

Effect of Satavari Choornam in Erectile Dysfunction

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Abstract— Erectile Dysfunction (ED) is a prevalent sexual health issue characterized by difficulty achieving or maintaining an erection, leading to emotional distress and relationship problems. Conventional treatments often have limitations, prompting the exploration of Ayurvedic safe and effective medicines like Satavari Choorna. A clinical study was conducted on 19 men aged 30-70 years diagnosed with ED. Participants received 10 grams of Satavari Choorna with Goksheera as Anupana at bedtime daily for 15 days. Subjective symptoms and IIEF-5 scores were assessed before and after the treatment period. Significant improvements were observed in ED symptoms, including enhanced ability to attain and maintain erections, achieve orgasm, and increased sexual interest ($p < 0.05$). The IIEF-5 scores increased from 11.37 to 15.11 ($p < 0.001$). Cases of severe ED shifted to milder stages, and associated symptoms such as Swasrtha, Swinnagathra, Mlanasishnacha, Nirbeeja, Moha Sankalpa, and Linga Shaithilya decreased. The benefits are attributed to Satavari's Vrishya, Balya, Vatahara, and Rasayana properties. The findings suggest that Satavari Choorna is a safe, effective, and affordable treatment for ED. The improvements in subjective and objective parameters support its potential as an alternative therapy. However, larger controlled trials are necessary to confirm these results.

Keywords— Erectile Dysfunction, IIEF-5 score, Satavari Choorna, Vrishya

I. INTRODUCTION

Healthy sexual function is important for harmony and happiness in relationships¹. In Ayurveda, Abrahmacharya (celibacy) along with diet (Aahara) and sleep (Swapna) form the three pillars of health, as emphasized in classical texts like Ashtanga Sangraha and Ashtanga Hridaya. Erectile Dysfunction (ED) is a common concern today, characterized by the inability to achieve or maintain an erection, causing emotional stress and relationship problems.²

In India, ED affects 6% of men aged 20-29, rising to 50-70% in those aged 40-79. By 2025, over 320 million men may be affected, making India the "impotence capital." In Western countries, about 10-15% of men have ED, with higher rates seen with increasing age.³ Causes include psychological, neurological, vascular issues, medication side effects, and diabetes. Ayurveda calls this condition "Klaibya," highlighting its long-standing recognition.

Erectile dysfunction (ED) is a persistent difficulty in achieving or maintaining an erection, hindering satisfying intimacy for both partners. Its prevalence is rising, linked to conditions like diabetes, hypertension, vascular diseases, and psychological factors such as stress and depression.⁴ Modern treatments include non-surgical options like PDE5 inhibitors (Sildenafil, Vardenafil, Tadalafil), which can cause serious side effects like myocardial infarction, arrhythmias, hypotension, headaches, visual disturbances, and hypersensitivity. Surgical options have complications and are often unaffordable, leading to poor acceptance. Due to the higher incidence and limitations of existing treatments, there is a need to explore safe, effective, and affordable alternatives for managing ED. This study evaluates Satavari Choorna⁵, a traditional Ayurvedic formulation containing six ingredients, Satavari, Gokshura, Kapikachu, Bala, Atibala and Kokilaksha these all support Vatha Pithahara, Vrishya, Balya, Brimhana, Rasayana, and Vajeekarana.⁶ Administered as 10 grams with

Goksheera at bedtime, it aims to reduce ED symptoms and improve IIEF-5 scores based on Ayurveda's documented properties.

Objectives

- 1) To evaluate the effect of Satavari Choornam in reducing the symptoms and improvement in IIEF 5 scoring of Erectile Dysfunction.
- 2) To evaluate the effect of Satavari Choornam in reducing the symptoms told in the Samanya Lakshanas of Klaibya.

II. MATERIALS AND METHODS

A. Study Design

A open label, single group interventional clinical study with a pre-test and post-test design

B. Study setting

Participants attending the Outpatient Department of Kayachikitsa, SNIASR, Pangode, Puthur, Kollam, Kerala

C. Study Population

Participants who satisfy the inclusion criteria of males in the age group 30-70 years, participants attending the Outpatient Department of Kayachikitsa, SNIASR, Pangode, Puthur, Kollam, Kerala

D. Sample Size

19 participants satisfying the inclusion criteria.

E. Inclusion criteria

- 1) Male participants with Erectile Dysfunction of the age group 30 to 70 years.
- 2) Male participants presenting with any one, two, three or all the complaints stated below will be selected for the study.
 - Inability to attain erection
 - Inability to maintain erection sufficient for intercourse

- Inability to achieve orgasm
- Loss of interest in sex

3) Participants having IIEF-5 score below 20 were selected.

F. Exclusion criteria

1. Cardiovascular diseases
2. Uncontrolled Hypertension
3. Participants who are diagnosed with Erectile Dysfunction due to trauma
4. Uncontrolled Diabetes Mellitus

G. Intervention

Nineteen participants meeting the inclusion criteria were selected and underwent detailed evaluation, including history taking and examination. They were informed about the study and provided written consent. The study was conducted with a single group, and participants received 10 grams of Satavari Choorna daily for 15 days, dispensed in airtight packets labelled with the manufacture date. They were advised to mix the Choorna with Goksheera as an Anupana and to take it once at bedtime. Assessments were done on 0th day and 16th day, changes were recorded in subjective and objective parameters. The results were statistically analysed

Fig 1 : Ingredients of Satavari Choomam



Satavari



Kapikachu



Atibala



Gokshura



Gangeruki



Ikshuraka

Fig 2 : Processed and packed Satavari choorna



H. Outcome measures

Subjective Parameters

Inability to attain erection, Inability to maintain erection sufficient for intercourse, Inability to achieve orgasm, Loss of interest in sex, Swasatha (Breathlessness), Swinnagathra (Profuse sweating), Mlanasishnacha (Lack of rigidity), Nirbeeja (Lack of ejaculation), Moha Sankalpa Acheshtitha (Frustration), Linga Shaithilya (Flaccidity of penis)

Objective Parameters

IIEF 5 score will be assessed on the 1st and 16th day

I. Study Drug

The Yoga Satavari Choorna is mentioned in Saragadhara Samhitha Madhyama Khanda Choorna Prakarana. It consists of 6 drugs. Satavari, Gokshura, Kapikachu, Gangeruki, Atibala and Ikshuraka

J. Methods for measuring, recording and analysing the efficacy parameters

Participants satisfying the inclusion criteria were selected from the study setting. Informed consent were obtained from the participants. Participants were subjected to detailed case taking and was made to fill the IIEF 5 Questionnaire and the data was recorded. Evaluation was done on 1st and 16th day. Changes in the subjective and objective parameters were recorded and the results were statistically analysed using repeated measurements of ANOVA, Wilcoxon signed rank test and paired t test. Based on the distribution of data, basic statistical methods were also applied. P value <0.05 was considered as the level of significance.

III. OBSERVATION AND RESULTS

1) *Inability to attain erection*

The mean score of inability to attain erection decreased from 1.58 pre-treatment to 1.05 post-treatment, indicating significant improvement. The Wilcoxon signed-rank test showed $Z=3.162$ with $p=0.002$ ($p<0.05$), confirming the treatment's effectiveness in reducing erectile inability among the 19 participants.

2) *Inability to maintain erection*

The mean score of inability to maintain erection decreased from 2.84 to 2.05 after treatment with the Wilcoxon test ($Z=3.873$, $p=0.000$) confirming the treatment's significant effectiveness. Before treatment, 89.4% (17 participants) had severe difficulty maintaining erection, which reduced to 15.8% (3 participants) after treatment. The remaining participants experienced only moderate or mild difficulty post-treatment.

3) *Inability to achieve orgasm*

The mean score of inability to achieve orgasm decreased from 2.36 to 1.84, indicating significant improvement. The Wilcoxon signed-rank test ($Z=3.873$, $p=0.000$) confirmed the treatment's effectiveness. Before treatment, 68.4% (13 of 19) had severe inability to orgasm; afterward, no participants had severe difficulty, with remaining cases reduced to moderate and mild levels.

4) *Loss of Interest in Sex*

The mean score of loss of interest in sex decreased from 2.11 to 1.42, indicating improvement. The Wilcoxon signed-rank test ($p=0.001$) confirmed this change as highly significant. Before treatment, 15.8% (3 participants) had severe loss of interest, which dropped to 0% after treatment, shifting to mild and moderate levels. Moderate loss decreased from 78.9% (15 participants) before treatment to 42.1% (8 participants) after treatment.

5) *Swasartha*

The mean score of Swasartha decreased from 0.89 to 0.58, indicating improvement. The Wilcoxon signed-rank test ($p=0.014$) confirmed this change as statistically significant. Before treatment, 36.8% (7 participants) had Swasartha, which reduced to 15.8% (3 participants) after treatment. Severe Swasartha in 5.3% (1 participant) decreased to moderate, showing the intervention effectively alleviated moderate cases to mild.

6) *Swinthagathra*

The mean Swinthagathra score decreased from 1.79 to 1.16, showing noticeable improvement. The Wilcoxon Signed Rank Test (score 3.464, $p=0.001$) confirmed this change as highly significant. Before treatment, 21.1% (4 participants) had Swinthagathra, which reduced to 36.8% (7 participants) with moderate Swinthagathra after treatment. The intervention effectively shifted severe cases to moderate and moderate cases to mild.

7) *Mlanasishnacha*

The mean score of Mlanasishnacha decreased from 2.68 to 2, indicating improvement. The Wilcoxon signed-rank test ($Z=3.606$, $p=0.000$) confirmed this as highly significant. Before treatment, 73.6% (14 participants) had severe Mlanasishnacha, which reduced to 5.3% (1 participant) after treatment. The intervention effectively shifted severe cases toward moderate levels.

8) *Nirbeeja*

The mean score of Nirbeeja decreased from 2.05 to 1.68, showing noticeable improvement. The Wilcoxon signed-rank test ($Z=2.333$, $p=0.020$) confirmed this as statistically significant. Before treatment, 36.9% (7 participants) had severe Nirbeeja, which reduced to 15.8% (3 participants) after treatment. The intervention effectively lowered severe cases to moderate and moderate to mild, improving Nirbeeja among participants.

9) *Moha Sankalpa Acheshtitha*

The mean Moha Sankalpa Acheshtitha score decreased from 1.53 to 1.21, indicating improvement. The Wilcoxon Signed Rank Test ($Z=1.941$, $p=0.052$) showed the difference was not statistically significant at the 0.05 level. Before treatment, 31.6% (6 participants) had severe Moha Sankalpa Acheshtitha, which reduced to 5.3% (1 participant) after treatment. The intervention effectively shifted severe cases toward moderate levels.

10) *Linga Shaithilyatha*

The mean score of Linga Shaithilyatha score decreased from 2.68 to 2, indicating improvement. The Wilcoxon Signed Rank Test ($Z=3.606$, $p=0.000$) confirmed this as statistically significant. Before treatment, 68.4% (13 participants) had severe Linga Shaithilyatha, which reduced to none after treatment. The intervention effectively alleviated severe cases, shifting them to moderate levels.

Parameter	Day 1(Mean Combined)	Day 16 (Mean Combined)	P value	Inference
Inability to attain erection	1.58	1.05	0.002	Highly Significant
Inability to maintain erection	2.84	2.05	0.000	Highly Significant
Inability to achieve orgasm	2.36	1.84	0.000	Highly Significant
Loss of interest in sex	2.11	1.42	0.001	Highly Significant
Swasartha	0.89	0.58	0.014	Highly Significant
Swinthagathra	1.79	1.16	0.001	Highly Significant
Mlanasishnacha	2.68	2	0.000	Highly Significant
Nirbeeja	2.05	1.68	0.020	Highly Significant
Moha Sankalpa Acheshtitha	1.53	1.21	0.52	Not Significant
Linga Shaithilya	2.68	2	0.000	Highly Significant

11) *Assessment of IIEF -5 Questionnaire*

The mean IIEF-5 score improved from 11.37 to 15.11 after treatment, with a mean difference of 3.74. The test statistic was 10.704, and the p-value was 0.000, indicating a highly significant improvement. This confirms the treatment's effectiveness in enhancing IIEF-5 parameters.

IIEF	Mean	SD	Mean Difference	Test Statistic, t	p
BT	11.37	2.09	3.74	10.704	0.000
AT	15.11	1.99			

12) Assessment of Grading of ED

The mean IIEF-5 score improved from 11.37 to 15.11, with a mean difference of 3.74, and a highly significant p-value of 0.000, confirming treatment effectiveness. Wilcoxon Signed Rank Test showed a score of 3.116 and p=0.002, indicating significant improvement in ED grade. Before treatment, 10.5% (2 participants) had severe ED, which was eliminated after treatment. Moderate ED decreased from 36.9% (7 participants) to 10.5% (2 participants). Participants with mild to moderate ED increased from 52.6% (10 participants) to 63.2% (12 participants), and mild ED appeared post-treatment in 5 participants. Overall, the intervention effectively reduced severe and moderate ED, shifting them to milder stages.

Grade of ED	BT		AT	
	n	%	n	%
Mild	0	0	5	26.3
Mild to Moderate	10	52.6	12	63.2
Moderate	7	36.9	2	10.5
Severe	2	10.5	0	0
Total	19	100	19	100

IV. DISCUSSION

1) Effect of therapy on inability to attain erection

The mean score of inability to attain erection decreased from 1.58 before treatment to 1.05 after treatment, indicating significant improvement. Severe erectile difficulty was present in 47.4% of participants before treatment, with none remaining in that category afterward. The intervention shifted severe cases to mild and moderate levels, enhancing overall sexual function. Erectile function, linked to the balance of Prana, Vyana, and Apana Vayu, Sira Dhamanis, and mental health, improved with Satavari Choornam's Vrishya, Balya, Brimhana, Vata Pitta Hara, and Rasayana properties.

2) Effect of therapy on inability to maintain erection

The mean inability to maintain erection decreased from 2.84 before treatment to 2.05 after, showing notable improvement. Severe difficulty reduced from 89.4% (17 participants) to 15.8% (3 participants), shifting to mild and moderate levels. Satavari Choornam's Vrishya and Balya properties likely improved muscle tone and nourished the Dhathus, aiding erection. Its Vatahara property helped to control Vyana and Apana Dusthi, while its Vrishya effects supported nervous system function. Vata hara, Vrishya, Medhya, and Rasayana properties enhanced neuromuscular coordination and orgasm, promoting overall sexual activity.

3) Effect of therapy on inability to achieve orgasm

The mean inability to achieve orgasm decreased from 2.36 before treatment to 1.84 after treatment, showing clear improvement. Out of 19 participants, 68.4% (13) had severe inability before treatment, but none remained in that category after. The difficulty reduced to mild and moderate levels. Ejaculation and orgasm involve coordinated action of Apana Vayu, Prana Vayu, Vyana Vayu, and Manas. The Vatahara, Vrishya, Medhya, and Rasayana properties support neuromuscular function and improve orgasm, promoting overall sexual activity.

4) Effect of therapy on loss of interest in sex

The mean loss of interest in sex decreased from 2.11 before treatment to 1.42 after treatment showing improvement. The vitiated Vata, depletion of Sukra Dhatu, mental stress, and impaired Agni reduce sexual desire. Satavari Choornam's Vrishya, Vatahara, Brimhana, and Rasayana properties likely nourished Sukra Dhatu, balanced Vata, and improved psychological well-being, helping restore normal sexual desire.

5) Effect of therapy on Swasratha

The mean score of Swasratha decreased from 0.89 before treatment to 0.58 after. Before treatment, 7 participants (36.8%) had Swasratha, which reduced to 3 participants (15.8%) after treatment. Severe Swasratha was present in 1 participant (5.3%) before treatment and shifted to moderate after. This shows the intervention effectively reduced moderate cases to mild. Swasratha during sex is often stress-related. Performance anxiety and fear of failure can raise heart beat and breathing rates, causing rapid, shallow breathing and hyperventilation, which lowers CO2 levels. This can constrict penile blood vessels, affecting erection and disturbing Prana and Vyana Vayu functions. Satavari Choornam's Vatahara, Medhya, Rasayana, Balya, and Brimhana properties help to calm mental activity by balancing Vata Dosha, reducing anxiety and fear of failure during sex.

6) Effect of therapy on Swinnagathra

The mean score of Swinnagathra decreased from 1.79 before treatment to 1.16 after treatment, showing improvement. Before treatment, 4 participants (21.1%) had Swinnagathra, which became moderate after treatment. After treatment, 7 participants (36.8%) had moderate Swinnagathra. This shows the intervention helped to reduce severe cases to moderate and moderate cases to mild. During or before sexual activity, performance anxiety activates the sympathetic nervous system, increasing adrenaline, sweating, body temperature, and heart rate. Stress also worsens Swinnagathra, which occurs due to vitiated Vata and Pitta Dosha. Satavari Choornam, being Vata and Pitta balancing, reduces stress-induced overactivity, lowering body temperature and sweating.

7) Effect of therapy on Mlanasishnacha

The mean score of Mlanasishnacha decreased from 2.68 before treatment to 2 after treatment. Before treatment, 14 participants (73.6%) had severe Mlanasishnacha, but after

treatment, only 1 participant (5.3%) remained severe. This shows the intervention helped to shift severe cases to moderate levels. The inability to maintain rigidity or persistent flaccidity is due to impaired penile blood flow, worsened by anxiety, stress, and fear of failure, which increase catecholamines and cause vasoconstriction of penile arteries, preventing proper erection. This reflects the vitiation of Vata Dosha, especially Apana and Vyana Vayu. Satavari Chooranam contains medicines with Vrishya, Balya, Vatahara, Brimhana, and Rasayana properties. Its Balya property helps to improve muscle tone, preventing flaccidity. Its Brimhana property nourishes and strengthens tissues, improving Mlanasishnacha. Its Vatahara property helps to correct Vyana and Apana Vayu imbalance. The drugs mainly have Guru and Snigdha Guna, which reduce Vata Dosha and help restore tissue health.

8) Effect of therapy on Nirbeeja

The mean score of Nirbeeja decreased from 2.05 before treatment to 1.68 after treatment. Before treatment, 7 participants (36.9%) had severe Nirbeeja, which reduced to 3 participants (15.8%) after treatment. This shows the intervention effectively reduced severe cases to moderate and mild levels, improving Nirbeeja.

Failure to ejaculate results from both physiological and psychological factors. Physiologically, it involves impaired coordination between the sympathetic and parasympathetic systems, which control erection, orgasm, and emission. Psychologically, chronic stress increases the sympathetic response, disrupting rhythmic contractions in the vas deferens and seminal vesicles, causing Apana Vata Dusthi.

Satavari Choomam contains drugs with Guru and Snigdha Guna, which help to reduce Vata Dosha and improve tissue health. Its Sheetha Veerya (cool potency) may help to enhance Shukra (semen) quality and maintain penile erection. Its Vrishya, Balya, Vatahara, and Rasayana properties also contribute to improving Nirbeeja. The Anupana Goksheera, with Madhura Rasa, Guru, Snigdha, Pichila Guna, Seetha Veerya, and Madhura Vipaka, is considered as Vrishya and Sukra Vardhana, promoting tissue growth and strength, thus improving weak tissues.

9) Effect of therapy on Moha Sankalpa Achestitha

The mean score of Moha Sankalpa Achestitha decreased from 1.53 before treatment to 1.21 after treatment. Before treatment, 6 participants (31.6%) had severe Moha Sankalpa Achestitha, which reduced to 1 participant (5.3%) after treatment. This shows improvement following the intervention.

Moha Sankalpa Achestitha involves mental or emotional issues like confusion, desire, and excessive thoughts related to sexual health, which can affect erectile function and cause difficulty in achieving and maintaining an erection. The Satavari Chooranam, with its Medhya, Vatahara, Rasayana, Vrishya, and Balya properties, helped to improve Moha Sankalpa Achestitha.

10) Effect of therapy on Linga Shaithilyatha

The mean score of Linga Shaithilya decreased from 2.68 before treatment to 2 after treatment. Before treatment, 13

participants (68.4%) had severe Linga Shaithilyatha. After treatment, no participant had severe Linga Shaithilya. The intervention successfully reduced severe cases to moderate. The Satavari Chooranam, with Guru, Snigdha Guna, Vrishya, Brimhana, Rasayana and Balya properties, helped to improve Linga Shaithilyatha.⁷

11) Effect of therapy in IIEF -5 scores and grading of ED

The mean IIEF-5 score increased from 11.37 before treatment to 15.11 after treatment, showing a clear improvement in erectile function and quality of life. The average ED grade decreased from 1.58 to 0.84, indicating overall progress. Before treatment, 10.5% (2 participants) had severe ED, but after treatment, no one had severe ED, and cases shifted to moderate. The Satavari Chooranam, with its Vrishya, Brimhana, Rasayana, Balya, and Vatahara properties, helped to improve IIEF-5 scores and ED grading.

V. CONCLUSION

Most participants were aged 51-60, indicating increased ED with age and systemic diseases. Many consumed aggravating foods like Atikatu, Virudha, and Ahara, which increase Pitha dosha and cause Aama, Vata prakopa, and Klaihya. Common prakrithis were Vata-Pitha or Kapha-Pitha, with Rajasika-Tamasika temperaments. Some participants used smoking and alcohol, which impair blood flow and nerves. Psychological factors like Utwega, Krodha, Soka, and Chintha also contributed. Satavari Chooram, with Vrishya, Balya, Vatahara, and Rasayana properties, improved sexual desire, erection, muscle tone, and Vata balance, especially with Goksheera. The treatment significantly reduced ED symptoms and improved IIEF scores ($p < 0.05$). Moha Sankalpa did not show significant p-value despite mean improvements.

The present clinical trial concludes that Satavari Choomam is effective in reducing the symptoms of Klaihya and improvement in IIEF-5 scoring and grading of Erectile Dysfunction. This formulation can be safely recommended as a Samana therapy in Klaihya. Further controlled clinical trials with larger sample sizes are recommended.

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