REVIEW ARTICLE

AN EXPLORATORY SINGLE ARM STUDY ON THE EFFICACY OF *MOORVADI AGAD* IN *GARAVISHA JANYA DHATWAGNIMANDYA* (HYPOTHYROIDISM) – A REVIEW ARTICLE

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ABSTRACT

Background: Hypothyroidism is a common endocrine disorder characterized by reduced metabolic activity due to deficient thyroid hormone production. Despite the availability of hormone replacement therapy, many patients continue to experience symptoms and adverse effects. Ayurveda conceptualizes hypothyroidism as *Garavisha Janya Dhatwagnimandya,* where chronic exposure to incompatible diet, food additives, preservatives, and environmental toxins impairs *Agni* (digestive and metabolic fire), leading to *Ama* formation, *Srotorodha* (channel obstruction), and diminished tissue metabolism. *Moorvadi Agad,* described in Ashtanga *Sangraha* for *Garavisha,* possesses Vishaghna, Deepana, Pachana, and Srotoshodhana properties. This study evaluated its efficacy in managing Garavisha Janya Dhatwagnimandya (Hypothyroidism). **Methods:** A prospective, interventional, single-arm clinical trial was conducted on 30 patients aged 18-60 years with primary hypothyroidism (TSH >5.4 µIU/mL and <15 µIU/mL) and a history of *Garavisha* exposure. Participants received *Moorvadi Agad Churna* 3 g orally thrice daily before meals with lukewarm water for 60 days. Assessment included subjective symptom scoring (general weakness, tiredness, hair loss, constipation, dyspnoea, hoarseness, menstrual abnormality, dry skin, cold intolerance, swelling, bradycardia) and objective parameters (TSH, T3, T4, BMI, body weight) at baseline and post-treatment. Data were analyzed using the Wilcoxon signed-rank test and paired t-test. **Results:** The mean TSH level decreased significantly from 12.37±8.66 mIU/L to 5.64±5.49 mIU/L (54.42% reduction, $p<0.001$). Overall subjective symptom score improved by 82.8% ($p<0.001$), with excellent relief in hoarseness (90.4%), constipation (90.1%), menstrual abnormalities (89.2%), hair loss (84.7%), dry skin (83.4%), swelling (83.3%), cold intolerance (82.8%), dyspnoea (80.8%), tiredness (80.0%), and general weakness (78.7%). BMI decreased from 24.29±2.49 to 23.35±2.24 (3.87% reduction, $p<0.0001$), and body weight reduced from 68.90±10.64 kg to 65.93±10.06 kg (4.31% reduction, $p<0.0001$). No adverse drug reactions were reported. **Conclusion:** *Moorvadi Agad* demonstrated significant efficacy and safety in managing *Garavisha Janya Dhatwagnimandya* (Hypothyroidism), offering a holistic approach addressing the underlying metabolic dysfunction and toxic burden.

Keywords: Hypothyroidism, *Garavisha, Dhatwagnimandya, Moorvadi Agad,* Agni, Ama, Ayurveda

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1. INTRODUCTION

Hypothyroidism is one of the most common endocrine disorders worldwide, affecting approximately 5.4% of the Indian population, with higher prevalence in females (male: female ratio 1:6) [1]. It is characterized by reduced availability or action of thyroid hormones (T3 and T4), leading to systemic metabolic slowing [2]. Despite the widespread use of levothyroxine replacement therapy, many patients continue to experience symptoms and adverse effects, including cardiovascular complications, osteoporosis, and reduced quality of life [3,4]. This underscores the need for safe, effective, and holistic therapeutic alternatives.

Ayurveda, the ancient Indian system of medicine, provides a comprehensive framework for understanding metabolic disorders. Although hypothyroidism is not explicitly described as a distinct disease entity in classical texts, its clinical manifestations can be interpreted through the concept of *Dhatwagnimandya* (diminished tissue metabolism) [5]. Acharya Charaka emphasized that the absence of a specific disease name should not limit diagnosis; rather, assessment should focus on the involved *Doshas*, *Dushyas*, *Agni*, and *Srotas* [6].

The concept of *Agni* (digestive and metabolic fire) is central to Ayurvedic physiology. *Agni* is responsible for digestion, absorption, assimilation, and transformation of nutrients at all levels: *Jatharagni* (gastrointestinal), *Bhutagni* (elemental), and *Dhatwagni* (tissue-specific) [7]. Thyroid hormones regulate basal metabolic rate and cellular oxidative metabolism, closely resembling the function of *Agni*. Thus, hypothyroidism can be conceptualized as a state of *Agnimandya* (diminished metabolic fire) affecting multiple levels, particularly *Dhatwagni* [8].

Garavisha, a type of artificial or concocted poison, arises from incompatible food combinations (*Viruddha Ahara*), improperly processed foods, chemical additives, preservatives, and environmental toxins [9]. Acharya Charaka describes *Garavisha* as a slow-acting, cumulative toxin that gradually impairs *Agni* and produces chronic systemic disturbances [10]. When such toxins remain in the body, they transform into *Dushivisha*, a latent poison that persists and produces *Dhatu Pradoshaja Vikaras* (tissue disorders) [11].

The clinical features of *Garavisha,* including *Pandu* (pallor), *Karshya* (weakness), *Alpagni* (poor appetite), *Shotha* (edema), *Aadhyamana* (bloating), *Tandra* (drowsiness), and *Gaurava* (heaviness) closely resemble the manifestations of hypothyroidism [12]. Therefore, hypothyroidism can be understood as *Garavisha Janya Dhatwagnimandya*, a condition arising from chronic toxic exposure leading to impaired tissue metabolism.

Moorvadi Agad, described in *Ashtanga Sangraha Uttaratantra*, is specifically indicated in disorders arising from *Garavisha*-induced *Agnimandya* (*Gara-upahata Pavaka*) [13]. Its ingredients *Moorva*, *Guduchi*, *Tagara*, *Pippali*, *Patola*, *Chavya*, *Chitraka*, *Vacha*, *Musta*, and *Vidanga* possess *Vishaghna* (anti-toxic), *Deepana* (appetizer), *Pachana* (digestive), *Srotoshodhana* (channel-cleansing), and *Rasayana* (rejuvenative) properties [14]. These actions address the underlying pathogenesis by eliminating *Garavisha*, enhancing *Agni*, digesting *Ama*, clearing *Srotorodha*, and restoring *Dhatwagni*.

This study was undertaken to evaluate the clinical efficacy of *Moorvadi Agad* in *Garavisha Janya Dhatwagnimandya* (Hypothyroidism) and establish scientific evidence for its therapeutic utility.

Aim: To study the clinical efficacy of *Moorvadi Agad* in *Garavisha Janya Dhatwagnimandya* (Hypothyroidism).

Objectives:

Primary Objective

- To reduce TSH levels in patients with primary hypothyroidism

Secondary Objective

- To control serum T3 and T4 levels
- To maintain BMI and body weight
- To assess improvement in subjective clinical parameters

Null Hypothesis (H_0): *Moorvadi Agad* is not effective in *Garavisha Janya Dhatwagnimandya* (Hypothyroidism).

Alternative Hypothesis (H_1): *Moorvadi Agad* is effective in *Garavisha Janya Dhatwagnimandya* (Hypothyroidism).

2. MATERIALS AND METHODS

2.1 Study Design

A prospective, interventional, single-arm, exploratory clinical trial was conducted at the Post Graduate Institute of Ayurveda, Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur. The study was approved by the Institutional Ethics Committee (IEC No.: DSRRAU/PGIA/IEC/22-23/649) and registered prospectively in the Clinical Trials Registry-India (CTRI/2024/06/068696). Written informed consent was obtained from all participants.

2.2 Study Participants

Inclusion Criteria:

- Patients aged 18-60 years of either sex
- History of consuming *Garavisha* (as per validated questionnaire) for a prolonged period

- TSH level >5.4 µIU/mL and <15 µIU/mL
- Signs and symptoms of primary hypothyroidism
- Already diagnosed with hypothyroidism and on medication but with elevated TSH
- Willing to provide informed consent

Exclusion Criteria:

- Age below 18 years or above 60 years
- TSH level below 5.5 µIU/mL or above 14 µIU/mL
- Congenital or secondary hypothyroidism
- Pregnant or lactating women
- Hyperthyroidism, neoplasia, or toxic goiter
- History of thyroid surgery
- Mentally ill or retarded patients
- Diabetes mellitus, systemic disorders, or congenital disorders

2.3 Sample Size

Thirty (30) patients were enrolled following a sample size calculation with 80% power and 5% significance level.

2.4 Study Intervention

Moorvadi Agad Churna:

Ingredients: Equal parts of:

- *Moorva* (*Chenomorpha macrophylla*) - Root
- *Guduchi* (*Tinospora cordifolia*) - Stem
- *Tagara* (*Valeriana wallichii*) - Root
- *Pippali* (*Piper longum*) - Fruit
- *Patola* (*Trichosanthes cucumerina*) - Leaves
- *Chavya* (*Piper chaba*) - Stem
- *Chitraka* (*Plumbago zeylanica*) - Root
- *Vacha* (*Acorus calamus*) - Rhizome
- *Musta* (*Cyperus rotundus*) - Tuber
- *Vidanga* (*Embelia ribes*) - Fruit

Method of Preparation: All ingredients were cleaned, shade-dried, and finely powdered separately. The powders were mixed in equal proportions and sieved through a fine mesh to obtain a homogeneous *Churna* (powder). The prepared *Churna* was stored in airtight, moisture-resistant containers [15].

Dosage: 3gm orally thrice daily before meals with lukewarm water, *Takra* (buttermilk), or *Dadhi Mastu* (whey) for 60 days.

2.5 Assessment Criteria

Subjective Parameters:

Eleven symptoms were assessed using a graded scoring system (0-4):

1. General Weakness (*Daurbalya*)
2. Tiredness (*Klama*)
3. Hair Loss (*Khalitya*)
4. Constipation (*Vibandha*)
5. Dyspnoea (*Shwasa*)
6. Hoarseness of Voice (*Svarabheda*)
7. Menstrual Abnormality (*Artava Vaikrita*) - assessed in females
8. Dry Skin (*Rukshata*)
9. Cold Intolerance (*Sheeta Asahishnuta*)
10. Swelling (*Shotha*)
11. Bradycardia (*Hridgati Mandya*)

Objective Parameters:

- **Thyroid Profile:** Serum TSH (mIU/L), T3 (ng/dL), T4 (µg/dL)
- **Body Mass Index (BMI):** Calculated from weight and height
- **Body Weight:** Measured in kilograms

2.6 Data Collection

A validated structured questionnaire was developed to assess history and manifestations of *Garavisha*. Patients were evaluated at baseline and after 60 days of treatment. Clinical findings were recorded in a specially designed Case Record Form (CRF).

2.7 Statistical Analysis

Data were expressed as Mean ± Standard Deviation (SD). Pre- and post-treatment comparisons were analyzed using the Wilcoxon signed-rank test (non-parametric data) and paired t-test (parametric data). Statistical significance was set at $p<0.05$. Data analysis was performed using InStat GraphPad 3 software.

Interpretation Criteria:

- Insignificant: p-value > 0.05
- Significant: p-value < 0.05 or p-value < 0.01
- Highly Significant: p-value < 0.001

2.8 Safety Monitoring

Adverse events were monitored throughout the study. Any adverse drug reaction (ADR) was to be reported to the peripheral pharmacovigilance centre of PGIA, Jodhpur.

3. RESULTS

3.1 Patient Disposition

Thirty-five patients were enrolled; 30 patients (85.71%) completed the study, and 5 patients (14.29%) withdrew (3 lost to follow-up, 2 for personal reasons). All 30 patients who completed the study were included in the final analysis.

3.2 Demographic and Baseline Characteristics

Table 1: Demographic Characteristics of Study Participants (N=30)

Parameter	Category	Frequency (n)	Percentage (%)
Gender	Male	6	20.00
	Female	24	80.00
Age (Years)	18-30	9	30.00
	31-60	21	70.00
Religion	Hindu	29	96.67
	Muslim	1	3.33
Marital Status	Married	24	80.00
	Unmarried	6	20.00
Occupation	Housewife	18	60.00
	Working	8	26.67
	Student	4	13.33
Diet	Vegetarian	20	66.67
	Mixed	10	33.33
Habitat	Urban	21	70.00
	Rural	9	30.00
Socioeconomic Status	Middle Class	30	100.00

The majority of patients were female (80.00%), aged 31-60 years (70.00%), housewives (60.00%), vegetarian (66.67%), and urban residents (70.00%) belonging to the middle class category.

3.3 Ayurvedic Constitutional Assessment

Table 2: Ayurvedic Parameters (N=30)

Parameter	Category	Frequency (n)	Percentage (%)
Agni	*Manda*	23	76.67
	Vishama	6	20.00
	Tikshna	1	3.33
Koshtha	*Krura*	19	63.33
	Madhyama	11	36.67
Nidra	Disturbed	17	56.67
	Sound	7	23.33
	Insomnia	6	20.00
Sharirika Prakriti	*Kapha-Pitta*	12	40.00
	Vata-Pitta	7	23.33
	Pitta-Vata	4	13.33
	Vata-Kapha	3	10.00
	Kapha-Vata	2	6.67
	Pitta-Kapha	2	6.67
Sara	*Meda*	11	36.67
	Mamsa	10	33.33
	Asthi	4	13.33
	Rasa	3	10.00
	Rakta	2	6.67
Samhanana	*Madhyama*	17	56.67
	Avara	9	30.00
	Pravara	4	13.33
Satmya	*Madhyama*	16	53.33

	Avara	11	36.67
	Pravara	3	10.00
Satva	*Madhyama*	18	60.00
	Avara	10	33.33
	Pravara	2	6.67

Mandagni (76.67%), *Krura Koshtha* (63.33%), disturbed sleep (56.67%), and *Kapha-Pitta Prakriti* (40.00%) were predominant among the study population. Most of the patients were of *Meda* and *mamsa sara*, having *madhyam satmya, satva*, and *samhanana.*

3.4 Dietary and Lifestyle Assessment

Table 3: Dietary and Lifestyle Parameters (N=30)

Parameter	Category	Frequency (n)	Percentage (%)
Ahara Vidhi	*Viruddhashana*	16	53.33
	Vishamashana	14	46.67
Bowel Habits	Constipation	14	46.67
	Irregular	13	43.33
	Regular	3	10.00
Psychological Condition	Anxiety	15	50.00
	Tension	10	33.33
	Normal	5	16.67
Addiction	Tea	22	73.33
	Coffee	4	13.33
	Tobacco	4	13.33
Nature of Work	Sitting	18	60.00
	Moderate	11	36.67
	Heavy	1	3.33

Viruddhashana (incompatible food) was observed in 53.33% of patients, *Vishamashana* (irregular eating) in 46.67%, constipation in 46.67%, anxiety in 50.00%, and tea consumption in 73.33%.

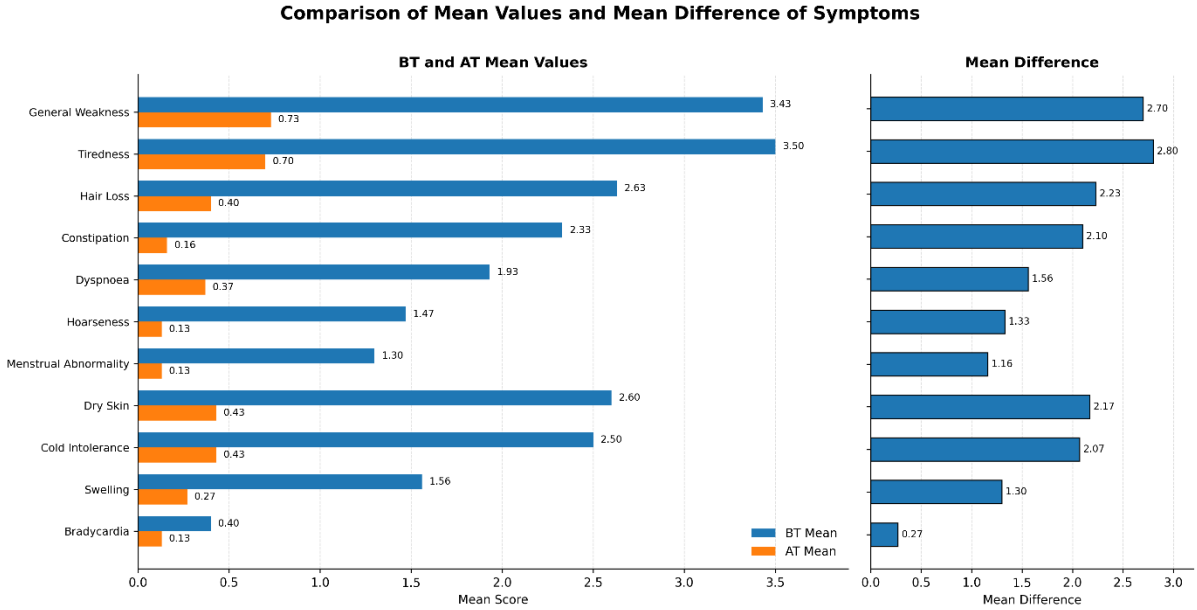
3.5 Primary Outcome: Subjective Parameters

Table 4: Effect of *Moorvadi Agad* on Subjective Parameters (N=30)

Symptom	BT (Mean ± SD)	AT (Mean ± SD)	Mean Diff	% Relief	SD	SE	p-value
General Weakness	3.43 ± 0.50	0.73 ± 0.69	2.70	78.7%	0.65	0.12	**<0.001**
Tiredness	3.50 ± 0.51	0.70 ± 0.65	2.80	80.0%	0.71	0.13	**<0.001**
Hair Loss	2.63 ± 0.55	0.40 ± 0.50	2.23	84.7%	0.63	0.11	**<0.001**
Constipation	2.33 ± 0.78	0.16 ± 0.38	2.10	90.1%	0.84	0.15	**<0.001**
Dyspnoea	1.93 ± 0.87	0.37 ± 0.61	1.56	80.8%	0.62	0.11	**<0.001**
Hoarseness	1.47 ± 0.57	0.13 ± 0.35	1.33	90.4%	0.60	0.11	**<0.001**
Menstrual Abnormality	1.30 ± 0.83	0.13 ± 0.35	1.16	89.2%	0.79	0.14	**<0.001**
Dry Skin	2.60 ± 0.56	0.43 ± 0.50	2.17	83.4%	0.59	0.11	**<0.001**
Cold Intolerance	2.50 ± 0.78	0.43 ± 0.57	2.07	82.8%	0.78	0.14	**<0.001**
Swelling	1.56 ± 0.77	0.27 ± 0.52	1.30	83.3%	0.65	0.12	**<0.001**
Bradycardia	0.40 ± 0.50	0.13 ± 0.35	0.27	67.5%	0.45	0.08	**<0.01**
Total	**2.15**	**0.35**	**1.79**	**82.8%**	**0.66**	**0.12**	**<0.001**

Wilcoxon signed-rank test

Note: BT: Before Treatment; AT: After Treatment; SD: Standard Deviation; SE: Standard Error



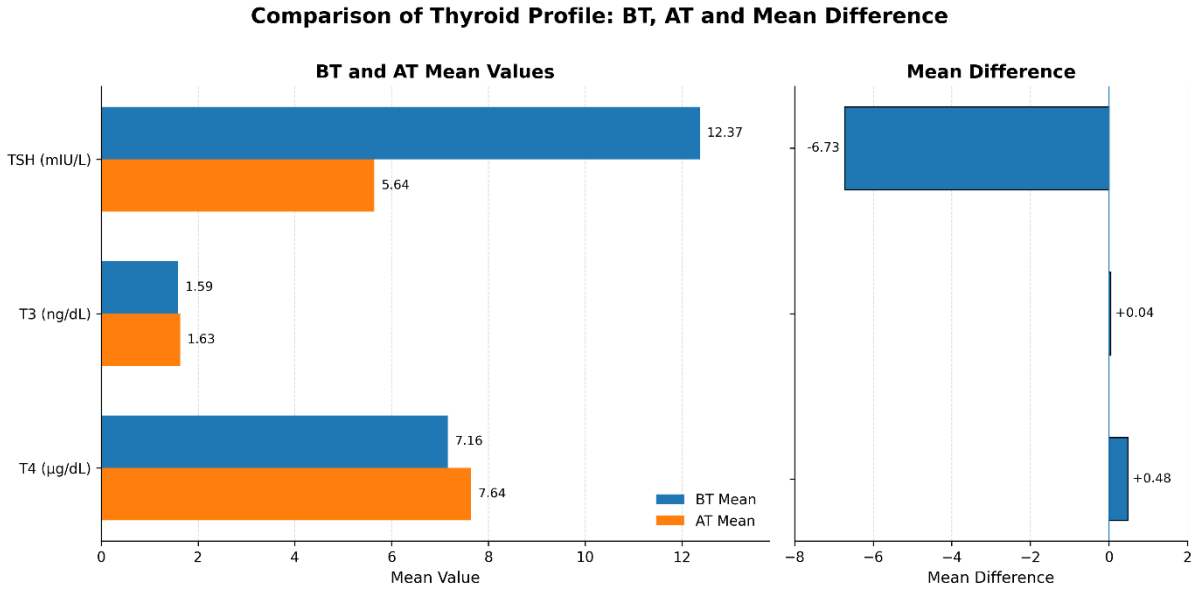
The overall symptom score improved by 82.8% ($p<0.001$). Excellent relief was observed in hoarseness (90.4%), constipation (90.1%), menstrual abnormalities (89.2%), hair loss (84.7%), dry skin (83.4%), swelling (83.3%), cold intolerance (82.8%), tiredness (80.0%), and dyspnoea (80.8%). Bradycardia showed 67.5% improvement ($p<0.01$).

3.6 Secondary Outcomes: Thyroid Profile

Table 5: Effect of *Moorvadi Agad* on Thyroid Profile (N=30)

Parameter	BT (Mean ± SD)	AT (Mean ± SD)	Mean Difference	% Change	SD (Diff)	SE	p-value
TSH (mIU/L)	12.37 ± 8.66	5.64 ± 5.49	-6.73	54.42% Reduction	5.41	0.99	**<0.001**
T3 (ng/dL)	1.59 ± 0.62	1.63 ± 0.58	+0.04	2.56% Increase	0.64	0.12	0.731
T4 (µg/dL)	7.16 ± 2.42	7.64 ± 2.39	+0.48	6.71% Increase	2.28	0.42	0.257

Paired t-test



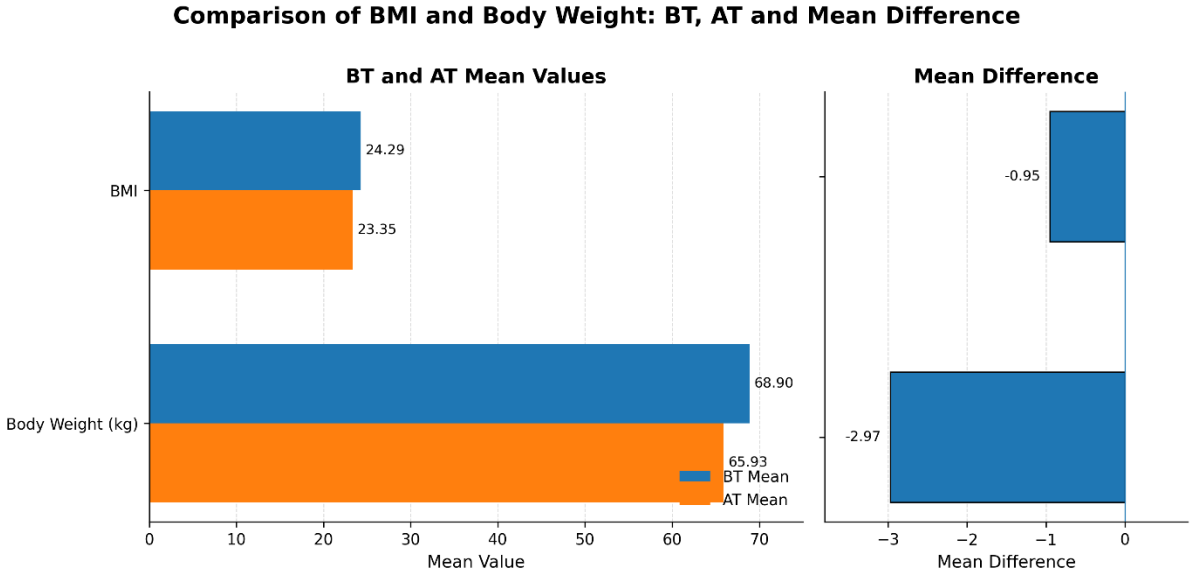
The mean TSH level decreased significantly from 12.37±8.66 mIU/L to 5.64±5.49 mIU/L (54.42% reduction, p<0.001). T3 increased by 2.56% (p=0.731, NS) and T4 increased by 6.71% (p=0.257, NS).

3.7 Anthropometric Parameters

Table 6: Effect of *Moorvadi Agad* on Anthropometric Parameters (N=30)

Parameter	BT (Mean ± SD)	AT (Mean ± SD)	Mean Difference	% Change	SD (Diff)	SE	p-value
BMI	24.29 ± 2.49	23.35 ± 2.24	-0.95	3.87% Reduction	0.72	0.13	**<0.0001**
Body Weight (kg)	68.90 ± 10.64	65.93 ± 10.06	-2.97	4.31% Reduction	1.96	0.36	**<0.0001**

Paired t-test

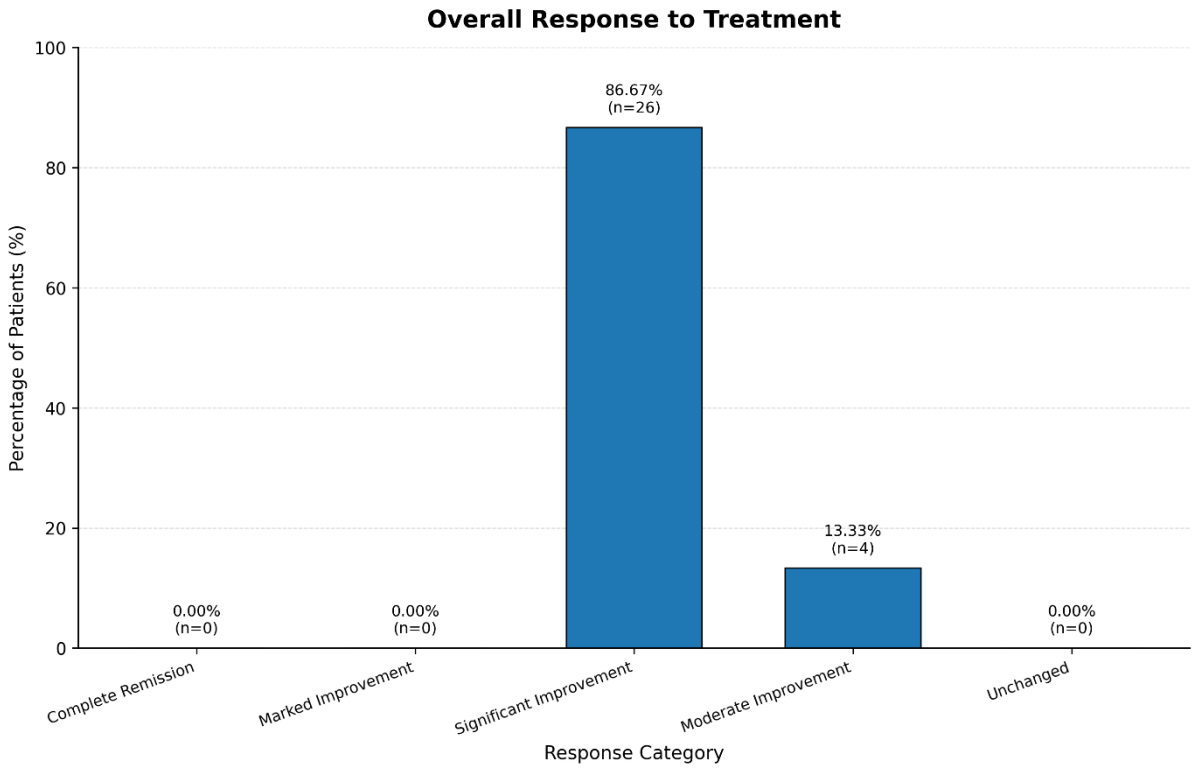


BMI decreased from 24.29±2.49 to 23.35±2.24 (3.87% reduction, p<0.0001). Body weight reduced from 68.90±10.64 kg to 65.93±10.06 kg (4.31% reduction, p<0.0001).

3.8 Overall Therapeutic Response

Table 7: Overall Therapeutic Outcome

Category	Response	n	%
Complete Remission	100% relief	0	0%
Marked Improvement	>75% relief	0	0%
Significant Improvement	50-75% relief	26	86.67%
Moderate Improvement	25-50% relief	4	13.33%
Unchanged	<25% relief	0	0%



Out of 30 patients, 26 (86.67%) showed significant improvement (50-75% relief), while 4 (13.33%) showed moderate improvement (25-50% relief).

3.9 Safety Assessment

No adverse drug reactions (ADRs) or treatment-related complications were observed during the study period. The therapeutic regimen was found to be safe, well tolerated, and clinically acceptable.

4. DISCUSSION

4.1 Conceptual Correlation: *Garavisha Janya Dhatwagnimandya* and Hypothyroidism

The present study established a strong conceptual correlation between *Garavisha Janya Dhatwagnimandya* and hypothyroidism. Hypothyroidism, characterized by reduced metabolic activity, fatigue, weight gain, cold intolerance, constipation, dry skin, and mental sluggishness, closely parallels the clinical features of *Garavisha* and *Dhatwagnimandya* described in Ayurvedic classics [16].

Thyroid hormones regulate basal metabolic rate by promoting cellular oxidative metabolism, a function that closely resembles the concept of *Agni* in Ayurveda [17]. *Jatharagni* (gastrointestinal metabolic fire) and *Dhatwagni* (tissue metabolic fire) are responsible for the digestion, transformation, and assimilation of nutrients. Impaired *Agni* leads to *Ama* formation, *Srotorodha* (channel obstruction), and defective tissue metabolism, manifesting as *Dhatwagnimandya* [18].

The high prevalence of *Mandagni* (76.67%), *Viruddhashana* (53.33%), and *Vishamashana* (46.67%) in the study population supports the role of impaired *Agni* and dietary incompatibility in the pathogenesis of hypothyroidism. *Viruddha Ahara*, defined as incompatible food combinations, produces *Ama* and gradually impairs *Agni*, leading to chronic metabolic dysfunction [19]. Prolonged exposure to such factors results in *Garavisha* formation, which acts as a slow-acting, cumulative toxin [9].

4.2 Role of *Garavisha* in Pathogenesis

Garavisha arises from incompatible combinations (*Viruddha Samyoga*) and metabolic derangements. It may result from the mixing of incompatible food items, improperly cooked or preserved foods, chemical additives, preservatives, and environmental toxins [10]. Unlike acute poisons, *Garavisha* acts slowly and gradually impairs normal physiological functions [20].

The clinical features of *Garavisha* including *Pandu* (pallor), *Karshya* (weakness), *Alpagni* (poor appetite), *Shotha* (edema), *Tandra* (drowsiness), and *Gaurava* (heaviness) closely resemble the manifestations of hypothyroidism [12]. When *Garavisha* remains untreated, it transforms into *Dushivisha*, a latent poison that persists and produces *Dhatu Pradoshaja Vikaras* (tissue disorders) [21].

In the present study, the majority of patients had a history of consuming *Viruddha Ahara* (53.33%), processed foods, preservatives, and chemical additives, supporting the role of *Garavisha* in the pathogenesis of hypothyroidism. The

predominance of *Mandagni* (76.67%) indicates impaired digestion, which is the first step in *Garavisha* formation. The high prevalence of constipation (46.67%), disturbed sleep (56.67%), and anxiety (50.00%) further supports the involvement of *Garavisha*-induced metabolic dysfunction.

4.3 Mechanism of Action of *Moorvadi Agad*

Moorvadi Agad acts through multiple mechanisms to address the underlying pathogenesis of *Garavisha Janya Dhatwagnimandya*:

1. *Vishaghna* (Anti-Toxic) Action:

The ingredients of *Moorvadi Agad*, particularly *Moorva*, *Guduchi*, *Tagara*, and *Vidanga*, possess *Vishaghna* properties that neutralize *Garavisha* and *Dushivisha* [22]. By eliminating accumulated toxins, the formulation reduces the toxic burden on tissues and restores normal metabolic function.

2. *Deepana-Pachana* (Appetizer-Digestive) Action:

Pippali, *Chitraka*, *Chavya*, and *Musta* stimulate *Jatharagni* and enhance digestive capacity [23]. The improvement in constipation (90.1%) and dyspnoea (80.8%) observed in the study reflects the *Deepana-Pachana* action of *Moorvadi Agad*.

3. *Srotoshodhana* (Channel-Cleansing) Action:

The *Laghu-Ruksha* and *Tikshna* properties of the formulation clear *Srotorodha* (channel obstruction) caused by *Kapha* and *Ama* [24]. The significant improvement in swelling (83.3%) and dry skin (83.4%) indicates restoration of normal channel function.

4. *Dhatwagni Deepana* (Tissue Metabolic Enhancement) Action:

Guduchi, *Pippali*, and *Chitraka* enhance *Dhatwagni* and promote proper tissue metabolism [25]. The significant reduction in TSH (54.42%), BMI (3.87%), and body weight (4.31%) reflects improved metabolic efficiency.

5. *Rasayana* (Rejuvenative) Action:

Guduchi and *Pippali* possess *Rasayana* properties that nourish tissues, improve immunity, and prevent disease progression [26]. The overall improvement in subjective symptoms (82.8%) reflects the rejuvenative effect of the formulation.

4.4 Discussion on Observations

Age and Gender Distribution:

The predominance of female patients (80.00%) corresponds with the epidemiology of hypothyroidism, which is considerably more common in females due to hormonal fluctuations, autoimmune predisposition, pregnancy, and menopause [27]. The majority of patients (70.00%) belonged to the 31-60 years age group, representing the most productive phase of life, during which occupational stress, irregular dietary habits, and sedentary lifestyle are common [28].

Dietary and Lifestyle Factors:

The high prevalence of *Mandagni* (76.67%), *Viruddhashana* (53.33%), and *Vishamashana* (46.67%) supports the central hypothesis of the study. *Viruddha Ahara* is one of the principal causes of *Garavisha* [19]. Repeated intake of incompatible foods gradually weakens *Jatharagni*, leading to *Ama* formation, *Rasavaha Srotodushti*, suppression of *Dhatwagni*, and defective *Dhatu Poshana* [29]. Since thyroid hormones regulate tissue metabolism, this state can be correlated with hypothyroidism.

Psychological Factors:

Anxiety (50.00%) and tension (33.33%) were common among patients. Mental stress disturbs *Manovaha Srotas*, aggravates *Vata*, and ultimately impairs *Agni*. Chronic stress also alters neuroendocrine regulation, contributing to thyroid dysfunction [30].

Bowel Habits:

Constipation (46.67%) and irregular bowel habits (43.33%) are cardinal manifestations of *Vata* aggravation and hypothyroidism. Chronic bowel irregularity promotes *Ama* accumulation and perpetuates *Dhatwagnimandya* [31].

4.5 Discussion on Results

Subjective Parameters:

The overall symptom score improved by 82.8% ($p<0.001$), indicating that *Moorvadi Agad* effectively corrected *Garavisha Janya Dhatwagnimandya*. Excellent relief was observed in hoarseness (90.4%), constipation (90.1%), menstrual abnormalities (89.2%), hair loss (84.7%), dry skin (83.4%), swelling (83.3%), cold intolerance (82.8%), tiredness (80.0%), and dyspnoea (80.8%). These improvements reflect the *Deepana*, *Pachana*, *Srotoshodhana*, and *Rasayana* actions of the formulation.

Thyroid Profile:

The significant reduction in TSH (54.42%, $p<0.001$) indicates substantial improvement in thyroid function. TSH is the most sensitive biochemical marker for diagnosing and monitoring primary hypothyroidism [32]. The marked reduction in TSH suggests that *Moorvadi Agad* corrected the underlying metabolic dysfunction, thereby improving endocrine function. Serum T3 and T4 showed positive trends (2.56% and 6.71% increases, respectively), though not statistically significant, possibly due to the short treatment duration and the long half-life of thyroxine [33].

Anthropometric Parameters:

The significant reduction in BMI (3.87%, $p<0.0001$) and body weight (4.31%, $p<0.0001$) indicates improved metabolic efficiency. Weight gain is a characteristic manifestation of hypothyroidism, mainly due to decreased metabolic rate, fluid retention, and impaired lipid metabolism [34]. The reduction in weight and BMI reflects enhanced metabolic activity and energy utilization following treatment.

4.6 Safety and Tolerability

The absence of adverse reactions during the 60-day study confirms the safety of *Moorvadi Agad*. Despite containing potent ingredients like *Chitraka* (*Plumbago zeylanica*) and *Vidanga* (*Embelia ribes*), the formulation was well tolerated when administered in the classical dosage form and with appropriate *Anupana* (vehicle) [35]. This demonstrates the importance of proper pharmaceutical preparation and therapeutic dosage in ensuring safety while maintaining efficacy.

4.7 Comparison with Previous Studies

Previous studies on hypothyroidism have employed various Ayurvedic interventions. Kankaran Komal (2003) evaluated *Kanchanara Guggulu* and *Pippali Vardhamana Rasayana* [36]. Gutka Harsha D. (2007) studied *Dhatwagni Vardhaka Yoga* [37]. However, none of these studies specifically addressed the role of *Garavisha* in the pathogenesis of hypothyroidism or employed a formulation specifically indicated for *Garavisha*-induced *Agnimandya*.

The present study is novel in its conceptualization of hypothyroidism as *Garavisha Janya Dhatwagnimandya* and its use of *Moorvadi Agad*, which is specifically indicated for *Gara-upahata Pavaka* (metabolic fire damaged by toxins). The significant improvement observed in both subjective and objective parameters validates this conceptual framework.

4.8 Limitations

The present study had several limitations:

- Exploratory single-arm design without control group
- Relatively small sample size (n=30)
- Short duration (60 days) without long-term follow-up
- Lack of blinding
- Absence of placebo control
- No assessment of thyroid autoantibodies (anti-TPO, anti-thyroglobulin)
- Limited biochemical evaluation

5. CONCLUSION

This exploratory single-arm study provides substantial evidence that *Moorvadi Agad* is effective and safe in managing *Garavisha Janya Dhatwagnimandya* (Hypothyroidism). Key conclusions include:

1. **Significant Clinical Improvement:** The overall symptom score improved by 82.8% ($p<0.001$), with excellent relief in hoarseness (90.4%), constipation (90.1%), menstrual abnormalities (89.2%), hair loss (84.7%), dry skin (83.4%), swelling (83.3%), cold intolerance (82.8%), tiredness (80.0%), and dyspnoea (80.8%).
2. **Biochemical Improvement:** TSH decreased significantly by 54.42% ($p<0.001$), indicating substantial improvement in thyroid function. Serum T3 and T4 showed positive trends, though not statistically significant.
3. **Metabolic Improvement:** BMI decreased by 3.87% ($p<0.0001$) and body weight by 4.31% ($p<0.0001$), reflecting improved metabolic efficiency.
4. **Safety Confirmation:** No adverse reactions were observed, confirming the safety and tolerability of *Moorvadi Agad*.
5. **Validation of Ayurvedic Concepts:** Clinical observations validate the role of *Garavisha*, *Agnimandya*, *Ama*, and *Dhatwagnimandya* in the pathogenesis of hypothyroidism, supporting the classical Ayurvedic understanding.
6. **Therapeutic Principle:** Elimination of *Garavisha*, restoration of *Agni*, digestion of *Ama*, and correction of *Dhatwagnimandya* constitute the fundamental therapeutic principles validated by this study.

The null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted: ***Moorvadi Agad* is effective in the management of *Garavisha Janya Dhatwagnimandya* (Hypothyroidism)**.

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