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Prevention and Early Management of Type 2 Diabetes Mellitus in South Asian Communities: The Jackson Heights South Asian Diabetes Prevention Program (JH-SA DPP), New York, United States

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Abstract

Type 2 Diabetes Mellitus (T2DM) was identified as one of the most significant global non-communicable diseases, affecting approximately 589 million adults worldwide in 2024, with projections reaching 853 million by 2050 (International Diabetes Federation [IDF], 2024). The disease was largely attributed to increasing urbanization, sedentary lifestyles, and dietary transitions toward energy-dense foods (Misra et al., 2014). South Asian populations—including individuals from India, Pakistan, Bangladesh, Nepal, and Sri Lanka—were found to be particularly susceptible to T2DM due to a combination of genetic predisposition, higher visceral adiposity, and insulin resistance (Gupta et al., 2010; Yajnik, 2004).

In the United States, South Asian immigrants experienced disproportionately high rates of T2DM compared to other racial and ethnic groups (Gujral & Kanaya, 2020). In New York City, the prevalence of diabetes among South Asians reached 10.7%, considerably higher than the 6.7% observed among South Asians in Atlanta (Islam et al., 2021). These disparities reflected both biological vulnerability and social determinants such as limited culturally appropriate healthcare access, language barriers, and stress related to acculturation and immigration (Islam et al., 2025). Addressing these multifactorial influences required prevention programs that were both evidence-based and culturally tailored to the South Asian context.

Keywords: BMI, Diabetes Mellitus, Dietary Habits, Stress

Program Description

The Jackson Heights South Asian Diabetes Prevention Program (JH-SA DPP) was designed as a culturally and linguistically adapted intervention to reduce the risk and burden of T2DM among South Asian residents in

Jackson Heights, New York. The program adapted the U.S. Centers for Disease Control and Prevention's Diabetes Prevention Program (DPP) and incorporated strategies from the South Asian Heart Lifestyle Intervention (SAHELI) (Kandula et al., 2015). The program was grounded in Social Cognitive Theory (SCT) and the Transtheoretical Model (TTM), emphasizing self-efficacy, observational learning, and progressive stages of behavior change (Bandura, 2004; Prochaska & Velicer, 1997). Community-based participatory research (CBPR) principles guided all stages, ensuring shared decision-making and community ownership (Israel et al., 2010). Culturally specific adaptations included the translation of educational materials into Hindi, Urdu, Bengali, and Punjabi and the integration of familiar foods such as lentils, brown basmati rice, and roti into dietary workshops (Misra et al., 2009). Program sessions were held in trusted community venues such as mosques, gurdwaras, and Hindu temples, which helped increase participation and cultural comfort. Moreover, the use of WhatsApp groups for social reinforcement and goal tracking reflected the communication norms of South Asian immigrant communities (Islam et al., 2025). Participants engaged in 16 weekly group sessions led by bilingual lifestyle coaches and community health educators. These sessions focused on improving diet quality, increasing physical activity, and enhancing diabetes self-management skills. The JH-SA DPP aimed to improve diabetes knowledge, self-efficacy, and measurable outcomes such as body mass index (BMI), weight, and hemoglobin A1C levels (Knowler et al., 2002; Diabetes Prevention Program Research Group, 2009).

Implementation and Evaluation

The JH-SA DPP was implemented in four sequential phases: planning and community engagement, training and pilot testing, program rollout, and maintenance and evaluation. During the planning phase, the program team collaborated with religious institutions, community-based organizations, and local healthcare providers to build partnerships and recruit participants. Training and pilot testing were conducted with approximately 25 participants to evaluate feasibility and refine the curriculum (Kandula et al., 2015). The full-scale rollout included multiple cohorts of South Asian adults participating in culturally adapted 16-week lifestyle sessions. Participants received coaching, printed materials, and peer support through WhatsApp. Incentives such as cooking kits and pedometers were provided to encourage adherence.

Evaluation was conducted using a pre-post mixed-methods design, which combined quantitative assessments and qualitative feedback. Quantitative measures included changes in A1C, BMI, and weekly physical activity. Process evaluation tracked attendance, WhatsApp engagement, and fidelity to the DPP model, while impact evaluation assessed self-efficacy and behavior change (Bandura, 2004). Qualitative data from exit interviews and focus groups were analyzed to identify barriers, facilitators, and participant perceptions of cultural relevance.

Findings indicated improvements in participants' self-efficacy, dietary habits, and physical activity levels, consistent with outcomes from prior DPP adaptations (Knowler et al., 2002; Kandula et al., 2015). The program's CBPR model ensured sustainability by training community health educators to continue outreach and support, aligning with the World Health

Organization's (2024) call to strengthen diabetes prevention across South-East Asian communities.

Public Health Significance

The JH-SA DPP demonstrated the importance of culturally grounded chronic disease prevention within immigrant populations in the United States. By integrating community trust, language access, and faith-based collaboration, it addressed multiple social determinants of health that influence diabetes outcomes (Islam et al., 2025; Misra et al., 2009). The success of this program model suggested that similar culturally tailored interventions could be replicated in other U.S. cities with large South Asian communities.

Beyond clinical outcomes, the program contributed to broader goals of health equity and inclusion, strengthening community capacity to manage chronic diseases through education, empowerment, and culturally respectful engagement.

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