

# Challenges in Type 1 Diabetes Management in India Compared to Singapore

Dear Editor,

We are writing to discuss the findings from the study “Type 1 Diabetes in Singapore: Self-Care Challenges, Diabetes Technology Awareness, Current Use, and Satisfaction,”<sup>[1]</sup> and to highlight the differences in India based on these insights.

The Singapore study reveals several key points:

- **Self-Care Challenges:** Carbohydrate counting and insulin dose calculations were the most challenging tasks.
- **Technology Awareness and Use:** Despite high awareness of continuous glucose monitoring (CGM) devices, their use remained low due to financial barriers and limited availability.
- **Financial Barriers:** The lack of reimbursement schemes for diabetes technologies in Singapore leads to out-of-pocket expenses.
- **Parental Burden:** Parents often woke up at night to manage their child’s diabetes.

## Comparative Analysis for India:

- **Stigma in India:** Diabetes stigma remains a significant barrier to effective disease management in India. Misconceptions and social stigma often lead to shame and secrecy, preventing individuals from seeking timely medical advice or openly managing their condition. Cultural beliefs further compound these issues by associating diabetes with personal failings.<sup>[2]</sup>
- **Diabetes Technology and Economic Constraints:** Economic disparity and the lack of universal healthcare coverage are major challenges. Many families cannot afford advanced diabetes technologies and rely on traditional methods like multiple daily injections and manual glucose monitoring. In the YDR cohort, only 23.5% of youth with T1DM were following a basal-bolus regimen, with just 1.5% using pumps, due to limited access to advanced diabetes management technologies. Financially, diabetes-related expenses can consume a significant portion of household income, with some families spending more than 50% of their earnings on diabetes care.<sup>[3,4]</sup> This financial burden exacerbates caregiving stress, as highlighted in an Indian study where 32% of caregivers reported a high subjective burden.<sup>[2]</sup>
- **Healthcare Infrastructure:** India faces significant challenges in delivering effective diabetes care due to its underdeveloped healthcare infrastructure, particularly in rural areas. A shortage of specialized diabetes centres, endocrinologists, and diabetes educators further complicates the adoption of advanced technologies.

- **Cultural and Dietary Differences:** India’s diverse dietary patterns pose difficulties in carbohydrate counting and insulin dose adjustments. The varying carbohydrate content of traditional foods, combined with a lack of accessible nutrition information, complicates effective diabetes management.
- **Education and Awareness:** There is an urgent need for improved education and awareness regarding diabetes management. Many patients and caregivers in India lack the necessary knowledge and skills to manage T1DM effectively.

## Recommendations for India:

1. **Implement Subsidy Programs:** Develop programs to make diabetes healthcare technology more affordable and accessible.
2. **Collaborate with Industry:** Partner with healthcare technology companies to reduce costs through bulk purchasing and negotiated pricing.
3. **Raise Awareness:** Launch nationwide campaigns to educate the public about the benefits of diabetes technologies.
4. **Enhance Healthcare Infrastructure:** Strengthen healthcare infrastructure, particularly in rural areas, by establishing specialized diabetes care centers and training healthcare professionals. Dedicated T1DM clinics could be set up in district hospitals following models proven effective, such as the West Bengal model.<sup>[5]</sup>
5. **Support Research and Innovation:** Invest in research to develop cost-effective, culturally appropriate diabetes management solutions.

In conclusion, while the Singapore study highlights challenges relevant to India, the economic and infrastructural limitations in India create a more complex situation. Addressing these issues through government support, improved healthcare infrastructure and educational initiatives could significantly enhance the quality of life for individuals with T1DM in India.

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## Conflicts of interest

There are no conflicts of interest.

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