



# Mahua Laddoo as a Traditional Nutritional Intervention for Women's Health and NCD Prevention in India

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## Abstract

Non-Communicable Diseases (NCDs) have surged to the forefront of India's public health concerns, contributing to a growing burden of illness and mortality. These conditions, encompassing diabetes, hypertension, and cardiovascular diseases, affect a substantial portion of the population, with staggering numbers. In 2016, the proportion of deaths attributed to NCDs had risen to 61.8%, highlighting the gravity of the situation. Despite the Indian government's efforts to combat NCDs through initiatives like the Tertiary Care Cancer Centers (TCCC) Scheme and the NATIONAL PROGRAMME FOR PREVENTION & CONTROL OF CANCER, DIABETES, CARDIOVASCULAR DISEASES & STROKE (NPCDCS), the battle against NCDs remains an uphill struggle, particularly in rural and tribal areas. This research paper delves into a unique solution, exploring the nutritional treasure of Mahua, an indigenous plant. Through the creation of Mahua Laddoo, a culturally relevant and highly nutritious treat, we aim to empower women and address the NCD epidemic in India.

## Key Word:

Mahua Laddoo, Non-Communicable Diseases (NCDs), Women's Health, Traditional Indian Food, Nutrition and Health, Vitamin Deficiency, Rural and Tribal Communities, Nutrient-Rich Foods, Nutritional Interventions, Vitamin A, Vitamin B Complex, Vitamin C, Folate (Vitamin B9), Anemia Prevention, Immune Function, Bone Health, Sustainable Nutrition

## Introduction

Non-Communicable Diseases (NCDs), characterized by their chronic nature and lifestyle-related causes, have rapidly escalated in India. By 2016, they accounted for a substantial 61.8% of annual deaths, underscoring the urgent need for comprehensive strategies to combat these health challenges. Government initiatives, such as the TCCC Scheme and the NPCDCS, have been launched to counteract the rising tide of NCDs. These programs intend to bolster healthcare infrastructure and awareness, facilitate early detection, and improve access to treatment. However, their effectiveness, particularly in rural and tribal areas, is yet to yield the desired results. In these underserved regions, women are disproportionately affected, battling limited access to healthcare and inadequate nutrition.

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## Understanding the Problem:

Non-Communicable Diseases (NCDs) have cast a shadow over India's health landscape. In 2016, the burden of NCDs led to a shocking 61.8% of total deaths, signifying a monumental public health challenge. The prevalence of NCDs has soared, with alarming numbers of individuals being diagnosed with conditions like diabetes, hypertension, and cardiovascular

diseases. Women, especially those residing in rural and tribal areas, bear a disproportionate share of this burden due to a variety of factors, including limited healthcare access and inadequate nutrition.

While the numbers are daunting, the root causes of this crisis are multifaceted. Factors such as urbanization, changes in lifestyle, and dietary habits have significantly contributed to the surge in NCDs. Furthermore, lack of awareness and preventive measures, especially in rural and tribal communities, has exacerbated the problem. This section aims to delve deep into the understanding of the NCD epidemic in India, exploring its prevalence, causes, and its disproportionate impact on women.

### Government Initiatives and Challenges:

The Indian government has recognized the gravity of the NCD situation and responded with initiatives like the TCCC Scheme and the NPCDCS. These programs are designed to provide specialized care, enhance infrastructure, and raise awareness about NCDs. While they hold promise, their implementation in rural and tribal areas presents challenges. Access to healthcare facilities remains limited, preventing early diagnosis and effective treatment. In these underserved regions, the impact of government initiatives has not reached its full potential.

Despite the efforts to combat NCDs, there are hurdles to overcome. Limited resources, inadequate infrastructure, and disparities in healthcare access continue to hinder the success of these government programs. Additionally, there is a need for culturally sensitive approaches to reach and empower women in these areas, which is where Mahua Ladoo comes into play. This section will delve into both the promising government initiatives and the challenges that hinder their success.

### Mahua- A Nutritional Treasure for Health:

Understanding the potential impact of Mahua in combating Non-Communicable Diseases (NCDs) begins with recognizing its nutritional significance. Mahua (*Madhuca longifolia*), an indigenous tree commonly found in India, is a treasure trove of essential nutrients. The plant is rich in vital components, including vitamins, minerals, proteins, alkaloids, and phenolic compounds, making it a valuable resource for improving nutrition and overall health.

Mahua's nutritional profile includes essential minerals such as calcium, phosphorus, iron, potassium, sodium, and magnesium. Additionally, it contains vitamins like thiamin, riboflavin, niacin, folic acid, and ascorbic acid. These nutrients play a critical role in supporting overall health and well-being. By harnessing the nutritional potential of Mahua, we can create a powerful tool to address the dietary deficiencies that contribute to the prevalence of NCDs.

The indigenous knowledge and traditional use of Mahua extend beyond its nutritional value. Mahua has been employed as an herbal remedy for various ailments, showcasing its therapeutic potential. Studies have explored its antibacterial, anticancer, hepatoprotective, antiulcer, antihyperglycemic, and analgesic properties, indicating its diverse health benefits. Mahua's comprehensive nutritional and medicinal properties make it an ideal candidate for addressing the NCD crisis, particularly in rural and tribal areas.



Image1: Mahua Flower





Image2: Dried Mahua Flower



Image3: Advantage of Dried Mahua Flower

### Mahua Ladoo- A Cultural and Nutritious Intervention:

In response to the growing NCD crisis in India, particularly in rural and tribal areas, the concept of Mahua Ladoo emerges as a culturally relevant and highly nutritious solution. Mahua Ladoo is a delightful and nutrient-rich treat that holds the potential to empower women and enhance their dietary intake.

Mahua Ladoo is more than just a snack; it is a symbol of nutritional empowerment. By incorporating Mahua, a locally available and culturally significant resource, into this delicious treat, we not only address the dietary deficiencies prevalent in these communities but also strengthen their cultural identity. This approach aligns with the sustainable development goals of rural India, as it fosters self-sufficiency and self-reliance.

The introduction of Mahua Ladoo into the diet of women in rural and tribal areas presents an opportunity to significantly enhance their nutrition and overall well-being. It not only provides essential nutrients but also bridges the gap between traditional practices and modern nutrition. By empowering women through the production and consumption of Mahua Ladoo, we hope to reduce their vulnerability to NCDs and create a sustainable, culturally relevant solution to address this pressing health challenge.



Image4: Mahua Laddoos

Research Through Innovation

Vitamin in Mahua Ladoo	Diseases it Can Prevent or Fight	Advantages	Vitamin Deficiency	Non-Communicable Disease (NCD)	Effects
<b>Vitamin A</b>	Vision problems, infections	Supports eye health, boosts the immune system	<b>Vitamin A</b>	Night Blindness, Xerophthalmia	Vision impairment, weakened immune system
<b>Vitamin B Complex</b>	Anemia, nerve disorders, dermatitis	Supports energy metabolism, nerve function	<b>Vitamin D</b>	Osteoporosis, Rickets	Weakened bones, muscle weakness

<b>Vitamin C</b>	Scurvy, weak immunity	Boosts the immune system, aids in collagen production	<b>Vitamin E</b>	Neuromuscular problems, Anemia	Nerve damage, reduced red blood cell count
<b>Vitamin D</b>	Osteoporosis, weak bones	Supports bone health and overall well-being	<b>Vitamin K</b>	Hemorrhages, Osteoporosis	Excessive bleeding, weakened bones
<b>Vitamin E</b>	Neurological issues, anemia	Acts as an antioxidant, supports red blood cells	<b>Vitamin C</b>	Scurvy	Bleeding gums, skin problems
<b>Vitamin K</b>	Bleeding disorders, bone health	Aids in blood clotting, supports bone strength	<b>Vitamin B1 (Thiamine)</b>	Beriberi	Nervous system damage, muscle weakness
<b>Folate (Vitamin B9)</b>	Neural tube defects, anemia	Important for fetal development, red blood cell production	<b>Vitamin B2 (Riboflavin)</b>	Ariboflavinosis	Skin disorders, sore throat, red eyes

### Empowering Women Through Mahua Ladoo Production:

The production of Mahua Ladoo can serve as a transformative initiative, particularly for women in rural and tribal areas. It offers economic opportunities, empowers women through skill development, and promotes self-reliance. This section explores the socio-economic and cultural aspects of Mahua Ladoo production, highlighting its potential to uplift and empower women in these communities.

Mahua Ladoo production can generate income and enhance the economic well-being of women, contributing to their financial independence. Furthermore, it fosters skill development and entrepreneurship, as women are actively involved in the process of creating this nutritious snack. This not only provides them with a source of livelihood but also instills a sense of ownership and agency.

In addition to the economic benefits, Mahua Ladoo production preserves and celebrates traditional knowledge and practices. It reinforces cultural identity and strengthens the connection between communities and their natural resources. By integrating women into the production of Mahua Ladoo, we aim to create a holistic and sustainable solution that addresses the NCD crisis while promoting empowerment and cultural preservation.

### Conclusion and Future Prospects:

In conclusion, Mahua Ladoo presents a unique and promising approach to tackling Non-Communicable Diseases (NCDs) in India, particularly in rural and tribal areas. By harnessing the nutritional value of Mahua and involving women in its production, we have the potential to improve the health and well-being of these communities while preserving their cultural identity.

The government's initiatives to combat NCDs have laid the groundwork, but the challenges persist, especially in underserved regions. Mahua Ladoo complements these efforts by offering a culturally relevant, nutritionally rich, and economically empowering solution. This holistic approach not only addresses the dietary deficiencies contributing to NCDs but also promotes self-reliance and preserves traditional knowledge.

As we move forward, further research and implementation of Mahua Ladoo can be a beacon of hope in the fight against NCDs. The collaboration between government initiatives and community-based interventions like Mahua Ladoo can pave the way for a healthier and more empowered India, particularly for its women in rural and tribal areas.

### Perspectives and Implications:

#### Perspective of Rural & Tribal Women:

From the viewpoint of rural and tribal women, the introduction of Mahua Ladoo into their daily lives brings about a transformation. It empowers them both economically and nutritionally. They see Mahua Ladoo not only as a nutritious snack but as a source of income, skill development, and a symbol of cultural preservation. This initiative gives them a

sense of self-reliance and a newfound appreciation for their traditional knowledge and practices. By actively participating in Mahua Ladoo production, they feel a stronger connection to their heritage and, most importantly, a healthier future.

#### Perspective of Government Authorities:

For government authorities, the Mahua Ladoo initiative complements their efforts to combat Non-Communicable Diseases (NCDs). It addresses the limitations of previous policies, especially in underserved rural and tribal areas. By supporting and scaling up the production of Mahua Ladoo, government authorities can bridge the nutrition gap and promote self-reliance in these communities. This not only aligns with their health and well-being objectives but also strengthens the cultural identity of these regions.

#### Perspective of Local Authorities:

Local authorities play a crucial role in facilitating the production and distribution of Mahua Ladoo. They act as intermediaries between the government and the community, ensuring that the initiative reaches its full potential. Local authorities can enhance the effectiveness of this program by providing necessary resources, infrastructure, and regulatory support. They are pivotal in creating an enabling environment for Mahua Ladoo production to thrive.

#### Perspective of Global Health Authorities:

From the perspective of global health authorities, the Mahua Ladoo initiative serves as a model for addressing NCDs in resource-constrained settings. It demonstrates the potential of utilizing local resources, preserving cultural heritage, and empowering communities to improve health outcomes. Global health authorities can learn from this community-based approach and apply similar strategies in other regions facing NCD challenges.

#### Perspective of Corporates:

Corporates can play a significant role in supporting the Mahua Ladoo initiative. By partnering with local communities, they can contribute to the production and marketing of Mahua Ladoo. This not only fulfills their corporate social responsibility but also opens up new markets for a nutritious and culturally significant product. Corporates have the opportunity to be part of a transformative initiative that addresses both health and socio-economic challenges.

**Mrs. Yogita Apte (CSR Head at Persistent Systems):** I find the Mahua Ladoo initiative inspiring. It not only addresses Non-Communicable Diseases (NCDs) but also empowers rural and tribal women economically and culturally. This holistic approach offers an opportunity to support a transformative initiative that improves health outcomes and fosters socio-economic development. By partnering with local communities in the production and marketing of Mahua Ladoo, is contributing to a healthier, more empowered community while creating new markets for nutritious and culturally significant products. It's a win-win for both business and social impact.

**Mr. Prasanna Karandikar (Hub Director India at Imerys Groups):** Human value has the highest regard when it comes to tackling various enviro-socio challenges of society. Govt has been tackling malnutrition and the associated illnesses by doing various programs but more often than not the program gets impeded due to lack of active participation from the affected and the implementer. A Program that resolves this issue is very hard to find for corporates who have funds but lack the resources to get to that project. This initiative can be implemented across all states and many more corporate can get associated and the issue of Malnutrition and NCD can be successfully reduced significantly.

**Mr. Prabhanja Gondhalekar (CSR Team at TATA Advance Systems Limited):** Nowadays many Companies are incurring their CSR funds to Recuperate the overall health of the society. The research of Mahua Laddoo's or we can say the invention of Mahua Laddoo's will change the entire picture of the health-related issues prevalent in various villages in India. It is an important milestone achievement by TREEI Foundation & VTXE Ekalavya Private Limited by inventing Mahua Laddoo as it will significantly contribute to protecting and improving the health of socially deprived people. The most unique quality of Mahua Laddoo is that it is completely prepared from natural resources without any side effects on the human body.

**Mr. Abhijit Patil (Director, Admin & Facility at Netcracker Technology Solutions India Pvt. Ltd):** The idea of having a laddoo made out of a locally available herb/ plant is amazing. This is culturally and medically really useful. As I have read about the plant (after going through the paper), I understand that this has been a very useful plant in tribal communities for ages. With idea of making it available for everyone makes it best opportunity for government to look into this and scale it. This will ease the stress and pressure of the existing agencies you make nutrition available. Also, this eyes on making employment available in tribal and rural areas. This will strengthen the economy as well as empower women.



### Perspective of the Community:

The community as a whole benefits from Mahua Ladoo production. It offers an opportunity for community members to come together, preserve their cultural heritage, and improve their health. The initiative can strengthen community bonds and create a sense of collective purpose. By supporting Mahua Ladoo, the community can take charge of its well-being and contribute to the reduction of NCDs.

### Conclusion and Future Prospects:

In conclusion, the introduction of Mahua Ladoo into the lives of rural and tribal women signifies a holistic approach to combating Non-Communicable Diseases (NCDs) in India. This initiative empowers women economically, improves their nutrition, preserves cultural heritage, and contributes to their overall well-being. It is a solution that resonates with the community, government authorities, local authorities, global health authorities, corporates, and, most importantly, the rural and tribal women themselves.

From the community perspective, Mahua Ladoo represents a bridge between tradition and modernity, providing a pathway to better health and cultural preservation. Government authorities can leverage this initiative to strengthen their efforts in underserved areas, while local authorities play a vital role in enabling its success. Global health authorities can draw inspiration from this community-based approach, and corporates have an opportunity to support a transformative initiative.

The future prospects of Mahua Ladoo are promising. As we continue to scale up its production and distribution, we move one step closer to reducing NCDs and improving the lives of rural and tribal women. The collaborative efforts of all stakeholders involved hold the potential to create a healthier and more empowered India, setting an example for addressing NCDs in other resource-constrained settings worldwide.

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