Case Report

Ayurveda management of Major Depressive Disorder: A case study

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ABSTRACT

Major Depressive disorder (MDD) is a chronic, episodic disorder which manifests with disturbance in mood, interest, cognition and vegetative symptoms. It has major impact on the quality of life of the patients, by affecting their physical, mental, personal, social, and spiritual wellbeing. Vishada and avasada represents minor depressive episodes and MDD can be equated to Kaphaja Unmada.

Current case presented with sadness, worthlessness, helplessness, death wishes, disturbed sleep and was diagnosed as MDD as per DSM V criteria. Ayurveda diagnosis was Kaphaja Unmada involving kapha-dominant vata and tama dosha. Mental examination revealed derangement of mana (mind), buddhi (intellect), smruti (memory), bhakti (desire), sheela (temperament), chesta (psychomotor activity) and achara (conduct) components. Patient was Avara Satwa. Management was planned with integrative treatment comprising of Yukti vypashraya (pharmacological), Satwawajaya (counselling) and daini-vyapashraya (spiritual-based techniques). Management was with snehapan (internal oleation), virchana (gut cleansing), sarvanga abhyanga (massage of whole body with medicated oil) followed by bashpa sweda (steam therapy to whole body), shirodara (dripping of medicated oil on fore head), shirapichu (transcranial drug administration by placing cotton pad dipped in medicated oil), katibasti (holding of medicated oil in well-prepared from dough), satwawajaya chikitsa, and daini vyapashraya chikitsa. Conventional psychopharmacological interventions taken since last year were tapered and discontinued. Treatment continued for 352 days which included 13 days of hospitalized treatment and follow-ups. Intervention outcome showed reduction in Hamilton depression Rating scores from 31 to 6. Patient’s self-assessed worry reduced from 16 h/day to 2 h/day, self-assessed daily relaxed state improved from ½ hour/day to 14 h/day. Patient showed complete remission by 180th day of intervention. Improvements sustained even during the non-interventional observation period. Thus, the Ayurvedic integrative management showed efficacy in management of MDD.

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1. Introduction

Major depressive disorder (MDD) is a common mental disorder disturbing mood, interest, pleasure, affecting cognition and vegetative symptoms. MDD is the second leading cause of disease burden [1]. It significantly reduces the quality of life of patients. Considering the impact of depression, the World Health Organisation declared slogan of World Health Day 2017 as “Depression—Let’s talk”. MDD is a chronic disorder with considerable variation in remission and chronicity. Prevalence in India is high and 48.5 million people are affected [2]. A large South Indian population-based survey showed a prevalence of depression as 15.1% after adjusting for age using 2001 census data [3]. A study at a primary care setting showed a prevalence of 30% and 66% of cases diagnosis was missed by the treating physicians [4]. Depression has 2.1 times higher prevalence in women than men [5]. An epidemiological study showed the prevalence of substance abuse, namely alcohol abuse (4.8%), alcohol dependence (4.5%), cannabis abuse (2.5%) and dependence (2.9%), other drugs abuse (2.3%) and dependence (2.9%) among MDD patients [6]. Suicidal attempts among patients with MDD was found to be 30–40% [7]. Depression is caused by multifactorial combination of genetic, environmental, epigenetic, gender, personality trait factors along with biological component of hypothalamic adrenal pituitary axis, central nervous system, immune and endocrinal components. Environmental
factors include stressful events like financial insecurity, major health problems, bereavement, etc., occurring one year prior to the onset in adults. MDD episodes may first occur in childhood, adolescence and these episodes may continue in adulthood as well. In majority of cases, MDD is a lifelong episodic disorder with multiple recurrences. With remission, patients will still have residual symptoms and functional impairment [8]. Chronic unremitting course is observed in 20—25% of patients [9]. MDD is associated with an increased risk in development of diabetes mellitus, heart disease and stroke [10].

Current interventions include both pharmacological and psychological aspects. Moderate to severe depression needs to be treated with medication or combination of medications and psychotherapy [11]. Treatment comprises of initial and maintenance phases. Initial phase lasts for approximately 6 months while the mean maintenance phase lasts for 9—12 months. Initial phase is aimed at remission and restoration of psychosocial functioning while maintenance phase aims to prevent recurrence of symptoms [12]. Psychopharmacological interventions usually include selective serotonin receptor inhibitors (SSRI), tricyclic and tetracyclic antidepressants, serotonin and nor-ephinephrine receptor inhibitors (SNRI), Monoamine oxidase (MAO) inhibitors, etc.

Transcranial magnetic stimulation and vagus nerve stimulation have also been found to be effective in depression. Various psychotherapies including cognitive behaviour therapy, interpersonal therapy, behavioural activation therapy, psychodynamic therapy, problem-solving therapy, and mindfulness-based therapy have been found to be beneficial [13]. However, conventional anti-depressants have demonstrated various adverse events like sedation, tremors, sexual dysfunction, and weight gain [14]. Studies have shown that anti-depressants have low adherence rate due to patient concerns about dependency and side effects [15].

In Ayurveda, MDD can be closely related to Kapha Unmada in severe cases and in mild cases to vishada and avasada. In severe cases, derangement of Kapha pradhana tridosha and in mild cases Kapha vataja derangements are observed. In Ayurveda texts, scattered information on mental derangements and treatments is available. Vishada is mentioned to be one of the vataja natatmaja viikara [16]. Manasika dusti involved is Tama pradhana raja dosha. Vishada is more prevalent in hina satva purusha (decreased mental strength) (C.S.VI.8.119). Symptoms include avasada (derangement) of manas (mind) (C.S.Su.16.14, C.S.Su.25.40), vik (speech), kaya (body) [17]. Presence of vishada aggravates co-existing disease conditions (C.S.Su.25.40) (Table 1). Ayurveda approach for treatment is mentioned in Table 1.

### Table 1

| S.No | MDD | Textual Information – Vishada/Kapha Unmada | Patient manifestations |
|-----|-----|--------------------------------|------------------------|
| 1.  | Genetic Factors-5-HTTLPR polymorphism | Bija dusti is the cause in many diseases. Hence it can be involved in vishada | No familial history |
| 2.  | Psycho Social Factors-Job loss, marital difficulties, major health problems, and loss of close personal relationships | Vata (Pranavata) regulates the functioning of mind (Niyanta pranata cha manasa (C.Su.12/8)). Avalombaka kapha dusti leads to hrudaya dusti | Interpersonal issues with husband, Mother in law, domestic violence, manaoobhigata |
| 3.  | Personality-Obessive-Compulsive, histirionic, borderline | Manogata-Tamasikadosha | Tamasika Prurkuti |
| 4.  | Pathogenesis | Shareerigata-vatadosha | |
| 6.  | HPA axis, Neural circuitry –Central nucleus, limbic system dysfunction | Tama pradhana Raja | Tama pradhana Raja |
| 7.  | Psycho pathology | Tama pradhana Raja | Tama pradhana Raja |
| 8.  | Chinta, bhaya, shoka krodiha lohka moha irshya have etiological role in many diseases6. Hence, these are considered as manifestations | Vatavyadhi (ch chi 28/17), Sanjaanashba, moha | Backache, tinnitus |
| 9.  | Respiratory-Dyspnorea | Shoshana (C. Su. 25/40), | |
| 10. | Gastrointestinal- Loss of appetite, increased appetite, weight loss, obesity | Karshya (C.Su.21,29) Jwara (C.Ni 1/19), Ama (C .V.2/8), | |
| 11. | Urogenital-Erectile dysfunction | Trushna (C Chi 22/4) Chardi (C. Chi 20/7), Atisara (C.Su. 19/6–8), Aruchi (C.Chi 26/124) | |
| 12. | Psychological- Anhedonia | Shoka, dainya, vishada, ummada, apasamara | Shoka, dainya, Vishada, Vishada, krodha, dainya |
| 13. | Irritable Bowel Syndrome, chronic fatigue syndrome (CFS), obesity, type 2 diabetes mellitus chronic pain conditions | Any chronic condition cause vato and raja —tama increase. Vishad raga vardhaman. Shoka causes chaxhesa (शोकःपुत्रादिवियोगेचित्तोद्वेगः) | |
| 14. | Treatment – TCA, SSRI, benzodiazepines, electroconvulsive therapy Psychotherapies- Psychosocial therapy, cognitive therapy, interpersonal, therapy behaviourally-oriented therapy, family therapy, sleep deprivation, vagal nerve stimulation, phototherapy | Yuktivayapasharaya, satwawajoya, Daivivyapashrasya, Snehapusana Langhana (C.Chi. 3/139), Ashwasana (C.Chi. 3/320) (C.Chi 9/86), Harshana (C.Chi. 3/321), Saddvakhyha (C.Chi 3/321) Shtadronyasugrapati (C.Chi 9/86), Santwana (C.Chi 9/86) Pratidwandwachiktsa (C.Chi 9/86) | Yuktivayapasharaya, Satwawajoya-Mana jnana, Mana prasadhan, Mana nigrahana, aswasana, Pratidwandwa chikitsa, mana vijanana. Daivivyapashrasya |

*Mano dosha is an etiological factor to diseases like ama, jwara, guilma, kushta, kshaya, ummada, apasamara, piendu, atisara, chardi, trushma, vatavyadhi,vataja shiroroga.*
depression is as per Kaphaja Unmada. In vataja manifestations, vataja unmada chikitsa is also incorporated. According to the condition vamana, snehapana, snidga virechana, sarvanga bahyanga, mastiṣka chikitsa can be beneficial. Integration of Panchakarma, oral medications, satwavajaya, daiwivyapashraya also can play an important role in the comprehensive management of MDD.

2. Patient information

A female patient aged 52 years presented with disturbed sleep, sadness, worthlessness, helplessness, death wishes, and increased crying spells since past 33 years and her symptoms had aggravated since last one year. She was under on and off psychiatric medications for 15 years. Patient was brought to KAHER’s Ayurveda Hospital OPD by her daughter to explore the possible role of Ayurveda treatment (8.9.2011). Case reporting is done as per the CARE case report guidelines (http://www.care-statement.org).

2.1. Clinical findings and diagnostic assessments

The patient was subjected to thorough psychiatric detailed work-up which was done through information provided by the patient, husband and her daughter. Patient was dull, had low voice, poor eye contact, passive gestures, increased crying spells, irritable, impulsive, reduced personal hygiene, excess worry, uncontrolled worry during most part of the day, feeling worthless, helpless, had death wishes and had withdrawn from family and friends. Other symptoms included sleep disturbance, headache, fatigue, bilateral tinnitus. Patient was a teetotaller.

Medical history revealed that patient had consulted most of the psychiatry hospitals in her region and was administered different anti-depressants. Current medications were drug combinations of Amitriptyline 25 mg and Chloridiazepoxide 10 mg twice a day and Tab Lorazepam 2 mg twice a day since past one year. Manapareeksha assessment revealed derangement of mana, buddhi, smruti, bhākti, sheela, chesta and achara components (Table 2). Prakūrī was assessed as Tamasika prakūtī and Kaphapittaaja prakūrī.

2.2. Timeline

2.2.1. History

The patient was a house wife, primary school educated, socio-economic status was middle class, married with three children. All children were married and comfortably placed in their respective professions and marital lives. At the time of admission, the patient stayed with her husband, elder son, daughter-in-law and grandchildren. Patient was apparently healthy till she got married 33 years ago. Later, she developed interpersonal issues with her husband and mother-in-law. The patient’s husband used to be suspicious about her character and was over-guarding, possessive, dominating and harsh thus, leading to marital disharmony. She was forced to stay alone and was confined to the house with restricted socialization. Patient experienced domestic violence, physical abuse by her husband and mother-in-law frequently. An unsuccessful suicide attempt was noted 27 years ago. Patient developed severe depressive symptoms along with insomnia 15 years ago, and from then onwards she has been under psychiatric consultations and medications, details of which were unavailable. Patient had adjustment issues, felt ignored in the family and interpersonal relations were grossly affected. Patient had good rapport with her daughter who stayed in a distant place. Since one year, her symptoms worsened in spite of ongoing medications and hence, she was brought to KAHER’s Ayurveda Hospital OPD by her daughter to explore the possible role of Ayurvedic treatment.

3. Therapeutic intervention

Patient was diagnosed with Kapahaja Unmada and met the diagnostic criteria of MDD [18], and predominantly deranged dosha were tama and kapha-vata. Management was with snehapaṇa, vrīchana, sarvanga abhyanga followed by bashpa sweda, shirodhara, shirupichu, katibasti, satwavajaya chikitsa, and daiwivyapashraya chikitsa. Shirupichu was advised to be followed even at home from 10 pm onwards and to be retained for the entire night. Anti-depressant medications were tapered and discontinued during course of the treatment. Details of the treatment algorithm like chronology, duration of treatment, drugs used, dosage, etc. have been enlisted (Tables 3 and 4). The principles and practises of Panchakarma [19] were adhered during various panchakarma interventions.

3.1. Satwavajayachikitsa

Counselling sessions of 30 minutes were carried out daily during hospitalization (i.e., first 13 days) and later during every visit. A total of 18 sessions were conducted for the patient and two sessions

| S.No | Manapareeksha | Patient manifestations |
|------|---------------|------------------------|
| 1.   | Manadusti—(Abnormality in mana) | Abnoramlity was noted in chintya, vīcharya, uhya, dihya and sankalpa. Chintya (process of thinking) abnormality was negatively biased thoughts. Vīcharya (Circumspex - Means of knowing pros/cons) was pessimistic anticipation, uhyam (cognition - The method of speculation) was generalized passimismism, Dhyeyam (Contemplation -The technique of concentration) was assessment of events as hurting, harming and pessimistic. Sankalpa (Conviction - The act of decision) pessimistic emotional judgment associated with withdrawal, aversion, hatredness, solitary confinement and death wishes. Mananigraha was reduced. Decreased interest in indriyaarthās. Manadosha were shoka, visheha, chinta, bhaya, krodha, dainya. |
| 2.   | Buddhidusti—(Abnormality in buddhi) | Abnormal, emotional judgment and perceptions. Assessment of all events through pessimistic approach, non coping, maladaptive mechanisms. Rigid and lacks adaptive ability to changing circumstances. Viewing family members activities and communications as hurting, disrespecting etc and refrain from participating and contributing in family activities. Reactively family members have disengaged from her. These events over time have made her to make judgment of worthless, hopeless, unwanted, persecuted. |
| 3.   | Smrutidusti—(Abnormality in memory) | Ruminations of past painful memories, not accounting pleasurable memories. Memorizing only hurting events. |
| 4.   | Bhalidusti—(Abnormality in desire etc) | Reduced interest in food, personal care, hygiene, recreation, Irritability, excitability, emotionally labile, mood congruentbehaviours, impulsive, reduced personal care and hygiene |
| 5.   | Shilidusti—(Abnormality in temperament, etc) | General activity reduced, crying spells, social activity reduced, speech poverty, reduced personal care and hygiene |
Day 6 - sadness, helplessness, worthlessness, quality of sleep, tinnitus, and patient showed improvement in worry, relaxed state of mind, like walking.

Intervention through oral medicaments at different time-points.

Table 4
Intervention through Panchakarma procedures at different time-points.

| S.No | Treatment plan      | Treatment                   | Intervention period in days |
|------|---------------------|-----------------------------|-----------------------------|
|      |                     |                             | 1  | 2  | 3  | 4  | 5  | 6* | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| 1    | Snehapana           | Brhami ghrita - 30 ml       | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
|      |                     | Brhami ghrita - 75 ml       | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
|      |                     | Brhami ghrita - 125 ml      | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 2    | Sarvangaabyanga Bashpasweda | Khreerabala taila            | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 3    | Virechan            | Gandharvahastayadiernada taila 75ml + kshira 75 ml | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 4    | Sarvangaabyanga Bashpasweda | Khreerabala taila            | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 5    | Shirodhara          | Balaashwagandha taila        | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 6    | Shiropichu          | Balaashwagandha taila        | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 7    | Kati basti          | Dhamwanta taila              | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |

* Day 6 - visrama kala (Rest day).

for the husband. The sessions included components like Manajnana (education of her strengths, weaknesses, manabudhi abnormalities like misinterpretations, reduced coping ability, lack of communication skills, rigid and maladaptive to the changing circumstances, reduced social interaction, mood-congruent judgment, pessimistic views of the events, etc.), Manoprasadana (relaxation techniques like walking, pranayama, ashwasana), Manonigraha (mind control methods like replacing stressful thoughts with neutral or positive ones, reinforcing techniques, conversations with others, engaging in pleasurable activities), Pratidwandwa chikitsa (self-suggestion with positive affirmations against negative perceptions of the persons/events, neutralizing the hurtful past remunerations actively, and harshana technique of involving in her pleasing activities), Aashwasanadi (santwana - assurance and dhairya - motivational approach), feedback approach (self-assessment of worry and relaxed state of mind and reworking on corrective measures for the next day), and Manavijanana (communication skills, problem-solving skills, conflict management, coping skills, socialization skills, samadhi-equanimous approach to sensory perceptions). Daiwivypashraya chikitsa had components like reading spiritual books, chanting of devotional songs and writing the god’s names on a page.

4. Follow-up and outcomes

Patient was hospitalized for the first 13 days of treatment in which panchakarma procedures, satwawajaya chikitsa, daiwivyapashraya chikitsa were administered. Anti-depressant drugs prescribed for the patient were continued. Patient was taught to assess and quantify worry and relaxed state of mind for a day. These were used for modulation of satawajaya chikitsa. During this period, patient showed improvement in worry, relaxed state of mind, sadness, helplessness, worthlessness, quality of sleep, tinnitus, and backache. Lack of interest decreased and she started relishing her past likings (music, etc.) and interacting with other patients. Interpersonal relations with husband also improved. Self-assessment of worry showed reduction from 16 hours/day to 5 hours/day. Self-assessment of relaxed state of mind improved from 0.5 hours/day to 8 hours/day, and HDRS total score reduced to 24 from 31. Similar improvement trend was noted throughout the course of the treatment (Table 5).

Patient was on allopathic medication of Tricyclic anti-depressant (drug combination of Amitypriline 25 mg and chloridazepoxide 10 mg) twice a day and Lorazepam 2 mg twice a day. Medications could be at sub-therapeutic doses. Considering the improvement in patient symptoms, on the 91st day, dosage of both medications were reduced to once a day. These medications were discontinued from 119th day of treatment. Dose alterations were done on the recommendation of a psychiatric physician.

However, observation on 119th day of assessment showed marked worsening of the clinical condition (HDRS score 32) and this was attributed to environmental stress. This was a puerperal period of the patient’s daughter-in-law and perinatal care of newborn caused increased work pressure, and disturbed sleep due to attending the neonate at night. Treatment was with modified with saraswata churna and unmada gajakesari rasa. The patient was symptom-free (HDRS score 7) from 180th day of treatment. Shiropichu was advised for most part of the treatment. Non-interventional observations were carried out from 269th day to 352nd day and patient remained in the disease-free state with more of relaxed state (14 h/day) and decreased worry state (2 h/day).

5. Discussion

Management of MDD through integrative Ayurveda approach proved to be effective and was well-sustained during the
observation period as well. The patient was admitted in the inpatient department for the span of 13 days and was later on outpatient care for 352 days. Last 83 days of observation were non-interventional. Tricyclic anti-depressant administered since past one year was tapered on the 91st day and discontinued from 119th day onwards.

The patient had Kapha pradhana raja and Kapha vatapradhana tridoshadusti with diagnosis of Kaphaja Unmada and severe MDD (HDRS score was 31). Hence, snigda virechana, sarvaanga abhyanga, bhaspa sweda, shirodhara, shirotalam, katibasti, oral medications and satwawajaya treatments were planned.

Snehapana (Brahmi ghrita), sarvanga abhyanga (Kshirabala taila), snigda virechana (Gandharvahastayadi eranda taila), shirodhara and shiroipichi (Balaswagandhadi taila), and kati basti (Dhanvantara Tails) were administered during the hospital stay of the patient (13 days). Shiroipichi with balaswagandhadi taila (retained for the entire night) was administered during the entire course of the treatment. These treatments, along with the prescribed medications, decreased kapha, and vata, and aided in sleep promotion, mana prasadana (mood restoration), and mana niyamana (regulation of mind and thoughts) through mastishkya and medhaya rasayana (nootropic) effect. Decreased tama and increased satwa were observed after satwawajaya chikitsa. Kati basti was for the concomitant backache manifestation.

After panchakarma procedures, the following oral medications were administered - Mahakalyanaka ghrita, Manasamitra vatuka, Saraswatariyasa and decoction of Ashwagandha with Jatamansi from 13th to 119th day. The medication regimen was later modified. The patient had gradual and sustained clinical improvement. However, clinical deterioration (119th day) due to environmental stress was observed and it lasted for the next 90 days and the patient was administered additional medications viz., saraswata churna and unmadagajakasari rasa. Saraswatha churna along with other medications has psychotropic activity.

Satwawajaya chikitsa included components of mananjana, manaprashadana, mananigrahana, pratidwandvo chikitsa, awhasana, and mana vijanana. Patient was cooperative and actively worked on the techniques advised during counselling.

The patient had chronic depression for the past 33 years and was on different psychiatric medications since past 15 years, details of which were unavailable and hence, couldn’t be assessed. Ayurveda diagnosis was Kaphaja Unmada and management was by addressing the derangements of kapha, vata, tama, mana, vaha srotas components like mana, bhadhi, smruti, bhakti, sheel, chesta, and achara. Integrative protocol comprising of panchakarma procedures (virechana, sarvanga abhyanga, bhaspa sweda, shirodhara, shiroipichi), oral medications (medhya, rasayana), satwawajaya chikitsa and daiviwyapasraya chikitsa were administered for a period of 269 days and non-interventional follow-up of 83 days showed effective management of Kaphaja Unmada i.e., MDD. Snigda virechana was planned as it was a kapha pradhana vataja condition.

|  | Days of Intervention | 1st day | 2nd day | 3rd day | 4th day | 5th day | 6th day | 7th day | 8th day | 9th day | 10th day | 11th day | 12th day | 13th day | 14th day | 152nd day | 153rd day | 154th day | 155th day |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Daily dairy-Worry | 16 | 14 | 10 | 13 | 9 | 7 | 6 | 5 | 3 | 16 | 6 | 3 | 2 | 2 | 3 | 2 | 2 |
| 2. | Daily dairy-Relaxed state | ½ | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 11 | 2 | 10 | 12 | 13 | 14 |
| 3. | Sleep (in hrs) | 7 | 7 | 6 | 5 | 6 | 7 | 6 | 7 | 7 | 5 | 7 | 7 | 7 |
| 4. | HDRS Scores | 31 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |

6. Conclusion

Ayurveda integrative protocol was successful in managing Kaphaja Unmada i.e., MDD. This not only decreased kapha, vata (biological substrates of depression), and components of manodusti, but also increased manabala (mental strength) by restructuring mana through reworking chintya, vicharya, utya, dheya, sankalpa (thought process), and buddhi (cognitive restructuring) leading to changes in bhakti, sheela, chesta and achar. These will help in swasthya through balancing of internal milieu (shareerika and manasika dosha balance) and external milieu through social and spiritual wellbeing.

7. Patient perspective

Patient felt she rejuvenated and good. Patient’s daughter opined of good and sustained improvement of the patient. Her mental state, bonding with the family members, communication with the husband, socialization improved considerably. Compared to previous interventions, current interventions had better compliance. The patient’s husband opined that patient adhered to the treatments without much reminders and pressures.

8. Informed consent

Informed consent was taken from the patient for this study.
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