hypothalamus increase the arterial pressure and heart rate, whereas stimulation in the preoptic area (*sthapanimarma*) causes decrease in both arterial pressure and heart rate¹⁶. Probably such an effect may relieve insomnia and provides mental calmness. *Chittodvega* (Generalized Anxiety Disorder) is basically



a *vata* predominant disorder with the involvement of *raja-tama manas doshas*; *ksheera bala taila* has good *vata shamak* effect as well as it may provide essential nutrition to the underlying tissues. *Shirodhara* is performed directly on the head, so it is good for relieving the symptoms caused by stress and strain as well as other mental factors. The *nidranashahara*, *shirorukhara*, *bhram ahara* actions shown by *shirodhara* indicate towards its *shamaka* i.e. tranquilizer effect due to which it might reduced the blood pressure of the patients and produce calmness.

Effect of Yoga –

Among the *Astang Yoga*, *Abhyasa* and *vairagya* are the only two methods mentioned to control the *manas* that becomes hyper active in anxious states. One of the function of *vata* is “*Niyanta praneta cha manasah*”- means balanced state of *vata* controls the activities of *manas*.

Meditation

It is a platform to achieve mindfulness. It is the psychological process of bringing ones attention to experiences occurring in the present. However, the exact mechanism of action of meditation is not yet completely understood. There are four components to describe much of the mechanism of action by which mindfulness meditation may work- attention regulation, body awareness,

emotion regulation, and change in perspective on the self. All these four aspects bring marked improvement especially in the psychological complaints of the patient. It changed the perception of patient towards the persistent cause of stress and improved her *satva*. Overall it is an important part of *satvavajayachikitsa*.

RESULT

Patient continued treatment for 3 months. All the symptoms of anxiety and associated depression completely relieved in 3 months. Detail result is shown in tabulated form in Table :4.

Table 4 Result of Improvement in symptoms-

Initial Symptoms	After taking treatment for 3 months
Tachycardia, breathlessness, palpitation, severe dryness of mouth, decreased attention and concentration, irritability, chest pain, lack of interest to communicate, Intolerance to even normal sounds and fearfulness, weight loss, feeling of weakness, lack of sleep during night.	Improved Condition
Mental symptoms include depressed mood, reduced self esteem, pessimism, guilt, anhedonia (Loss of enjoyment) and suicidal thoughts (sometimes).	Improvement present
Physical symptoms are reduced appetite, weight loss, disturbed sleep and psycho-motor retardation, fatigue, loss of libido and bowel disturbance (constipation).	Improvement present



DISCUSSION

Anxiety (*chittodvega*) and depression are the mental agony arise due to failure of the human system to cope up with the stress. The minor stress is associated in day to day life but persistent major cause worsens the scenario. The present lifestyle is one of the major cause. Current case showed severe grade of anxiety associated with mild depression. The basic line of treatment is to increase the *satva* & to manage the aggravated *vata dosa*. The *manas guna* involved in *chittodvega* are *raja* and *tamas*. And the *sharirika dosa* is *Vata* that showed generalized features of anxiety and depression.

Hence, the focus of the case is to enhance the *satva guna* by modifications in *ahar* (*satvika*), *vihara* (increased physical activity, practicing yoga, meditation) and by giving appropriate *aushadh*. The *matra basti* have role in pacifying the aggravated *vata* all over the body and decreasing the sympathetic tone. *Shirodhara* acts by producing calmness thereby decreasing the *rajo guna*. The medication given is focused on *brihgana* and *tarpana* therapy in order to replenish the *Rasa Kshaya*. These procedures nourishes all the *dhatu*s. *Brihangana* therapy is appropriate for weak individuals. *Santarpana* therapy in chronically ill patients is need to be administered slowly

over a time by utilization of milk, *Ghrit*, *Sneha basti*, *Abhyang*¹⁷ etc. The *brihangana* drugs possess the property like- *guru*, *sheet*, *mridu*, *snigdha*, *bahal*, *sthoor*, *pichhal*, *mand*, *sthira* and *slakshna*. Hence they will ultimately replenish the *dhatu*s.

Medhya Rasayana is the group of drugs that acts as memory enhancers, nervine tonics, improves the *agni* (digestion and metabolism) and at the level of *srotas* (microcirculation). *Charak* also explained *Rasayana* as “*Labhopayo hi sastanaama rasadinam Rasayanam*”- means it is the way to attain best quality of *Dhatu*s¹⁸.

Patient was advised to follow good conducts (*sadvritta*) to achieve excellent, social, ethical and moral values. Following this, one can achieve the finest effects of body tissues nutrition leading to longevity, immunity and intellect. Meditation decreases the mental agitation and enhances the peaceful state of mind on regular practice. It helped the patient in enhancing patience, mental strength & consciousness. Increased physical activity has multi dimensional benefits. It enhanced efficacy (*karma samarthya*), stability (*sthairya*), and tolerance to adverse situations (*dukh sahisnuta*). Moreover, involvement in different tasks helped the patient to come out of anxious state. Healthy and happy environment is best to draw out the patient from sorrow and distress¹⁹. Hence, It must



be cleared from discussion that medication forms only one part of treatment while *satvavajaya chikitsa* and life style modifications are equally important.

CONCLUSION

Anxiety may occur as a manifestation of a primary psychiatric disorder or secondarily to either the medical illness. *Chittodvega* is a minor psychiatric disorder produced due to vitiation of *Rajas* and *Tamas*. In addition, *Prana*, *Udana*, *Vyana Vayu*; *Sadhaka Pitta* and *Tarpaka Kapha* are also provoked factors in it. *Chittodvega* is mainly anxious status of mind (similar to anxiety), somatic manifestation are also same in both the condition. The ayurvedic treatment is focused to pacify the aggravated *vata* and to increase the *satva guna* by utilization of *yuktivyapashraya* and *satvavajaya chikitsa*. The best therapy for *vata shaman* is *basti (matra basti)* for 10 days along with *Shirodhara* for 8days that showed improvement in symptoms like tachycardia, palpitations, decreased sleep, concentration problems and uncontrolled thoughts running in the mind. The *yuktivyapashraya chikitsa* was planned to compensate the *rasa kshaya* which occurred due to prolonged stress and grief, which made the patient weak. *Balya*, *Brinhgana (Ashwagandhachurna)* and *Tarpana*

medications and diets were prescribed to increase the body strength. *Medhya Rasayana* therapy is given to improve *Dhatus*, *srotas*, *agni* and to produce physical & mental well being. But due to decreased *satva* the symptoms reappears even on exposure to mild stress. Hence, administration of *satvavajaya chikitsa* is essential. It include counseling, *Pranayama*, Physical exercise, meditation and changing attitude towards the problems. A happy and healthy environment was also an important factor in relieving anxiety and depression. Physical activity, and *Pranayam*were helpful to relieve the mild depression developed due to chronic stress.

This case was solely treated by ayurvedic medicines. Patient showed improvement in symptoms within 15 days and full cure was attained in about 3 months without using a single modern medicine with no associated side effects. Hence, this case study gives a rationale of ayurvedic treatment to get complete cure of severe grade anxiety with mild depression in minimum duration leaving no persistent symptoms or side effects. The modern group of drugs for treatment of anxiety disorders are anti depressant drugs, benzodiazepines, sedative anti histaminics, Azapirones (non-selective) and beta blockers. All these drugs are addictive and have huge side effects.



Hence, Ayurveda can become a futures hopes to cure such mental ailments effectively and safely.



REFERENCES

1. Shastri S.N. (2014). Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
2. Shastri S.N. (2014). Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
3. Stuart H., Ian D. Penman, Mark W.J. Strachan, Richard P. Hobson, Davidson's principles and practice of medicine. 21st edition, part-2. practice of medicine. Psychiatric disorders. International Edition.
4. Shastri S.N. (2014). Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
5. Shastri S.N. (2014). Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
6. Shastri S.N. (2014). Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
7. Acharya A.D. (2012). Sarvanga Sundara commentary on Astang Hridaya. Chaukhambha Sanskrit Sansthan .
8. Shastri S.N. (2014). Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
9. Stuart H., Ian D. Penman, Mark W.J. Strachan, Richard P. Hobson, Davidson's principles and practice of medicine. 21st edition, part-2. practice of medicine. Psychiatric disorders. International Edition.
10. Shastri S.N. (2014). Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
11. Prasad V.V. (2002). Nibandh Samgraha commentary of Acharya Dalhana. Sushrut Samhita. Rashtriya Ayurveda VidhyaPeeth Publications.
12. Pandey K.P. (2013). Guna ratnamala of Sri Bhavmishra. Chaukhambha Sanskrit Bhawan.
13. Sharma P.V. (2004). Dravya Guna Vigyana, Vol. II, Chaukhambha Bhartiya Academy,
14. Shastri S.N. (2014). Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
15. Trikamji Yadavji Acharya .(2002). Nibandh Samgraha commentary of Acharya Dalhana. Sushrut Samhita. Chaukhambha Surbharti Publication.
16. Hall, Vaz, Kurpad, Raj. (2016). Guyton and Hall Textbook of medical physiology. Second south Asia Edition. Elsevier RELX India Pvt. Ltd.
17. Shastri S.N. (2014) .Vidhyotini commentary. Charak Samhita. Chaukhambha Bhartiya Academy.
18. Shastri S.N. (2014) .Vidhyotini commentary. Charak Samhita. Vol. II. Chaukhambha Bhartiya Academy.
19. Prasad V.V. (2002). Nibandh Samgraha commentary of Acharya



Dalhana. Rashtriya Ayurveda
VidhyaPeeth Publications.