IJAYUSH
International Journal of AYUSH
AYURVEDA, YOGA, UNANI, SIDDHA AND HOMEOPATHY
http://internationaljournal.org.in/journal/index.php/ijayush/

International Journal
Panacea
Research library
ISSN: 2349 7025

Review Article | Volume 13 Issue 3 | March 2024

ANAEMIA MUKTH BHARAT AND ROLE OF AYUSH SYSTEMS TO ADDRESS THE INCREASING PREVALENCE OF ANAEMIA IN INDIA: OVERVIEW

***Dr Sivakumar K[1] and Dr Dastagiri P[2]**

[1]Research officer(H)/Scientist-1, [2]Research Officer(H)/S-2, Asso. Prof. Dept. of Practice of Medicine Email: drdastagirinhrimh@gmail.com,

National Homoeopathy Research Institute in Mental Health, Kottayam, Under Central Council for Research in Homoeopathy, Ministry of AYUSH, Govt. of India.

*Corresponding Author's email ID**:** drshivasree@gmail.com

Abstract:

Background: Anaemia, defined as low blood haemoglobin (Hb) concentration, is a public health problem that affects low, middle, and high-income countries. It has significant adverse health consequences and impacts social and economic development. As per the WHO, it is estimated that 40% of all children, 37% of pregnant women, and 30% of non-pregnant women are affected by anaemia globally. Anaemia consequences vary; it can affect school performance, productivity in adult life, and overall quality of life. This review aims to discuss the rising prevalence of anaemia and its impact and highlight the Anaemia Mukth Bharat campaign and the role of AYUSH systems in addressing it.

Methods: A search was done in "Google Search", "Google Scholar", "PubMed", and "Govt. of India" publications. Articles including review articles, clinical studies, analytical reports, and reports of WHO and Govt. of India publications were included.

Results: The prevalence of anaemia has been increased compared to previous surveys. To address the constant increase in the prevalence of anaemia, the Govt. of India launched the Anaemia Mukth Bharat (AMB) campaign in 2018 with the target to reduce anaemia in vulnerable age groups such as women, children, and adolescents in a life cycle approach, providing preventive and curative mechanisms through a 6×6×6 strategy. The emerging approach of Test, Treat, Talk involves conducting reach-out camps to identify anaemia cases by testing individuals, providing necessary treatment, and engaging in discussions for ongoing management. AYUSH systems have a positive role in the management of anaemia.

Conclusion: The AMB campaign and Test, Treat, Talk approach may have a significant impact in reducing the prevalence of anaemia. AYUSH systems like Ayurveda, Yoga, Unani, Siddha, and Homoeopathy have a positive role in addressing the increasing prevalence rate of anaemia in India with curative and preventive interventions.

Key Words: Anaemia, Anaemia Mukth Bharat, AYUSH, Iron Folic Acid, Test Treat Talk.

Introduction:

Anaemia is defined as low blood haemoglobin (Hb) concentration, which may present in different types and manifests with minor to major signs and symptoms. Anaemia may not be a disease itself, but it can be a manifestation of other conditions. It is a public health problem that affects low, middle, and high-income countries, has significant adverse health consequences, and impacts social and economic development.[1] Low and lower-middle-income countries bear the tremendous burden of anaemia, particularly affecting populations living in rural settings, in poorer households, and who have received no formal education. Anaemia is one of the most common and intractable nutritional problems globally, affecting developing and developed countries with significant consequences for human health, social and economic development.[2] Anaemia caused the loss of 50 million years of healthy life globally due to disability in 2019.[3] During pregnancy, anaemia can be associated with poor maternal and birth outcomes, including premature birth, low birth weight, and maternal mortality. In addition to the health consequences, anaemia can have important financial impacts on individuals, families, communities, and countries. Anaemia is diagnosed based on blood haemoglobin concentrations falling below-specified thresholds established based on age, sex, and physiological status. Controlling anaemia is a global health priority; WHO is aiming for a 50% reduction in anaemia prevalence in women by 2025.[3] As per the National Family Health Survey 5 (NFHS-5 2019-21), the prevalence of anaemia has increased compared to NFHS-4(2015-16). [4] The treatment and prevention of anaemia depend on the underlying cause of the condition. There are many effective ways to treat and prevent anaemia in conventional medicine, oral Iron therapy in mild and moderate anaemia, parental iron therapy in severe anaemia cases, and the treatment for specific types of anaemia depends on underlying causes like blood transfusion, splenectomy, bone marrow transplantation, etc. Prevention of anaemia includes Iron and folic acid supplementation, food fortification, dietary diversification, etc. AMB's campaign was launched by the Ministry of Health and Family Welfare, Government of India, in September 2018. All India Institute of Medical Sciences (AIIMS), New Delhi, is the nodal agency for its smooth functioning.[5] AMB strategy is initiated with the target of reducing anaemia in vulnerable age groups such as women, children, and adolescents in a life cycle approach providing preventive and curative

mechanisms through a 6×6×6 strategy including six target beneficiaries, six interventions and six institutional mechanisms for all stakeholders to implement the strategy.[6] Despite many interventions by the Dept. of Health and Family Welfare, especially with modern medicine, the steady increase in the prevalence of anaemia causes worry and concern. Although AYUSH systems, including Ayurveda, Unani, Siddha, and Homeopathy, have been widely practiced in India since ancient times, the services of these systems have not been utilised effectively at a community level. Acknowledging the broader acceptance of AYUSH, the Government of India has integrated the traditional systems of medicine with the allopathic system, especially in rural areas. AYUSH systems have tremendous potential to treat, prevent, and reduce the prevalence of anaemia with community-level interventions.[7] Hence, this review paper intends to discuss the increased prevalence of anaemia, its impact, the Anaemia Mukth Bharat strategy, and the role of Ayush systems in addressing it.

Materials and Methods: A search was done in Google search, Google Scholar, PubMed, and Govt. of India publications, with keywords "Anaemia Mukt Bharath, Anaemia prevalence, AYUSH, Homoeopathy, Test Treat Talk, etc. Articles including review articles, clinical studies, analytical reports, and reports of WHO and Govt. of India publications in English until October 2023 were included. Reports of dissertations and unpublished manuscripts were excluded.

Results: Based on the search, the following results were obtained. As per the National Family Health Survey 5 (2019-21), anaemia is 25% in men (15-49 years) and 57% in women (15-49 years), 31% in adolescent boys (15-19 years), 59% in adolescent girls, 52.2% in pregnant women (15-49 years), 57.2% in non-pregnant women (15-49 years) and 67% in children (6-59 months) 40% of all children. [4] (Table.1) The effects of anaemia vary, and it is a major public health concern. It can affect school performance (through developmental delays and behavioural disturbances such as decreased motor activity, social interaction, and attention to tasks) and productivity in adult life and overall quality of life in general. Besides the health consequences, anaemia can have critical financial impacts on individuals, families, communities, and countries.[2] During pregnancy, anaemia can be associated with poor maternal and birth outcomes, including premature birth, low birth weight, and maternal

mortality. In addition to the health consequences, anaemia can have important financial impacts on individuals, families, communities, and countries. In 2018, the Government of India launched the Anaemia Mukt Bharat (AMB) campaign with the target of reducing anaemia in vulnerable age groups such as women, children, and adolescents in a life cycle approach providing preventive and curative mechanisms through a 6×6×6 strategy including six target beneficiaries, six interventions and six institutional mechanisms for all stakeholders to implement the strategy.[6] The six population groups under the AMB strategy are Children (6-59 months), Children (5-9 years), Adolescent girls and boys (10-19 years), Pregnant women, Lactating women, Women of Reproductive Age (WRA) group (15-49 years). The six interventions are Deworming, intensified year-round Behaviour Change Communication (BCC) Campaign and delayed cord clamping, testing of anaemia using digital methods and point of care treatment, Mandatory provision of Iron and Folic Acid fortified foods in Government funded health programs, Addressing non-nutritional causes of anaemia in endemic areas with special focus on malaria, hemoglobinopathies, and fluorosis. The delayed cord clamping at least by 3 minutes helps to transfer enough iron stores to the newborn baby and helps to retain sufficient Hb for the initial months of infancy. The six institutional mechanisms are Inter-ministerial co-ordination, National Anaemia Mukt Bharat Unit, National Centre of Excellence and Advanced Research on Anaemia Control at AIMS Delhi, Convergence with other ministries Strengthening supply chain and logistics, Anaemia Mukt Bharat Dashboard and Digital Portal, the one-stop shop for anaemia.[6]

Following the directions from Govt. of India, many states have started implementing the Anaemia Mukth Bharat strategy. Under AMB, the recent emergent approach of Test, Treat, Talk camps is successfully conducted throughout India. With these camps, health professionals first test the target people with digital hemoglobinometers at the community level to detect anaemia cases and treat them with Iron-Folic Acid(IFA) tablets and do necessary referrals to higher medical facilities and talk with them for counselling beneficiaries on healthy lifestyle measures, to increase iron levels in the body and talks on foods rich in Iron, protein and vitamin C. Various public health authorities are conducting similar programmes throughout India. The Test, Treat, Talk initiative is a good idea of choice

architecture to influence people, get every individual suffering from anaemia, and make healthy choices to improve their ability to modify their lifestyle to get off from anaemia.

Meanwhile, AYUSH systems like Ayurveda, Yoga, Unani, Siddha, and Homoeopathy have tremendous potential to treat, manage, and prevent different anaemias. In particular, Ayurveda refers to the "Science of life" or "Science of longevity," which has been practised in India since 2500 BC.[8] In **A**yurveda, disease formation and pathogenesis are linked with Dosha's vitiation (humour). Ayurveda describes three different humours, Vata, Pitta, and Kapha, which are responsible for a healthy state or cause of disease. Anaemia in Ayurveda, known as Pandu Roga, is predominantly a result of Pitta Dosha vitiation and other Doshas. The Ayurveda system has various iron-containing and non-iron-containing herbal formulations to manage anaemia.[9] **Y**oga practices can make people emotionally stable and free them from psychological disturbances. It helps control and check emotions, and it balances the mind. It makes them physically fit and healthy and makes them approach the future without any disturbances.[10] Yoga practices can be used efficiently to improve the haemoglobin count. Long-term yoga practice on anaemic patients can give better results with the least expenditure. Yogic practices affect the body from the cellular level if appropriately practised under the guidance of a yoga teacher.[10] **U**nani herbal medicines play an essential role in the management of anaemia. Among the compound formulations, *Sharbat Fawläd* is one of the famous Unani medicines and has various pharmacological actions like Muwallid-i-Dam (hemopoietic), Muqawwé-i-Mi'da (stomachic), and Muqawwé-iKabid (heptatonic). It has been traditionally used to treat anaemia (Faqr al-Dam) for ages.[11] **S**iddha science has placed anaemia not as a state or condition but as a disease. It consists of a large number of medicinal plants which have the potential to correct anaemia.[12] In Siddha, the term Pandu may be used instead of Anaemia. This is due to the poor quality of blood. Initially, mild purgation is administered to normalise the *Pitham* humour. *Drakshai* or dried grapes can be used for this. *Ponnavarai* tablets, one or two, can be administered at bedtime along with milk. In the worm infestation caused in Mannun Pandu, *Agathi keerai (Sesbania grandiflora)* is boiled along with panai kalkandu and given. **H**omoeopathy treatment focuses on better absorption and utilisation of Iron in the body rather than supplementation as per the recommended dietary allowances.[1] Homoeopathy may be the most helpful treatment

option for anaemia patients. While conventional treatment advocates mere supplements of deficient nutrients. Homoeopathic medicines stimulate deranged vital force for better absorption of required nutrition and remove or reduce the tendency of anaemia by addressing the root cause rather than temporarily treating the condition or offering symptomatic relief. Homoeopathy literature provides many remedies for treating anaemia in Materia Medica. Important homoeopathic remedies to treat anaemia are *Ferrum Metallicum, Ferrum Phosphoricum, China Officinalis, Natrum Muriaticum, Phosphorus, Arsenic Album, Nux Vomica, Calcarea Phosphoricum, and Calcarea carbonicum.* Some remedies can increase Hb levels, like *Ferrum Met 3x, Ferrum Phos 6x, Vanadium 6C*, etc. [13]

Table.1 Anaemia among Children and Adults

Sl no.	Anaemia among Children and Adults	NFHS-5 2019-21			NFHS-4 2015-16
		Urban	Rural	Total	Total
1	Children age 6-59 months who are anaemic (<11.0 g/dl)	64.2	68.3	67.1	58.6
2	Non-pregnant women age 15-49 years who are anaemic (<12.0 g/dl)	54.1	58.7	57.2	53.2
3	Pregnant women age 15-49 years who are anaemic (<11.0 g/dl)	45.7	54.3	52.2	50.4
4	All women age 15-49 years who are anaemic (%)	53.8	58.5	57.0	53.1
5	All women age 15-19 years who are anaemic (%)	56.5	60.2	59.1	54.1
6	Men age 15-49 years who are anaemic (<13.0 g/dl)	20.4	27.4	25.0	22.7
7	Men age 15-19 years who are anaemic (<13.0 g/dl)	25.0	33.9	31.1	29.2

- India Key Indicators, NFHS-5 2019-21.[4]

Discussion:

Anaemia is a widespread global health problem associated with poor health outcomes, increased morbidity and mortality, and substantial health and economic costs.[14] Anaemia affected over 1·9 billion people and caused 52·0 million YLDs in 2021.[14] In addition to anaemia-related risks of preterm labour, low birth weight, short gestation, stillbirth, and impaired motor and cognitive development, anaemia has been associated with increased risk of several conditions, including stroke, cardiovascular disease, dementia, vision problems, low bone mineral density, and increased all-cause mortality after surgery and in older adults.[15] Anaemia remains a significant public health issue across the life course. The persistently high anaemia burden, particularly in women of reproductive age and young children, underscores the need for renewed attention on accurately measuring the prevalence of anaemia and its underlying causes and using these data to design comprehensive policies and interventions that reflect the context-specific epidemiology of the disease and its determinants.[14] The public health authorities in India have been implementing many programmes for a long time, even though the prevalence rates are increasing yearly. Most anaemia control programmes are ongoing at the community level based on modern medicine findings. AMB strategy is an initiative of the Government of India that has started with the exclusive target of reducing the prevalence of anaemia in 6 target groups. The constant increase in anaemia prevalence globally and in India is causing severe worry and concern. AMB's strategy currently provides preventive and curative mechanisms through a 6×6×6 strategy, including six target beneficiaries, six interventions, and six institutional mechanisms for all stakeholders to implement the strategy. The current interventions are only for correcting the deficiencies with Iron Folic acid supplementations but may not correct individual defects. The lack of a holistic healthcare concept causes an unsuccessful reach out of the target of reducing the prevalence of anaemia. Whereas complementary and alternative systems can also contribute to lowering anaemia's prevalence with a holistic approach. AYUSH systems of Ayurveda, Yoga, Unani, Siddha, and Homoeopathy have many traditional, indigenous medicines to prevent and treat anaemia effectively with less cost and the least adverse effects compared to modern medicine. Oral iron tablets and other supplements fill the deficiency for the time being, but long-term

sustainable rectification may not be possible. Whereas Ayush systems focus on a holistic approach by considering disease as well as the individual as a whole, especially Homoeopathy treats the patient as a whole instead of treating illness alone, and medicines act on deranged vital force and increase the absorption of needful nutrients from food, removing or reducing the tendency of anaemia by addressing the root cause rather than temporarily treating the condition or offering symptomatic relief. Homoeopathic medicines like *Ferrum Met 3x, Ferrum Phos 6x*, and *Vanadium 6C* can increase Hb levels. Deworming can also be done in homoeopathy with *Cina, Teucrium Marum Varum, Calcarea carbonica*, etc. However, compared to modern medicine, the AYUSH healthcare facilities have problems in delivering services at the community level due to poor health administration support, inadequate infrastructure and support structures, and insufficient medicine supplies. If these are rectified, AYUSH systems' interventions could be effectively utilised at the community level along with the Anaemia Mukth Bharat strategy to reduce the prevalence rate of anaemia in target groups for a considerable time.

Conclusion: Successful and effective implementation of the ABM strategy may have the best results in achieving the target of reducing the prevalence of anaemia in India. Integration of AYUSH systems and modern medicine at the community level may be helpful in reducing the time required to reach the target of reducing the prevalence rate of anaemia in India.

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