

RSSDI white paper on diabetes: current status, challenges, and future vision

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Accepted: 3 April 2025 / Published online: 3 June 2025

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Executive summary

India is currently facing a diabetes epidemic. Recent data from the ICMR-INDIAB study estimates that over 101 million Indians live with diabetes, with an additional 136 million in the prediabetes stage. There is significant variation in diabetes prevalence across states, with rural areas catching up to urban rates. This white paper explores the current landscape of diabetes care in India, highlights key challenges, and presents strategies to improve prevention, management, and outcomes. RSSDI is dedicated to working with national and international organizations to combat this growing health crisis.

Keywords Diabetes · ICMR-INDIAB study · RSSDI

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Introduction to diabetes in India

Current status

India's diabetes prevalence is among the highest globally, largely due to urbanization, lifestyle changes, and genetic predisposition. According to the ICMR-INDIAB study:

- **Overall diabetes prevalence:** 11.4% nationally, with urban prevalence at 14.2% and rural prevalence at 8.3%.
- **Prediabetes prevalence:** 15.3%, highlighting a large at-risk population.
- **Regional disparities:** States like Punjab report high prevalence rates (19.0%), while rural states show rising rates, reflecting increasing diabetes spread into under-served areas.

Future vision

RSSDI advocates for tailored interventions in high-prevalence areas and preventive measures for those at risk, focusing on reducing the progression from prediabetes to diabetes.

Challenges in diabetes treatment delivery in India

Current challenges

- **Limited access to healthcare in rural areas:** A significant portion of India's population lives in rural areas, where diabetes care resources and specialists are limited.
- **Awareness and health literacy:** Only 43.2% of the Indian population is aware of diabetes, with rural awareness much lower than urban.
- **Financial burden and limited insurance coverage:** Diabetes care costs can consume up to 25% of a household's income, impacting adherence and access to medications.
- **High rates of non-adherence:** Studies report that over 50% of patients with diabetes do not adhere to prescribed treatment, especially in rural settings.
- **Cultural and dietary influences:** Traditional high-carbohydrate diets and regional culinary habits challenge effective glucose management.

Proposed solutions

- **Telemedicine and mobile clinics:** Expanding telemedicine services and deploying mobile health units can bridge gaps in rural areas.
- **Education programs:** Collaborating with local organizations to promote awareness using culturally relevant materials.
- **Insurance and subsidies:** Advocating for policy changes to provide diabetes care under national insurance schemes, reducing the financial burden on families.
- **Follow-up programs:** Community health workers can support treatment adherence by following up with patients regularly.
- **Culturally adapted diet plans:** Develop dietary guidelines that account for regional food preferences and lifestyle, encouraging sustainable dietary changes.

Prevention of diabetes

Current status

Preventing diabetes in India faces challenges due to limited awareness, inconsistent screening, and insufficient resources for lifestyle modification, especially in rural areas. While some preventive measures are in place, there is minimal focus on *primordial prevention*—addressing root causes before risk factors develop. As a result, opportunities to intervene early and prevent progression to diabetes are often missed.

Future vision from RSSDI

RSSDI envisions a dual prevention approach that combines *primordial prevention* with *primary preventive measures* targeting high-risk groups and prediabetes.

Primordial prevention: addressing root causes

- **Promoting healthy lifestyles early:** Integrating lifestyle education in schools and advocating for healthier food options in communities to reduce diabetes risk from a young age.
- **Community and workplace wellness:** Encouraging physical activity spaces, healthy meal options, and wellness programs across communities and workplaces.
- **Policy advocacy:** Supporting government policies for food labeling, reduced sugar in processed foods, and taxation on sugary beverages.

Primary prevention: targeting high-risk groups

- **Screening and early detection:** Expanding screenings, especially in high-risk and underserved areas, for early identification of at-risk individuals.
- **Lifestyle intervention programs:** Providing accessible community programs focusing on diet, exercise, and behavioral support tailored to local cultures.
- **Insurance coverage for prevention:** Advocating for insurance plans that cover screenings, preventive counseling, and lifestyle programs.
- **Data collection for targeted interventions:** Establishing a national registry to inform and refine prevention strategies based on lifestyle and genetic data.

RSSDI's dual approach addresses diabetes from its roots, aiming to establish a proactive culture of diabetes prevention across India.

Obesity in India: a growing challenge in diabetes prevention

Current status and statistics

Obesity has reached critical levels in India, contributing significantly to the rising prevalence of diabetes. The ICMR-INDIAB study estimates a national prevalence of generalized obesity (BMI ≥ 25 kg/m²) at 28.6% and abdominal obesity at 39.5%. Similarly, the NFHS- 5 survey indicates that 23% of women and 20% of men are overweight or obese, with higher rates in urban areas. Women, especially in urban areas, exhibit higher obesity rates, placing them at greater risk of diabetes. Additionally, childhood obesity is increasing, heightening the risk of early-onset diabetes and other metabolic diseases in India's youth.

Key challenges

- **Dietary habits:** High-calorie, carbohydrate-rich diets and increasing consumption of processed foods are major contributors to obesity.
- **Sedentary lifestyles:** Urbanization has led to a decline in physical activity, with limited access to safe, exercise-friendly environments.
- **Healthcare access and education:** Awareness and resources for weight management remain limited, especially in rural regions, where structured programs are often unavailable.

RSSDI's strategic actions

- **Public awareness:** Launching campaigns to educate the public on the health risks of obesity and promote balanced diets and regular physical activity.
- **Schools and workplaces:** Implementing programs to instill healthy habits among children and adults, aiming to reduce obesity from an early age.
- **Future vision:** RSSDI aims to tackle obesity-related diabetes risk through continuous advocacy, public education, and collaborative interventions, building toward a healthier India and aligning with global health standards.
- **Community outreach:** Delivering localized health programs focused on nutrition and physical activity, particularly in underserved areas, to promote sustainable lifestyle changes.

Addressing prediabetes and gestational diabetes mellitus (GDM) and Type 1 diabetes (T1D)

Current status

- **Prediabetes:** Approximately 15.3% of Indian adults have prediabetes, placing them at high risk for progression to diabetes if not managed.
- **Gestational diabetes mellitus (GDM):** The prevalence of GDM is around 29.3%, posing significant long-term health risks for both mothers and children.
- **Type 1 diabetes (T1D):** The prevalence of T1D is over 950,000 persons, with another 970,000 “missing” persons and 45 healthy years of life lost per person, reflecting high mortality and morbidity rates.

Future vision

RSSDI advocates for widespread screening for prediabetes and GDM, combined with lifestyle intervention programs. For GDM, postpartum follow-up and ongoing education are essential to prevent type 2 diabetes in mothers. T1D requires widespread awareness to enable early diagnosis, prevent death before diagnosis, and intensive diabetes care and diabetes education to reduce death as well as acute and chronic complications.

Increasing awareness and reducing treatment inertia

Current status

Studies reveal low levels of diabetes awareness, particularly regarding complications and treatment benefits, which contribute to high levels of treatment inertia and delayed diagnosis.

Future vision

RSSDI plans to implement a nationwide awareness campaign targeting early diagnosis and consistent treatment adherence. Partnering with local institutions can help establish a proactive health culture focused on preventive care.

Improving treatment outcomes

Current status

Only 30% of Indian patients achieve the recommended HbA1c target of < 7%, and more than 50% have poorly controlled diabetes, indicated by HbA1c levels over 8%.

Future vision

RSSDI will establish programs to improve HbA1c monitoring and promote lifestyle changes, specifically addressing treatment adherence and outcomes for gestational diabetes to ensure better health for mothers and children.

Preventing complications

Current status

High rates of diabetes-related complications, including neuropathy and retinopathy, are prevalent in India. The Global Burden of Disease Study highlights diabetes as a major contributor to complications, impacting cardiovascular, renal, and neurological health.

Future vision

RSSDI will advocate for a national screening program for diabetes complications, including eye and foot care programs. Training healthcare providers and educating

patients on preventive measures will reduce the prevalence of severe complications.

Reducing the economic burden of diabetes

Current status

India's diabetes epidemic imposes a substantial economic burden. By 2030, the annual cost of diabetes management is projected to reach \$12.8 billion.

Future vision

RSSDI calls for increased subsidies for diabetes medications and devices, as well as expanded insurance coverage. A reduction in out-of-pocket expenses can alleviate the financial strain on families.

Recommendations to the government of India

Current status

India lacks a unified national diabetes policy. The National NCD Monitoring Survey and ICMR-INDIAB study stresses the need for a coordinated approach.

Future vision

RSSDI proposes a comprehensive national strategy, including mandatory screening and increased insurance coverage for diabetes. Emphasizing support for rural healthcare providers and diabetes education will be crucial for sustainable care.

Role of RSSDI in diabetes management and global engagement

Current status

RSSDI has spearheaded diabetes care initiatives within India but has limited international partnerships. Collaborating with global organizations such as the International Diabetes Federation (IDF) is essential for knowledge exchange and resource sharing.

Future vision

RSSDI aims to establish itself as an active global partner in diabetes care, sharing India-specific insights and learning

from international best practices. Global collaborations will strengthen RSSDI's ability to contribute to the worldwide fight against diabetes.

Future directions and call to action

Current status

India's diabetes epidemic requires urgent, coordinated intervention across healthcare, government, and community sectors to prevent further escalation and strain on healthcare resources.

Future vision

RSSDI envisions a holistic, integrated approach to diabetes care that actively engages stakeholders across various sectors. By World Diabetes Day next year, RSSDI aims to establish measurable goals focused on diabetes prevention, treatment adherence, and improved outcomes across India. Through partnerships, policy advocacy, and innovative care models, RSSDI is committed to transforming the future of diabetes care in India.

RSSDI's strategic priorities in this vision include:

1. **Expanding access to care:** Leveraging mobile health units and telemedicine to reach underserved areas.
2. **Raising public awareness:** Implementing nationwide campaigns to educate the population about diabetes risks, preventive measures, and treatment options.
3. **Enhancing research and data collection:** Establishing a diabetes registry to improve understanding of trends, treatment efficacy, and patient outcomes across diverse populations.
4. **Strengthening partnerships:** Collaborating with national and global health organizations, including the International Diabetes Federation (IDF), to share best practices, resources, and research advancements.
5. **Policy advocacy for comprehensive care:** Working with the government to develop policies that include diabetes care within insurance schemes, subsidize preventive and therapeutic options, and support rural healthcare.

Advances in technology and data generation

Current status

India's adoption of diabetes management technology lags behind Western countries. The ICMR-INDIAB study

stresses the importance of collecting India-specific data on diabetes trends to inform targeted interventions.

Future vision

RSSDI aims to partner with technology providers to roll out telemedicine, mobile applications, and AI-driven health monitoring. Additionally, a national diabetes registry will help track and optimize treatment strategies.

Closing remarks

The theme of this year's World Diabetes Day, as set by the International Diabetes Federation (IDF), emphasizes the need for accessible and equitable diabetes care. RSSDI aligns closely with this theme and intends to work with IDF to create impactful, inclusive solutions for diabetes prevention and management in India. Through mutual collaboration, RSSDI and IDF aim to bring global insights to the Indian context and, conversely, share India's approaches and innovations in diabetes care with the world. Together, these efforts will strengthen the global response to diabetes and improve the lives of millions affected by this condition.

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