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Ahmedabad declaration: A framework to combat growing epidemic of young-onset type 2 diabetes in Asia

Rakesh.M. Parikh[a,b,*], **Banshi Saboo**[c], **Anoop Misra**[d,e,f], **Abdul Basit**[g,h,i,j,k], **S.R. Aravind**[l,m], **Bishwajit Bhowmik**[n,o], **Peter Schwarz**[p,q,r,s], **Ketan Dhatariya**[t,u], **Kamlesh Khunti**[v,w,x], **Shashank Joshi**[y], **Sunil Gupta**[z], **Amit Gupta**[aa], **Manoj Chawla**[bb], **Sanjeev Phatak**[cc,dd,ee], **Sanjay Kalra**[ff,gg], **Azad Khan**[n,o,hh], **Viswanathan Mohan**[ii,jj], **Ahmedabad Declaration Committee Members**[1]

[a]Diabecity Clinic, Jaipur, India

[b]C K S Hospital, Jaipur, India

[c]Diacare Diabetes Care & Hormone Clinic, Ahmedabad, India

[d]Fortis C-DOC Center of Excellence for Diabetes, Metabolic Diseases and Endocrinology, New Delhi, India

[e]National Diabetes Obesity and Cholesterol Foundation, New Delhi, India

[f]Diabetes Foundation (India), New Delhi, India

[g]Indus Diabetes and Endocrinology Center, Indus Hospital and Health Network, Pakistan

[h]Diabetic Association of Pakistan, Pakistan

[i]Health Promotion Foundation, Pakistan

[j]Diabetes in Asia Study Group, Doha, Qatar

[k]Health Research Advisory Board, Pakistan

[l]Diacon Hospital, Bangalore, India

[m]Research Trust of Diabetes India, Ahmedabad, India

[n]Centre for Global Health Research, Dhaka, Bangladesh

[o]Diabetic Association of Bangladesh, Dhaka, Bangladesh

[p]International Diabetes Federation (IDF), Avenue Herrmann-Debroux 54., B-1160, Brussels, Belgium

[*]Corresponding author. B9, Unnati Tower, Vidhyadhar Nagar, Jaipur, 302039, India, drrakeshparikh@gmail.com (Rakesh.M. Parikh).

[1]Names of the member appear at the end of the paper.

Disclosure

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[q]Department for Prevention and Care of Diabetes, Faculty of Medicine, Carl Gustav Carus at the Technische Universität/TU Dresden, Dresden, Germany

[r]Paul Langerhans Institute Dresden of Helmholtz Zentrum München at University Hospital and Faculty of Medicine, TU Dresden, 01307, Dresden, Germany

[s]German Center for Diabetes Research (DZD e.V.), Neuherberg, 85764, Germany

[t]Elsie Bertram Diabetes Centre, Norfolk & Norwich University Hospitals NHS Foundation Trust, Norwich, NR4 7UY, UK

[u]Norwich Medical School, University of East Anglia, Norwich, NR4 7TJ, UK

[v]Diabetes Research Centre, University of Leicester, Leicester, LE5 4PW, UK

[w]Leicester Real World Evidence Unit, Diabetes Research Centre, University of Leicester, Leicester, LE5 4PW, UK

[x]NIHR ARC East Midlands, University of Leicester, UK

[y]Department of Diabetology & Endocrinology, Lilavati Hospital and Research Centre, Mumbai, Maharashtra, India

[z]Sunil's Diabetes Care and Research Centre, Nagpur, India

[aa]Centre for Diabetes Care, Greater Noida, Uttar Pradesh, India

[bb]Lina Diabetes Care and Mumbai Diabetes Research Centre, Mumbai, India

[cc]Department of Diabetes and Metabolism, MARENGO CIMS Hospital, Ahmedabad, India

[dd]VIjayratna Diabetes Centre, Ahmedabad, India

[ee]J S Thakershy Hospital, Ahmedabad, India

[ff]Bharti Hospital, Karnal, Haryana, India

[gg]University Centre for Research and Development, Chandigarh University, Mohali, India

[hh]Department of Public Health, Bangladesh University of Health Sciences, Dhaka, Bangladesh

[ii]Madras Diabetes Research Foundation [ICMR- Collaborating Centre of Excellence (ICMR-CCoE)], India

[jj]Dr. Mohan's Diabetes Specialties Centre (IDF Centre of Excellence in Diabetes Care), Chennai, India

Abstract

Aim: Rising prevalence of Type 2 Diabetes (T2D) among young Asians has emerged as a public health crisis that threatens the long-term health, economic stability, and productivity of nations across Asia (1). Early-onset T2D poses unique challenges, including higher rates of undiagnosed cases, more aggressive disease progression, an increased risk of chronic complications and higher mortality (2). Hyperglycemia during the reproductive age especially among the female population can potentially have transgenerational impact through epigenetic changes.

Methods: A comprehensive search was conducted on PubMed with a combination of relevant keywords. A preliminary draft prepared after review of literature was electronically circulated among a panel of 64 experts from various parts of the region and representatives of the participating organizations - Diabetes India (www.diabetesindia.org.in) and the Diabetes Asia Study Group (DASG, www.da-sg.org).

Results: This Ahmedabad Declaration outlines the scale of the problem, its root causes, and a comprehensive action plan for Asian populations. The objectives of this declaration include raising awareness, addressing systemic barriers, and advocating for evidence-based policies and interventions, limited to people with T2D. Through collaborative efforts, we aim to mitigate the growing burden of diabetes in young Asians and secure a healthier future.

Keywords

Young-onset T2D; Asian; Obesity; Abdominal obesity; Prevention; Asians; South Asia

1. Background

T2D has become a leading cause of morbidity and mortality globally, with Asia bearing a disproportionate share of the disease burden. The prevalence of diabetes in the region has risen sharply, driven by rapid economic growth, urbanization, and lifestyle transitions [2]. A recently published report on worldwide trends in diabetes prevalence revealed that the largest increases were seen in low and middle-income countries in southeast Asia, south Asia, the Middle East and north Africa [3]. A recent systematic review and meta-analysis reported doubling of pooled prevalence from 11.3 % to 22.3 % over the last 2 decades in south Asia [1]. The Indian Council of Medical Research - INDia DIABetes (ICMR – INDIAB) study showed that India now has 101 million people with diabetes and 136 million people with prediabetes [4]. This study also revealed that T2D occurs at much younger ages in Indians [5]. In a case control study on multi-ethnic population in UK primary care, south Asians were found to develop diabetes at a significantly younger age and at lower BMI [6]. This trend of occurrence at an early age has significant implications, as it leads to a prolonged disease duration, greater risk of complications and substantial economic costs, and increased mortality [7]. Importantly, a recently published study by Emerging Risk Factor Collaboration has shown that every decade of earlier diagnosis of diabetes was associated with about 3–4 years of lower life expectancy [8] (see Tables 1 and 2).

The Ahmedabad Declaration serves as a call to action for policymakers, healthcare professionals, researchers, and the general public. By focusing on young-onset diabetes, this initiative aims to highlight the urgency of early diagnosis, aggressive treatment, and prevention strategies while addressing the systemic challenges that hinder progress. In this declaration, we briefly review key information on important areas concerning T2D in Asian populations (specifically for countries as mentioned previously), focusing on young populations, and then offer some directions for prevention and management.

2. Objectives of Ahmedabad declaration

The Ahmedabad Declaration includes four primary objectives:

1. Increasing awareness: Increase public understanding of the rising prevalence of young-onset diabetes and its implications for individuals and society.
2. Enhancing advocacy: Promote evidence-based policies to improve prevention, early diagnosis, and equitable access to care.
3. Fostering academic collaborations: Encourage multidisciplinary studies to explore the genetic, environmental, and social determinants of diabetes in young Asians.
4. Usage of appropriate clinical care: Ensure community oriented, culturally sensitive, person-centered delivery of diabetes care.

3. Methodology

A comprehensive search (from the year Jan 2000 to January 2025) was conducted on PubMed with combination of key words such as “type 2 diabetes”, “Diabetes in young”, “Young-onset diabetes”, “Obesity”, “Abdominal Obesity”, “Epidemiology”, “Asian”, “South Asian”, “Risk factors”, “Genetics”, “Epigenetic”, “Childhood obesity”, “Hyperglycemia in pregnancy”, and “Gestational diabetes”. Recent articles published in English language indexed journals were prioritized over older ones.

Using the insights from review of literature, a preliminary draft of the Ahmedabad Declaration was prepared. The draft was electronically circulated among a panel of 59 experts for review and feedback. Experts on the panel were selected based on their contributions to research, clinical care and health policy across various Asian countries (including India, China, Pakistan, Shri Lanka, Nepal, Bangladesh, Oman, Qatar, and United Arab Emirates) as well as representatives from the participating organizations - Diabetes India and DASG. In addition, experts from other countries with strong research and academic interest in diabetes in Asia and in particular south Asia were also invited. The final manuscript was prepared after incorporating feedback from all contributors. The process was collaborative ensuring all viewpoints are considered. The final draft of the Ahmedabad Declaration was unanimously approved by all contributing authors.

4. T2D in young Asians

A recently published study evaluating trends in prevalence of diabetes among adolescents and young adults from 2021 Global Disease Study data revealed that the burden was concentrated in countries with low Socio-Demographic Index, east Asia experiencing the fastest rise in age standardized prevalence rates [9], with high BMI and high FPG emerging as the leading risks [10]. In another multicounty aggregate data analysis of high-income countries, it was found that the magnitude of increase in incidence of T2D among individuals between 15 and 39 years of age was greater in Asians than in non-Asians [11]. The Joint Asia Diabetes Evaluation (JADE) cohort reported that in clinic-based settings across Asia, every fifth adult patient had T2D at < 40 years of age [12]. Analysis of real-world data from Xiamen, China revealed that the incidence and prevalence of T2D increased significantly in individuals between 18 and 29 years of age between 2014 and 2019 [13]. Importantly, an ancillary analysis of the Secular TRends in DiabEtes in India

(STRiDE - I) study also reported 120 % rise in incidence of T2DM among young Indians (20–39 years of age) [14]. Several other studies from India have revealed a similar increase in prevalence of early onset T2D in India [15–18].

With the rising prevalence of T2D in young, the prevalence of hyperglycemia during pregnancy is also increasing, although the prevalence reported varies from study to study based on diagnostic criteria used. A recent study published by IDF Diabetes Atlas Committee Hyperglycemia in Pregnancy Special Interest Group reported high prevalence of 20.8 % and 27.6 % in Southeast Asia and Middle East and North Africa (MENA) region respectively as against global prevalence of 14 % [19].

5. Causes of rising prevalence of T2D in young Asians

The increasing incidence of young-onset T2D is influenced by a complex interplay of genetic, epigenetic, and environmental factors. Understanding these contributors is essential for developing targeted prevention and management strategies. These causes are briefly discussed below.

6. Obesity and abdominal obesity

Obesity, particularly abdominal obesity [20], is a significant risk factor for T2D. South Asians have higher body fat and lower skeletal muscle mass at the same or lower BMI compared to Caucasians described as thin-fat phenotype [21,22,37,38]. Additionally, excess abdominal obesity and increased hepatic fat predisposes them to development of T2D [23]. Primacy of abdominal obesity in defining risk due to obesity worldwide and Asian Indians have been recently emphasized [23,24].

A recently published systematic review and meta-analysis evaluated trends in prevalence of obesity among the young Asian population reported significant association between obesity prevalence and publication year [25]. Rising prevalence of childhood obesity in this population further adds to the number of people at risk of developing diabetes at a young age [26,27]. Another systematic review reported high prevalence of obesity in both children and adolescents throughout Asian countries [28].

7. Environmental factors

Factors like increased consumption of a calorie-dense diet (nutrition transition) [29], reduced physical activity [30], increased screen time, stress, depression and disturbed sleep have long been known to increase the risk of development of obesity and T2D [2,31]. Prospective Urban Rural Epidemiology (PURE) study concluded that higher consumption of white rice is associated with increased risk of T2D, the association being most marked in south Asia [32]. Rapid urbanization along with these lifestyle changes contribute significantly to the rising prevalence of obesity and T2DM among young individuals in this region [33]. A systematic review of 28 studies from Asia identified five broad categories of built environment characteristics being associated with T2DM in Asia. These included urban green space, walkability, food environment, availability and accessibility of services such as recreational and healthcare facilities and air pollution [34].

Factors such as socioeconomic status, education level, and access to healthcare play a crucial role in escalation of incidence and prevalence of T2D. Limited access to healthy foods, lack of safe environments for physical activity, and inadequate healthcare resources exacerbate the risk, particularly in low-income communities. Recently several studies on social determinants of health have also identified factors like socioeconomic status, income, education, employment etc. as strong predictors of development of T2D [35,36].

It is rational to state that the factors discussed above are of prime importance for increased incidence and prevalence of T2D and related diseases in south Asia and override the importance of genetic factors.

8. Genetic factors

Genetic association studies have identified over 700 T2D risk loci implicating many genes in the pathogenesis [37]. Although causal variants have been identified for only a small fraction of the loci identified by genome-wide association studies and a substantial proportion of disease heritability remains unexplained [38]. A review of studies that explored marker-trait association with T2D globally, with emphasis on India, reported that single nucleotide polymorphisms (SNPs) rs7903146 of Transcription Factor 7-like 2 (*TCF7L2)* was common globally, though there were alleles that were unique to specific populations. The findings from India showcased the common and unique alleles for each region [39]. Several T2D risk alleles like *TCF7L2*, *SCL16A11, ABCA1* have been found to be associated with young-onset T2D [40]. A recently published study comparing two cohorts of Asian Indians and one cohort of white Europeans concluded that the young-onset diabetes in Asian Indians is associated with lower measured and genetically determined beta cell function [41].

9. Poor perinatal nutrition and epigenetics

According to the developmental origins of the health and disease (DOHaD) hypothesis, epigenetic adaptations are made to the fetal DNA in response to environmental influences [42]. Epigenetic modifications resulting from maternal under-nutrition and hyperglycemia during pregnancy can predispose offspring to development of obesity and T2D in adult life [43]. Transgenerational impact of these epigenetic changes might be contributing to the ongoing pandemic of T2D in the Asian region [44].

10. Implications of rising prevalence of T2D in young Asians

The rising prevalence of young-onset T2D presents a multifaceted public health challenge with far-reaching implications. Beyond its immediate impact, the condition contributes to significant chronic complications, transgenerational effects, and a sustained burden on healthcare systems and societies.

11. Long-term burden of chronic complications

Young-onset diabetes is associated with an extended disease duration, leading to an increased risk of early-onset micro and macrovascular complications [45]. In Treatment Options for type 2 Diabetes in Adolescent and Youth (TODAY, multicenter prospective

clinical trial from 2004 to 2011) study individuals between 10 and 17 years of age were found to have a high prevalence of diabetic retinopathy [46], diabetic peripheral neuropathy [47] and diabetic kidney disease [48]. Importantly, these complications increased steadily over time and affected most participants by the time of young adulthood. Several other studies have also reported increased risk of complications and early mortality in individuals with young-onset T2D [49–51]. In a study comparing clinical outcome and predictors for cardiovascular-renal events among young (younger that 40 years of age) and late onset diabetes (at the age of 60 years or above), Chinese individuals with young-onset diabetes were found to have a similar or worse risk profile despite 20 years of difference in age [52]. In a population based retrospective cohort study including 111,621 Japanese men, individuals in the younger age group (31–40 years) were found to have 17-fold higher risk of CVD as against 2.74 times among those between 41 and 50 years [53].

12. Hyperglycemia in pregnancy

With the increasing prevalence of T2D in young women, prevalence of hyperglycemia in pregnancy (preexisting T2D and Gestational Diabetes Mellitus) is increasing in south Asia [54–57]. Several studies have reported a prevalence of GDM in south Asian women [58], especially among women born in south Asian countries [59]. Women with pre-existing diabetes, prediabetes, GDM or early GDM (eGDM) are at increased risk of adverse pregnancy outcomes, including preterm birth, macrosomia, neonatal hypoglycemia and perinatal death. In the TODAY study group, young women with pregestational, young-onset T2D had very high rates of maternal complications stemming from significant socioeconomic disadvantage [60]. Women developing glucose tolerance in early pregnancy before development of placenta are now identified as having eGDM [61] and have been found to have worse pregnancy outcomes despite early treatment [62]. In the Treatment of Booking Gestational Diabetes Mellitus (TOBOGM) trial women from South Asian and East and South-East Asian origin were found to have the highest prevalence of eGDM [63].

13. Epigenetic influence on offspring & transgenerational impact

The DOHaD model (discussed earlier) proposes that susceptibility to T2D originates in intrauterine life by fetal programming further exacerbated by rapid child growth [64]. Maternal hyperglycemia induces epigenetic changes in the fetus, predisposing the child to insulin resistance, obesity, and diabetes in later life [65]. Paternal phenotype and lifestyle can also affect the long-term health of offspring through sperm or seminal plasma [66]. These epigenetic changes affecting the germ cells can potentially have transgenerational impact in future generations [67].

14. Challenges for healthcare systems

The rising prevalence of young-onset T2D and its chronic complications is poised to overwhelm healthcare systems, particularly in resource-limited settings [68–70]. The chronic nature of the disease requires lifelong management, including regular monitoring, pharmacological treatment, and management of complications. Complications such as

diabetic foot ulcers, cardiac events and end-stage renal disease demand specialized care, which places an additional burden on healthcare infrastructure.

15. Socioeconomic and psychological consequences

Diabetes in young individuals leads to a significant reduction in productive years, impairing educational attainment, career progression, and earning potential. This socioeconomic burden is compounded by the high cost of managing diabetes and its complications, which often leads to financial distress for individuals and families. A study using data from National Sample Survey on Health reported 38 % of Indian households with diabetic members experienced catastrophic health expenditure and approximately 10 % were pushed below poverty line because of out-ofpocket expenses. In addition, poorer patients suffer a high financial burden from diabetes, highlighting the need for enhancing equity in diabetes care [71,72]. Individuals with young-onset T2D are also known to have higher rates of anxiety, depression and stress [73].

Addressing these interlinked issues is imperative to mitigate the long-term burden of young-onset diabetes on individuals, families, and societies. A comprehensive and coordinated approach is critical to break this cycle and reduce its impact on future generations.

16. Challenges associated with young-onset T2D in Asia

Despite having several government programs like National Program for Prevention and Control of Non-Communicable Diseases (NP-NCD) in India [74], and Diabetes Prevention and Control Action in China, several barriers related to availability, accessibility, affordability and acceptability hinder the effective prevention and management of young-onset T2DM.

17. Delayed diagnosis

Many young individuals remain undiagnosed until complications arise due to lack of awareness and routine screening programs for this age group. Lack of awareness is not limited to the rural population, vulnerable groups such as those in middle and low socio-economic status residing in urban areas face the same challenge [75].

18. Healthcare disparities

Socioeconomic inequalities lead to significant gaps in access to diabetes care, particularly in rural and marginalized communities [70]. Current management guidelines are based on evidence generated from the older population with diabetes, as people with young-onset diabetes have been underrepresented in most of the clinical drug trials [76].

19. Cultural and behavioral factors

Cultural beliefs have been found to play an important role in attitude towards diabetes among people of south Asian origin [77]. Cultural norms in which overweight figures tend to project prosperity and well-being [78], lack of culturally sensitive exercise facilities and

sociocultural norms restricting outdoor physical activity have been reported as barriers to lifestyle intervention [79]. Several other factors like food and eating practices and fatalistic beliefs have been reported to be prevalent in the South Asian community [80]. Self-stigma associated with the diagnosis of T2D has been found to negatively impact activation for self-care, medication adherence and quality of life [81,82]. Recently concluded annual meeting of the Asian Association for the Study of Diabetes (AASD) culminated into the Ulaanbaatar agreement emphasizing on revising diabetes terminology in Asia to combat stigma [83].

Ironically people with young-onset T2D who need the aggressive risk factor management are found to have less adherent to antidiabetic [84], antihypertensive and lipid lowering medicines [85]. In the JADE program, Asians with young-onset T2DM were less likely to receive pharmacotherapy for diabetes, hypertension and dyslipidemia [12].

20. Recommendations

A coordinated, multi-sectoral strategy is essential to address the rising prevalence of young-onset diabetes. Several studies from the region have earlier established efficacy and cost-effectiveness of such interventions [86–88].

The following recommendations are categorized into actionable items for policymakers, healthcare systems, and community initiatives to ensure clarity and prevent duplication. Some of these recommendations are supported by evidence derived from these populations, while others are considered important but require further research to substantiate.

21. Policy recommendations

1. Promote Healthy Diets and Discourage Unhealthy Packaged/Ultra-processed Food
    - Implement taxes on sugary beverages and energy-dense, nutrientpoor packaged foods to discourage their consumption [89].
    - Ban the advertisement of unhealthy foods and beverages on platforms targeting children, such as television channels, websites, and apps frequented by young audiences [90].
    - Prohibit the sale of unhealthy packaged foods in school canteens and within a defined radius of school premises [70].
    - Decrease in consumption of refined carbohydrates which are high in glycemic index and to replace part of the carbohydrate with proteins, preferably from vegetable sources and healthy fats. This will also increase the fibre content of the diet [91].
    - Decrease trans fatty content in oils [92] and increase taxation of unhealthy oils [93].

- Incentivize the production, marketing, and consumption of healthy, nutrient-dense foods such as fresh fruits, vegetables, and whole grains [70].

2. Encourage Physical Activity
   - Introduce workplace policies that incentivize exercise, such as flexible schedules for physical activity and employer-sponsored gym memberships [70].
   - Mandate the integration of physical education and structured exercise programs in school curricula.
   - Develop urban planning policies that prioritize walking paths, cycling tracks, parks, and recreational spaces to encourage active living.
   - Reduce screen time in adolescents as this can increase physical inactivity [94].
   - Encourage novel methods of physical activity which are culturally appropriate like dance [95].
3. Strengthen Maternal and Child Health Programs
   - Integrate preconception and maternal health counselling into existing government programs, focusing on screening for and managing conditions like obesity, PCOS, and gestational diabetes.
   - Ensure availability of balanced nutrition programs for women of reproductive age, emphasizing micronutrients such as vitamin B_{12} and folate to prevent adverse outcomes in offspring [96].
   - Expand mandatory screening for gestational diabetes in pregnant women and provide targeted nutritional and medical interventions [97].

22. Healthcare systems

1. Expand Access to Early Diagnosis and Management
   - Scale up routine diabetes screening, especially for high-risk groups such as young adults, pregnant women, and individuals with obesity (as per ethnicity specific BMI cut-offs) or family histories of diabetes.
   - Universal screening should be recommended starting at the age of 25 years and even earlier among those with family history of diabetes [98].
   - Strengthen primary healthcare facilities to provide early interventions for prediabetes and metabolic risk factors and ensure availability of drugs.
   - Establish a sufficient number of specialized diabetes care centres to accommodate population needs for the management of chronic complications, including nephropathy, retinopathy, and diabetic foot.

- Regular training programs for healthcare professionals at ground level covering basics of diabetes management focusing on judicious use of available healthcare resources and evidence-based approach.

2. Adopt Digital Health Solutions

- Leverage telemedicine and mobile health apps to improve the accessibility of diabetes care, including glucose monitoring, patient education, and remote consultations [99].
- Use digital platforms to promote adherence to lifestyle interventions and provide behavioural support for young patients.

23. Community actions

1. Promote Public Awareness and Lifestyle Changes

- Launch community-wide campaigns to educate the public about the risks of unhealthy diets, sedentary behaviour, and obesity, emphasizing the importance of balanced nutrition, regular exercise, adequate sleep and reduced screen time.
- Dietary recommendations should be tailored for Asian phenotype such as reduction in intake of carbohydrates, preferential intake of complex carbohydrates and low glycemic index foods, higher intake of fibre, lower intake of saturated fats, optimal ratio of essential fatty acids, reduction in trans fatty acids, slightly higher protein intake, lower intake of salt and restricted intake of sugar [100,101].
- Organize local fitness events, walking groups, and community sports leagues to encourage physical activity [95].

2. Create Environments That Support Healthy Behaviours

- Develop facilities for physical activity in schools, workplaces, and neighbourhoods, including gymnasiums, walking tracks, and exercise parks [102,103].
- Promote stress management and mental well-being through mindfulness exercises, yoga and counselling, which may also help in prevention of diabetes [104].
- Collaborate with community leaders and resident welfare associations to advocate for the removal of junk food advertisements and outlets near schools.

3. Engage Families and Schools

- Provide educational sessions for parents and children on healthy eating, responsive feeding, and screen-time reduction to combat childhood obesity.

- Greater emphasis should be placed on education and physical exercise in schools, including the training for schoolteachers as health educators.
- The school health teacher, class teacher and mothers must be involved together in the health education of children which can be achieved during parent-teacher-student meetings.
- Promote growth monitoring using age and gender-specific growth charts, integrating this with school health programs to identify children at risk of obesity and intervene early.

24. Research directions

Investigate various interventions aimed at prevention and management of young-onset T2D [105].

- Evaluate self-screening methods like mobile apps and simple risk scores for early detection of T2D.
- Investigate the role of very low calorie diets and more aggressive exercises in prevention and remission of young-onset T2D.
- Study the glycemic and metabolic effects of locally prevalent foods, edible oils and other dietary components.
- Evaluate the role of various multimodal exercise protocols and yogic exercises in management of young-onset T2D.
- Investigate various regimens of anti hyperglycemic agents for their efficacy and sustainability in young-onset T2D aiming at phenotype based personalised medicine.
- Study the role of early initiation with drugs like statins, angiotensin converting enzyme inhibitors and angiotensin receptor blockers in preventing complications among people with young-onset T2D.
- Conduct longitudinal cohort studies to understand the genetic predispositions and epigenetic influences on diabetes in young Asians.
- Explore interventions targeting maternal health and fetal programming to disrupt the transgenerational cycle of diabetes.
- Setting up of objective parameters and goals: to assess impact of such an initiative on healthcare parameters on an intermediate and long-term basis.
- Assess the effectiveness of taxation, advertising bans, and incentivization programs on dietary behaviours and diabetes outcomes.
- Study the long-term effects of workplace and school-based physical activity programs on reducing obesity and metabolic risks.

25. Conclusions

The Ahmedabad Declaration represents a critical response to the escalating crisis of young-onset T2D in Asia, which threatens to create health and socioeconomic challenges across the region. Through its comprehensive analysis including genetic predisposition, epigenetic factors, environmental influences, and socioeconomic determinants - this declaration establishes a framework for coordinated action across policy, healthcare, and community domains. The recommended interventions, ranging from targeted screening programs and digital health solutions to community-based lifestyle modifications and maternal health initiatives, reflect the complexity of addressing this public health challenge. Success in implementing these recommendations will require sustained commitment from policymakers, healthcare providers, researchers, and community stakeholders, along with significant resource allocation and systematic monitoring of outcomes.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Anoop Misra reports a relationship with USV, Astra Zeneca, Eli Lilly, Lupin, Boehringer Ingelheim, Janssen, Cipla, Glenmark, Novo Nordisk that includes: funding grants, speaking and lecture fees, and travel reimbursement. Viswanathan Mohan reports a relationship with Novo Nordisk, Abbott, Sanofi, Servier, Boehringer Ingelheim, Eli Lilly, Lifescan, Roche, MSD, Novartis, Bayer, USV, Dr. Reddy's, Sun Pharma, INTAS, Lupin, Glenmark, Zydus, IPCA, Torrent, Cipla, Biocon, Primus, Franco Indian, Wockhardt, Emcure, Mankind, Medtronic, Fourrts, Apex, GSK and Alembic that includes: consulting or advisory, funding grants, and speaking and lecture fees. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ahmedabad Declaration Committee Members

Abdalla Al-Hamaq, Ahmed Al Sharefi, Anuj Maheshwari, Asha Shah, Ashish Mehta, Ashok Kumar Das, Atul Kalhan, Brian Tomlinson, Brij Mohan Makkar, Chandrasagar Dugani, Hossam Ghazi, Jothydev Kesavadev, Jyoti Kunwar, Kamlakar Tripathi, Khalid Al Rasadi, Komal Shah, Madhu Pandey, Mahira Saiyed, Manilka Sumana, Mayur Agrawal, Mesbah Kamel, Nadima Shegem, Neelesh Kapoor, Partha Kar, Prasad Katulanda, Pratap Jethwani, Purvi Chawla, Rajaram Karne, Rajeev Chawla, Raman Puri, Raveendran A V, Ren-ming Hu, Rutul Thakker, Sanjay Agarwal, Sanjay Reddy, Shambo Samrat, Sharad Taheri, Shivani Misra, Sidartawan Soegondo, Subhajyoti Ghosh, Sujoy Ghosh, Wahid Khan, Wasim Hanif.

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Table 1

Causes of rising prevalence of T2D in young Asians (Compiled from references 2, 70, 105).

Environmental	• Rapid improvement in socioeconomic condition • Urbanization and rural-to-urban migration • Transition in nutrition and lifestyle • Increased consumption of calorie-dense diet • Sedentary lifestyle and paucity of outdoor space for physical activity • Increased prevalence of obesity and abdominal obesity • Thin-fat South Asian phenotype • Stress, depression and disturbed sleep • Socioeconomic factors, including education level and access to healthcare
Genetic	• Predisposition to develop diabetes and its complications at a younger age. • Higher body fat percentage even in individuals with a normal or low BMI • Predisposition to develop diabetes and complications at a lower BMI
Epigenetic	• Genetically determined lower beta cell function • Maternal undernutrition • Maternal micronutrient deficiency • Hyperglycemia during pregnancy • Hypertension during pregnancy

Table 2

Challenges in managing T2D in young Asians (Compiled from references 2, 70, 105).

Delayed Diagnosis	• Lack of awareness of T2D • Low health literacy • Lack of routine screening programs for young individuals • A fatalistic attitude often leading to delayed presentation with complications
Healthcare Disparities	• Socioeconomic inequalities • Disparate health systems • Paucity of trained healthcare professionals especially in rural areas • Current management guidelines are based on evidence generated from older populations
Cultural and Behavioural Factors	• Traditional fondness for sugar, sweet consumption and inappropriate choice of oils • Cultural beliefs surrounding body weight, obesity being considered as sign of health and prosperity • Cultural norms as a barrier to outdoor physical activity especially among women • Skepticism toward modern medicine and a preference for traditional or indigenous systems of medical • Self-stigma impacting medication adherence and overall quality of life