



# Decisive Review Of Previous Clinical Research Work Done On Pandu W.S.R To Iron Deficiency Anaemia

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## INTRODUCTION:

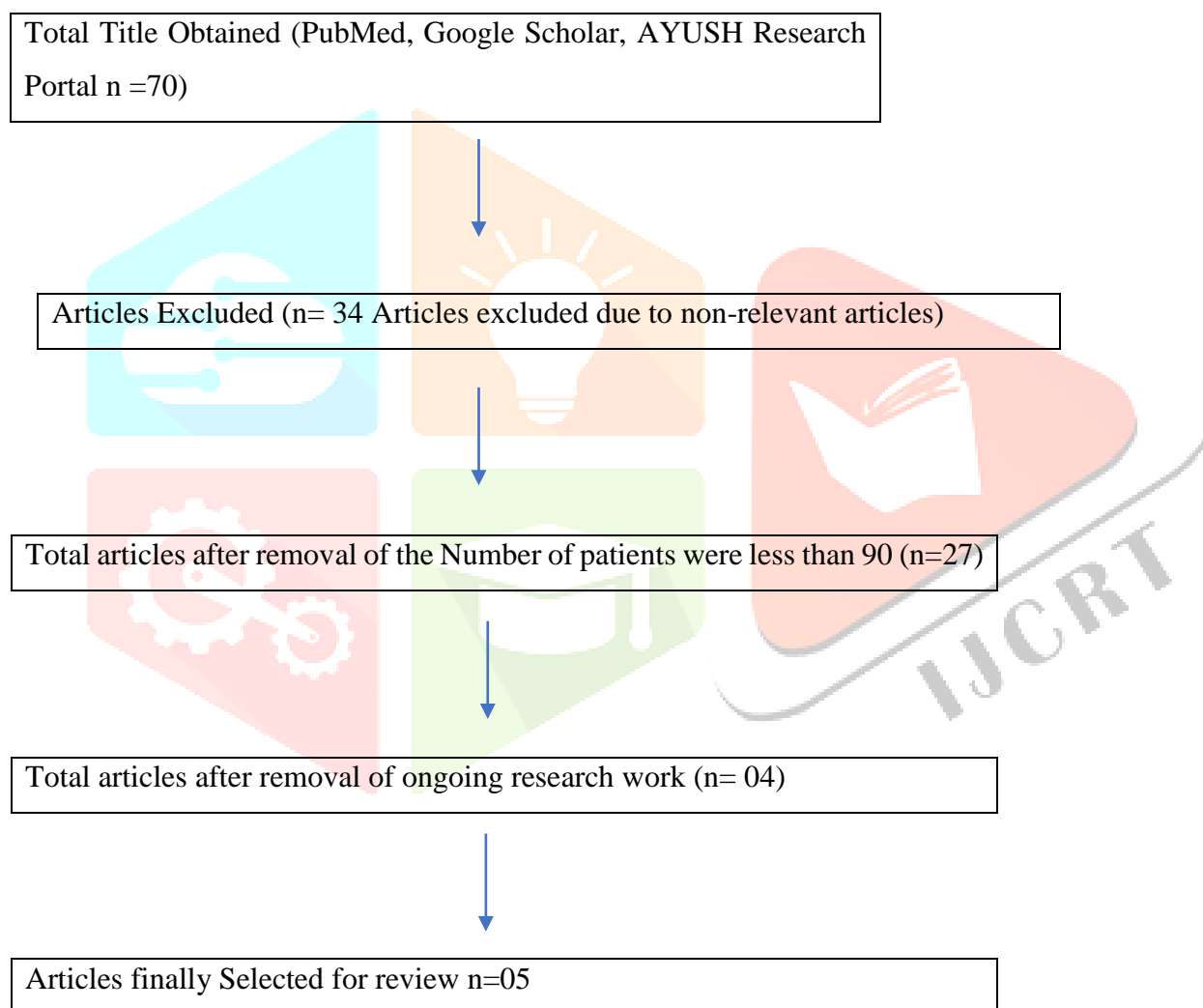
In India, anaemia is a significant public health issue. According to the NFHS-5 data, 67% of young children (ages 6 to 59 months), 59% of adolescent females, and roughly 52% of pregnant women are anaemic. In *Ayurveda*, *santarpanjany* and *aptarpanjany pandu vyadhi* might result from deformation of the *Rasvaha strotas*. The primary cause of this condition is nutritional insufficiency. The patient develops a pale colouration in their skin, nails, eyes, face, etc. The patient becomes dull as a result of the loss of radiance and brightness caused by *raktakashay* and *ojakshay*. As a result, assuming it is white based solely on colour is illogical. *Pandu Vyadhi* is referred to as anaemia in modern terminology. Jaundice is essentially a blood condition caused by a lack of, an abnormally small quantity of, or a deformed red blood cell. The liver and spleen are also regarded as the primary sites of *Rasa* and *Rakta* production in *Ayurveda* scriptures. The formation of red blood cells is assisted by the liver and spleen as well as the red bone marrow in the bones, according to modern medical science, which also accepts this fact. The liver and spleen create red blood cells throughout pregnancy, but the blood bone marrow produces them during the postnatal period. Yet, the liver and spleen also work during the postpartum period in an emergency. When anaemia is present, liver consumption is advised by *Ayurveda*. Modern advancements in holistic science are constantly stressed for

*Ayurveda* classics to remain relevant. *Ayurveda* can provide a better solution than any other medical system when it comes to such problems, hence the time is right to properly begin productive research into them.

### Material & Method:

PubMed, Google Scholar, and the AYUSH Research Portal were used for the literature searches on the publications. *Anaemia*, *Ayurveda*, and "*Pandu Iron Deficiency Anaemia 90 patients*" were among the keywords used. Only original research articles involving human participants that were published in the English language between January 2000 and June 2022 were included in the search.

#### 1. The selection of articles for review



### RESULTS AND OBSERVATION:

#### Summary of literature on Ayurvedic preparations for anaemia

##### 1. TITLE: Clinical Evaluation of *Navasayachurna* in the Management of Iron Deficiency Anaemia<sup>1</sup>

**Author and year of publication:** Babita Yadav, Bani R Meena, Omraj Sharma, Harbans Singh, Surendra K Sharma, Vinod B Kumavat, Rajesh Sannd, Guru C Bhuyan Rakesh Rana, Richa Singhal, Shruti Khanduri, Bhagwan S Sharma, Sophia Jameela, Adarsh Kumar Narayanam Srikanth

Article in Journal of Research in Ayurvedic Sciences · April 2017

**Type of study and duration of intervention:**

The National Institute of Ayurvedic Pharmaceutical Research, Patiala, the M.S. Regional Ayurveda Central Research Institute, and the Ayurveda Regional Research Institute, Mandi, all participated in an open-labelled multicentre prospective clinical trial. From May 2014 to May 2016, participants were enrolled in the study. The patient's demographic information, medical history, family history, particularly concerning IDA, Sharirik Prakriti, and vital signs were recorded on the enrolling day at baseline (Visit 1). The following visits were scheduled every 15 days: Visit 2 on the 15th day, visit 3 on the 30th day, visit 4 on the 45th day, visit 5 on the 60th day, visit 6 on the 75th day, and Visit 7 on the 90th day. Patients were assessed and given study medications at each subsequent visit till the 90th day. There was also without medication follow-up after 15 days of the 90<sup>th</sup>-day visit.

**Sample size:**

Patients with IDA (n = 150) belonging to either sex, with haemoglobin in the range of 8 to 10%, aged between 18 and 50 years and with serum ferritin <30 mg/dL, and blood smear depicting microcytic, hypochromic state were selected.

**Intervention:**

The trial drug (*NavayasaChurna*) in capsule form was administered to selected patients at the dose of 1 gm (2 capsules of 500 mg each) twice daily after food along with water as *anupana* for a period of 90 days.

**Assessment:**

The mean change in haemoglobin level at 90 days from baseline served as the major outcome indicator. The secondary outcome measures at the 90th day compared to the baseline were the mean change in serum ferritin level, change in peripheral blood smear, and relief of symptoms such as weakness, fatigue, headache, palpitations, shortness of breath, irritability, taste disturbances, etc.

**Findings:**

Haematological markers and the improvement in clinical IDA symptoms served as the basis for evaluation. Haemoglobin levels at each follow-up period were statistically very significant for *NavayasaChurna* (p-value 0.001), and serum ferritin levels also increased significantly. Normocytic normochromic blood smear pictures were attained by 18% of patients by the 90th day and by 24% of patients by the 120th day.

## 2. TITLE: Limiron Granules for Iron Deficiency Anaemia in School going, Children<sup>ii</sup>

### Author and year of publication:

C. R. Swapnil, Hemant Toshikhane and Shreehari Taklikar article. In Journal of Pharmaceutical Research International 2021

### Type of study and duration of intervention:

Single arm Phase 3 clinical trial of this medicine has been carried out at Parul Ayurveda Hospital, Limda Vadodara, Gujarat, India. Limiron granules were administered for 90 days

### Sample size:

Total of 104 children were enrolled in this study from the rural and urban sectors of Vadodara, Gujarat. Individuals aged 05-12 years of either sex.

### Intervention:

Drug-Proprietary Ayurvedic medicine Limiron Granules Dosage - 1-2tsp early morning empty stomach with milk *Anupana- Milk* Duration - 3 months

### Assessment:

The primary goal was to achieve a 1.5 g/dl increase in haemoglobin above the baseline measurement of Hb% (before therapy), as well as a reduction in pallor and other symptoms including fatigue and leg cramps at 12 weeks. Weight gain of 3 kg or more in 60 days was a secondary outcome.

### Findings:

Following the administration of Limiron granules at the indicated doses, it was found that the average Hb% improved by (31%) 3.1g/dl, the TRBC count improved by (18%) 54000 ccm, and the PCV increased by (32%), or by 8 points. Improvements in Sr Iron (average increase of 17 mcg (40%)), MCV (an increase of RBC volume by 19fL (27%)), MCH (an increase of Hb per RBC by 3.5pg (18%)), and MCHC (an increase of RBC volume by 2.2pg/fL (27%)) were also noted. It was shown that all of these improvements in blood indicators were statistically significant. The total iron binding capacity (TIBC) and serum ferritin improvements were determined to be statistically insignificant.

## 3. TITLE: A clinical study on *Pandu Roga*, iron deficiency anaemia, with *Trikatrayadi Lauha* suspension in children<sup>iii</sup>

### Author and year of publication:

Abhimanyu Kumar, Ashish Kumar Garai article in Journal of Ayurveda and Integrative Medicine. 2012 Oct-Dec;

### Type of study and duration of intervention:

A randomized, double-blind placebo-controlled clinical study was conducted in children suffering from IDA.

### Sample size:

A total of 123 children of Pandu roga (IDA) were enrolled in the clinical study and were assigned to one of two groups, Group A (Trial Group), which had 61 patients enrolled and 55 patients who had successfully finished the course of treatment. In Group B (Placebo Group) 62 patients were registered and 52 patients completed the treatment.

**Intervention:**

Prior to medication therapy, deworming was done. The cases that had signed up for the study were split into two groups at random. Patients in Group A received treatment with *Trikatrayadi Lauha* suspension 01 (trial drug). Patients in Group B received treatment with *Trikatrayadi Lauha* Suspension 02 (placebo). Suspension was used as the experimental medicine and the placebo. Trial medication dosage and placebo dosage: 0.5 mL/kg body weight divided into 2 doses. Duration of treatment: 10 weeks.

**Assessment:**

Clinical assessment was assessed before, during, and after the treatment: *Vaivarnata*(pallor), *Daurbalyata*(weakness), *Shrama*(fatigue), *Aruchi*(anorexia), *KopanaorAdhirata*(irritability), *Shwasa*(dyspnea), *Hridayaspandana*(palpitation), and *Shoatha*(edema). Laboratory assessment Laboratory findings had been assessed before, during, and after treatment: 1) Total RBC count, 2) blood haemoglobin level, 3) PCV, 4) MCV, 5) MCH, 6) MCHC, 7) PBS, 8) ESR, 9) serum iron level, 10) TIBC, and 11) serum ferritin level.

**Findings:**

The haematological and clinical indicators can be greatly improved with the trial medication *Trikatrayadi Lauha* suspension. After 5 weeks, the medication effectively raises haemoglobin levels by 1.94 g/dL (8.52 - 10.46 g/dL, P 0.001), and in 10 weeks, it does so by 3.33 g/dL (8.52 -11.85 g/dL, P 0.001).

**TITLE:** Clinical Efficacy and Safety of *Punarnavadi Mandura* and *Dadimadi Ghrita* in the Management of Iron Deficiency Anaemia: A Prospective Open-label Multicentre Study<sup>iv</sup>

**Author and year of publication:**

Rajesh Sannd, HML Meena, Banmali Das, Babita Yadav, Pradeep Dua, Shruti Khanduri, Rakesh Rana, Richa Singhal, GC Bhuyan, Sarada Ota, N Srikanth, MM Padhi, Kartar Singh Dhiman article in Journal of Research in Ayurvedic Sciences 2017

**Type of study and duration of intervention:**

Prospective open-label multicentre trial Study duration: 84 days Study site: 3 peripheral centres of the Central Council for Research in ayurvedic Sciences, Ministry of AYUSH

**Sample size:**

n=103 adults aged 15-60 years of either sex Hb: 8-11 g %

**Intervention:**

Over a period of 12 weeks, *Punarnavadi Mandura* in the dosage of 500 mg (two 250 mg tablets) twice daily with water and *Dadimadi Ghrita* in the dosage of 10 gm twice daily given orally before food with lukewarm water were the study drugs.

**Assessment:**

Assessment: Baseline and at 84<sup>th</sup>-day Primary outcome measure-Hb Secondary outcome measure-Ferritin level and various symptoms like weakness, fatigue, irritability etc., (baseline to 84th day) Loss to follow-up:

**Findings:**

Hb increased from 9.29 g/dl to 9.40 g/dl ( $P>0.05$ ) Serum iron from 41.13  $\mu\text{g/dl}$  to 50.02  $\mu\text{g/dl}$  ( $P=0.005$ ), similarly, serum ferritin also showed a significant increase Significant decrease in percentage complaints (weakness, fatigue, and headache) of common symptoms of IDA

**4. TITLE: Integration of Ayurvedic Formulations with Iron Folic Acid in the Treatment of Nutritional Anaemia among School Going Adolescents of Dehradun District<sup>v</sup>****Author and year of publication:**

Prakash *et al.* (2016)

**Type of study and duration of intervention:**

Single blinded, randomized controlled clinical trial study duration=270days Study site: students from various governments schools and colleges of Raipur, Maldevta, Miyawala, Shyampur, Bahadur, Gujrada and Chaktunwala

**Sample size:**

$n=820$  adolescent anaemic students aged 11-18 years

**Intervention:**

4 groups group I (control): Starch Group II: (SR 250 mg +SC 400 mg) Group III: 100 mg elementary iron and 500  $\mu\text{g}$  FA

Group IV: (SR 250 mg +SC 400 mg) along with IFATreatment for 90 days and followed till 270 days Iron content: both are non-iron-containing formulations.

**Assessment:**

Blood samples were drawn on the 1st day and then on 30th, 60<sup>th</sup> and 90th, 170th, 270<sup>th</sup> day respectively for Hb estimation

**Findings:**

Mean gain in Hb in the groups from day 0 to day 270 in g/dl, Group II: 0.46±0.04, Group III: 0.14± 0.03, Group IV: 1.01±0.06 Increase in Hb levels in group IV (SR+SC) was significantly higher (1.01±0.06 g/dl) than any other group.

**DISCUSSION:**

To determine the efficiency of *Ayurvedic* remedies in the treatment of *Pandu* Iron Deficiency Anaemia, 05 studies in total were reviewed. The investigations included randomised and non-randomized controlled trials (RCTs) carried out in a range of age groups with various *Ayurveda* formulations and dosages, with varying effects on Treating iron deficiency anaemia. The investigations evaluated both *Ayurvedic* medicines that contained iron and those that did not. People from a spectrum of ages, including women, children, and adults, participated in the study. Older adults discovered ingredients with laxative effects that ease constipation, and children found the *Ayurvedic* medicines to be palatable. None of the *Ayurveda* formulations contained gastrointestinal discomfort, the most frequent and unwelcome adverse effect linked to oral iron deficiency anaemia consumption. In fact, none of the research mentioned any negative outcomes. This review has a

few significant public health implications. In India, more than one-third of the population lives in rural areas, and the *Ayurvedic* medical system is becoming more and more well-liked there as well.

According to research, Ayurveda remedies can benefit people of all ages, including women and children, who suffer from Severe Iron Deficiency Anaemia by raising haemoglobin levels and other haematological parameters. Hence, Ayurveda remedies could lessen the burden of Severe Iron deficiency anaemia in India, where a medical pluralistic culture is strong. Ayurveda treatments for the management of anaemia must be implemented, regulated, and monitored by public health policy initiatives.

All of the investigations were carried out in carefully monitored environments, such as Ayurvedic medical centres or other establishments like schools and colleges. Here is where prescription drug uptake and adherence may vary from demographic norms. Because of the small sample size, research location, design, and bias connected with the studies, the findings must be considered cautiously.

### CONCLUSION:

According to this review's findings, ayurvedic medicines may work well for treating and preventing Pandu iron deficiency anaemia in people of all ages. The safety and lack of negative effects of *Ayurvedic* formulations are one of their benefits. They can be used and promoted at all levels of healthcare in addition to allopathic medications. In bigger, multicentric studies, these medications' precise potential for managing Pandu iron deficiency anaemia must be evaluated.

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