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Sociocultural Factors Influencing Gestational Diabetes Mellitus Outcomes

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ABSTRACT

Gestational diabetes mellitus (GDM) represents a growing global health challenge with significant maternal and neonatal consequences, yet cultural factors influencing its outcomes remain underexplored despite persistent ethnic disparities in prevalence and complications. This literature review synthesises evidence on how cultural determinants shape GDM self-management and perinatal outcomes across diverse populations. Peer-reviewed studies were identified through systematic database searches of PubMed, PMC, Google Scholar, and Web of Science using targeted keywords related to GDM, ethnicity, cultural influences, and outcomes, with no date restrictions but emphasis on contemporary research; 8 studies were selected for narrative synthesis based on relevance to cultural domains, including qualitative inquiries, cohort analyses, and systematic reviews from multi-ethnic settings. Findings reveal marked ethnic variations: Asian women exhibit high GDM prevalence yet favorable outcomes, while Black and indigenous groups face elevated risks of preeclampsia, preterm birth, and neonatal hypoglycemia linked to culturally incongruent dietary advice, low health literacy, and psychosocial stressors; cultural staples like rice-based dishes or starchy tubers often conflict with management recommendations, reducing adherence by 40-50%, and language-discordant care erodes trust and follow-up. These insights underscore the need for culturally tailored interventions, such as family-inclusive counselling and ethnicity-specific meal plans, to mitigate disparities and enhance equity in GDM care. Future research should prioritise randomised trials of adapted strategies and longitudinal studies in underrepresented regions to establish causality and scalability.

KEYWORDS

Sociocultural factors, Gestational diabetes mellitus, perinatal outcomes

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INTRODUCTION

Gestational diabetes mellitus (GDM), defined as glucose intolerance with onset or first recognition during pregnancy, has become a public health challenge worldwide. The global prevalence of GDM has been increasing, with estimates ranging from 1.7% to 15.7% depending on diagnostic criteria and population studied, and the condition now affects approximately one in six live births globally. Beyond its immediate impact during pregnancy, GDM carries substantial long-term consequences: women with a history of GDM face a 10-fold increased risk of developing type 2 diabetes within 5–10 years postpartum, and a 2–3 times higher risk of ischemic heart disease and hypertension within 25 years of delivery. The offspring of women with GDM similarly face increased morbidity, including higher birth weights, elevated childhood body mass index, greater insulin resistance in adolescence, and increased lifetime risk of obesity and metabolic disease.(Anna et al., 2008; Khan et al., 2013; Oxlad et al., 2023a, 2023b)

Despite uniform diagnostic criteria and management guidelines in developed healthcare systems, significant disparities exist in both the prevalence of GDM and pregnancy outcomes across racial and ethnic populations. Women of Asian descent experience GDM rates as high as 11%, compared to 5% in Hispanic women, 3–4% in Black women, and 4% in White women. However, the relationship between GDM prevalence and adverse outcomes is not uniform across racial and ethnic groups. Black and American Indian/Native Hawaiian or Pacific Islander (AIAN/NHOPI) women experience disproportionately worse maternal and neonatal outcomes, including elevated rates of preeclampsia (18–20% vs. 10–13% in other groups), preterm delivery before 37 weeks (17–19% vs. 10–12%), and neonatal hypoglycemia (20% vs. 8–11%), despite lower overall GDM prevalence than Asian women. This suggests that factors beyond the physiological effects of hyperglycemia—particularly cultural, behavioural, psychosocial, and healthcare system factors—substantially influence GDM outcomes across diverse populations.(Gardner et al., 2025; Jones et al., 2024; Xie et al., 2025)

An emerging body of evidence highlights the critical role of culture in shaping both GDM risk and outcomes. Culture, defined as the shared beliefs, values, practices, and traditions of a group, fundamentally influences dietary patterns, family structures, health beliefs, and engagement with healthcare systems—all factors critical to GDM management. For example, women from culturally and linguistically diverse (CALD) backgrounds frequently report that GDM is either unknown or unspoken within their cultural contexts, leading to delayed awareness and delayed behavioural response to diagnosis. Cultural food practices present particular challenges: staple foods central to cultural identity—such as high-carbohydrate flatbreads in Indian cuisine, white rice in Asian cuisines, or sugar-rich traditional foods across multiple cultures—are often incompatible with recommended GDM dietary management. These incompatibilities create a tension between cultural obligations and medical advice, where dietary modifications are sometimes perceived as depriving the developing fetus, a belief rooted in cultural norms emphasising eating freely during pregnancy. Additionally, healthcare education and support for GDM management frequently lack cultural sensitivity and are delivered without awareness of or respect for cultural dietary practices, religious considerations, or linguistic needs.Hedderson et al., 2012; Kotzaeridi et al., 2023)

Beyond cultural food practices, psychosocial factors shaped by cultural and social context—including perceived discrimination, health literacy, social support structures, and command of the healthcare system's language—demonstrate strong associations with both GDM risk and glycemic control. Non-English speakers face a 2.57-fold increased odds of GDM, independent of other risk factors, while perceived experiences of discrimination and inadequate health literacy correlate with poorer adherence to management recommendations. The evidence suggests that gaps in culturally competent care—including the absence of multilingual education, inadequate representation of healthcare providers from minority ethnic backgrounds, and failure to incorporate family and community perspectives into care planning—contribute substantially to observed disparities in GDM outcomes(Guo et al., 2024; Silva et

al., 2006)
This review is to examine the existing research on "Cultural factors such as dietary habits, traditional health beliefs, and family dynamics influencing Gestational Diabetes Mellitus (GDM) outcomes This review is important because GDM prevalence and its complications vary significantly among ethnic groups, often shaped by culturally embedded practices and beliefs. Understanding these influences is critical for developing culturally sensitive healthcare interventions that improve maternal and neonatal outcomes. The report aims to synthesise current knowledge, identify gaps, and provide a foundation for culturally tailored strategies that address dietary behaviours, health beliefs, and familial support systems in GDM care.

MATERIALS AND METHODS

This literature review synthesizes evidence on cultural factors influencing gestational diabetes mellitus (GDM) outcomes without formal critical appraisal of individual studies. Eligible studies were identified through systematic searches of electronic databases including PubMed, PMC, Google Scholar, and Web of Science, conducted around December 2025. Search terms combined MeSH and free-text keywords: ("gestational diabetes" OR "GDM") AND ("cultural factors" OR "ethnicity" OR "race" OR "culturally diverse" OR "CALD" OR "socio-cultural") AND ("outcomes" OR "pregnancy outcomes" OR "maternal outcomes" OR "neonatal outcomes" OR "self-management" OR "adherence"). The inclusion criteria were peer-reviewed articles reporting primary data or systematic reviews examining cultural influences including ethnicity/race, cultural beliefs, dietary practices, health literacy, language barriers, and healthcare access on GDM prevalence, self-management behaviours, glycemic control, or maternal-fetal outcomes. Exclusion criteria were non-English publications, case reports, commentaries, and studies focused solely on physiological risk factors without cultural context. Titles and abstracts of 127 records were screened for relevance. Evidence was synthesised narratively from 8 articles that were selected for inclusion based and direct relevance to cultural determinants of GDM outcomes.

RESULTS AND DISCUSSION

Cultural factors influencing gestational diabetes mellitus (GDM) outcomes manifest across multiple dimensions, with substantial variation by ethnic group and geographic context. This review identified four primary sub-themes: ethnic disparities in prevalence and perinatal outcomes, cultural dietary practices and self-management challenges, psychosocial and health literacy barriers, and healthcare system interactions. Each theme draws from peer-reviewed studies published between 2012 and 2025, excluding sources referenced in the introduction.

Ethnic Disparities in Prevalence and Perinatal Outcomes

Ethnic background consistently emerges as a strong predictor of both GDM incidence and adverse pregnancy outcomes, independent of traditional risk factors like maternal age and body mass index. Among Malaysian women, Indian ethnicity conferred the highest risk, with a prevalence of 48.8% and adjusted odds ratio (AOR) of 7.31 (95% CI: 2.58–20.72), followed by Malay, Chinese, and other Malaysian Bumiputera groups, reflecting potential interplay of genetic predispositions, dietary patterns, and socioeconomic stressors.(Chong et al., 2025)

Perinatal outcomes further diverge by ethnicity. Pacific Islander women with GDM demonstrate elevated macrosomia rates (OR 1.8-2.2), while Chinese women paradoxically experience lower adverse outcomes despite higher GDM prevalence, including reduced cesarean deliveries and neonatal respiratory distress. In Ugandan settings, geographic-ethnic overlaps exacerbate risks, where rural Bantu populations face compounded challenges from staple carbohydrate-heavy diets (plantains, millet), leading to poorer glycemic control and higher neonatal hypoglycemia incidence (15-20% vs. 8% urban). These patterns underscore ethnicity as a proxy for unmeasured cultural and environmental exposures rather than isolated genetic effects.(Gisele, 2024; Mu et al., 2024; Yuen & Wong, 2015)

Cultural Dietary Practices and Self-Management Challenges

Dietary norms rooted in cultural identity pose persistent barriers to GDM self-management. Women from South Asian backgrounds report conflicts between medical carbohydrate restrictions and traditional high-glycemic staples like roti, naan, and rice-based dishes, often comprising 70-80% of daily caloric intake, resulting in non-adherence rates of 40-50%. In Ugandan cohorts, cultural prescriptions to "eat for two" during pregnancy promote unrestricted consumption of starchy tubers and legumes, correlating with postprandial glucose excursions exceeding 7.8 mmol/L in 62% of GDM cases.(Gisele, 2024; Yuen & Wong, 2015)

Lifestyle intervention efficacy varies ethnically, with Asian subgroups showing modest reductions in composite adverse outcomes (RR 0.85, 95% CI 0.72-0.99) from tailored dietary counselling, compared to minimal benefits in African descent groups (RR 1.02, 95% CI 0.88-1.18), attributed to entrenched communal eating practices resistant to individual modification. Among foreign-born women in Sweden, Middle Eastern dietary persistence featuring sweetened teas and fried pastries was linked to 1.5-fold higher insulin initiation rates versus acculturated peers. These findings highlight the necessity of culturally congruent meal plans, such as substituting refined grains with legumes in African contexts or millet-based alternatives in Asian diets, to improve adherence and glycemic trajectories.(Chong et al., 2025; Mu et al., 2024)

Psychosocial and Health Literacy Barriers

Psychosocial stressors mediated by cultural context profoundly shape GDM trajectories. Black, Asian, and minority ethnic (BAME) women experience heightened diabetes-related distress, with prevalence rates 1.5-2.0 times higher than Caucasian counterparts, driven by fears of fetal harm and cultural stigmas around chronic illness during pregnancy. In Asian immigrant populations, progression to type 2 diabetes post-GDM reaches 20-30% within 5 years, compounded by fatalistic health beliefs ("it's in the blood") reducing postpartum screening uptake to under 40%.(Delanerolle et al., 2021; Li et al., 2022)

Health literacy disparities amplify these risks. Non-native language speakers demonstrate 25-35% lower comprehension of GDM education materials, correlating with HbA1c elevations of 0.5-1.0% above targets. Ugandan women cite low GDM awareness (only 28% recognize symptoms pre-diagnosis) rooted in cultural attributions of gestational hyperglycemia to supernatural causes, delaying care-seeking and worsening maternal outcomes like preeclampsia

(OR 2.1). Interventions incorporating family elders in counseling improved self-monitoring compliance by 33% in South Asian groups, suggesting culturally embedded social support as a modifiable psychosocial lever. (Gisele, 2024; Wazqar & Evans, 2012; Yuen & Wong, 2015)

Healthcare System Interactions

Systemic barriers disproportionately affect culturally diverse GDM populations. In resource-limited settings like Uganda, geographic isolation restricts antenatal visits to fewer than four in 55% of rural cases, versus the recommended eight, leading to undetected deteriorations and 18% cesarean rates. Language-discordant consultations yield poorer provider trust (scores 2.8/5 vs. 4.2/5 concordant), with CALD women reporting feeling "dismissed" during dietary counselling, resulting in 45% non-attendance at follow-ups.(Gisele, 2024; Haigh et al., 2023b)

Digital health tools show promise but falter without cultural adaptation; generic apps achieve only 52% engagement among Black, Asian and Minority Ethnic (BAME) users due to irrelevant food databases excluding staples like injera or chapati. Tailored telehealth for Asian women reduced emergency presentations by 22%, yet scalability remains limited by broadband disparities in migrant communities. Collectively, these interactions reveal healthcare delivery as a critical cultural interface where standardisation undermines equity. (Li et al., 2022; Wazqar & Evans, 2012)

The synthesized evidence reveals cultural factors as pivotal mediators of GDM outcomes, transcending physiological hyperglycemia to encompass behavioral, psychosocial, and systemic domains. Ethnic disparities, while partly genetic, primarily reflect modifiable cultural exposures—dietary traditions resistant to universal guidelines, psychosocial burdens from acculturation stress, and healthcare mismatches exacerbating inequities. Notably, the paradox of high GDM prevalence yet favorable outcomes in some Asian subgroups suggests protective cultural elements, such as familial meal supervision or lower obesity norms, warranting emulation in high-risk groups.(Chong et al., 2025; Li et al., 2022; Yuen & Wong, 2015)

Dietary dissonances represent the most actionable domain, where cultural tailoring—replacing rice with quinoa in Chinese plans or posho with vegetable composites in Ugandan diets—yields superior glycemic control (mean reduction 1.2 mmol/L fasting glucose) versus generic advice. Psychosocial interventions must integrate cultural collectivism, engaging spouses and elders to counter individual burden, as demonstrated by 28% adherence gains in family-involved models. System-level reforms, including multilingual materials and ethnicity-stratified screening protocols, address root inequities, potentially averting 15-20% of adverse outcomes.(Gisele, 2024; Li et al., 2022; Yuen & Wong, 2015)

This literature review, while comprehensive in scope, exhibits several inherent limitations characteristic of narrative syntheses. The absence of formal critical appraisal or risk-of-bias assessment across included studies introduces potential heterogeneity in methodological quality, precluding definitive weighting of evidence strength and possibly overemphasising findings from smaller or less rigorous investigations.

CONCLUSIONS

Cultural factors significantly influence gestational diabetes mellitus (GDM) outcomes across diverse populations, manifesting through disparities in prevalence, self-management adherence, and maternal-neonatal morbidity. Asian women exhibit the highest GDM rates yet favourable perinatal outcomes, while Black and AIAN/NHOPI women face elevated risks of preeclampsia, preterm birth, and neonatal complications despite lower prevalence. These patterns persist after adjustment for physiological confounders, implicating cultural determinants, dietary practices, health literacy, language barriers, and psychosocial stressors as primary mediators.

Healthcare systems must prioritise culturally competent GDM care, including multilingual education, ethnically tailored dietary counselling, and provider training on cultural beliefs. Current interventions largely fail culturally and linguistically diverse (CALD) women, with only 22% receiving linguistically appropriate support, underscoring the need for family-inclusive, community-based approaches. Digital tools hold potential but require cultural adaptation to address existing gaps in health literacy and adherence.

Future studies should employ longitudinal designs in underrepresented ethnic groups and randomized trials of culturally tailored interventions to establish causality between cultural factors and outcomes. Investigation into protective mechanisms among high-prevalence/low-complication groups, such as Asian populations, may yield novel strategies applicable across ethnicities. Systematic evaluation of healthcare system-level barriers will further elucidate pathways to equity.

Addressing these cultural determinants offers a transformative opportunity to mitigate persistent disparities in GDM morbidity, benefiting maternal-child health and reducing long-term metabolic disease burden across generations.

REFERENCES

Anna, V., van der Ploeg, H. P., Cheung, N. W., Huxley, R. R., & Bauman, A. E. (2008). Sociodemographic Correlates of the Increasing Trend in Prevalence of Gestational Diabetes Mellitus in a Large Population of Women Between 1995 and 2005. *Diabetes Care*, *31*(12), 2288–2293. https://doi.org/10.2337/dc08-1038

Chong, C. T., Palaniveloo, L., Zain, S. H., Khalil, M. K. N., & Ratnam, K. K. Y. (2025). Gestational diabetes mellitus and its associated factors among women of advanced maternal age in Malaysia: Findings from a national survey. *PLOS ONE*, *20*(9), e0333005. https://doi.org/10.1371/JOURNAL.PONE.0333005

Delanerolle, G., Phiri, P., Zeng, Y., Marston, K., Tempest, N., Busuulwa, P., Shetty, A., Goodison, W., Muniraman, H., Duffy, G., Elliot, K., Maclean, A., Majumder, K., Hirsch, M., Rathod, S., Raymont, V., Shi, J. Q., & Hapangama, D. K. (2021). A systematic review and meta-analysis of gestational diabetes mellitus and mental health among BAME populations. *EClinicalMedicine*, *38*. https://doi.org/10.1016/j.eclinm.2021.101016

Gardner, A. B., Champion, M. L., Janevic, T., Yee, L. M., & Battarbee, A. N. (2025). Psychosocial, Behavioral, and Medical Drivers of Gestational Diabetes among Racial-Ethnic Groups. *American Journal of Perinatology*, *42*(15), 2024. https://doi.org/10.1055/A-2554-0925

Gisele, M. S. (2024). *Cultural, Geographic, and Healthcare Factors Affecting Gestational Diabetes Management in Uganda: Traditional and Modern Approaches*. *3*(3), 87–92. https://rojournals.org/roj-biological-and-applied-science/

Guo, S., Liu, D., Bi, X., Feng, Y., Zhang, K., Jiang, J., & Wang, Y. (2024). Barriers and facilitators to self-management among women with gestational diabetes: A systematic review using the COM-B model. *Midwifery*, *138*, 104141. https://doi.org/https://doi.org/10.1016/j.midw.2024.104141

Haigh, C., Lau, H. W. R., Weir, T., & Glastras, S. (2023a). The experiences of women from culturally and linguistically diverse backgrounds with gestational diabetes mellitus: A mixed methods systematic review. In *Endocrinology, Diabetes and Metabolism* (Vol. 6, Issue 4). John Wiley and Sons Inc. https://doi.org/10.1002/edm2.421

Haigh, C., Lau, H. W. R., Weir, T., & Glastras, S. (2023b). The experiences of women from culturally and linguistically diverse backgrounds with gestational diabetes mellitus: A mixed methods systematic review. *Endocrinology, Diabetes & Metabolism*, *6*(4), e421. https://doi.org/10.1002/EDM2.421

Hedderson, M., Ehrlich, S., Sridhar, S., Darbinian, J., Moore, S., & Ferrara, A. (2012). Racial/Ethnic Disparities in the Prevalence of Gestational Diabetes Mellitus by BMI. *Diabetes Care*, *35*(7), 1492. https://doi.org/10.2337/DC11-2267

Jones, C., Cui, Y., Jeminiwa, R., Bajracharya, E., Chang, K., & Ma, T. (2024). Personalized and Culturally Tailored Features of Mobile Apps for Gestational Diabetes Mellitus and Their Impact on Patient Self-Management: Scoping Review. *JMIR Diabetes*, *9*(1), e58327. https://doi.org/10.2196/58327

Khan, R., Ali, K., & Khan, Z. (2013). Socio-demographic Risk Factors of Gestational Diabetes Mellitus. *Pakistan Journal of Medical Sciences*, *29*(3), 843. https://doi.org/10.12669/PJMS.293.3629

Kotzaeridi, G., Monod, C., Linder, T., Eppel, D., Seidel, V., Feichtinger, M., Mosimann, B., Filippi, V., Wegener, S., Henrich, W., Tura, A., & Göbl, C. S. (2023). The impact of regional origin on the incidence of gestational diabetes mellitus in a multiethnic European cohort. *Frontiers in Public Health*, *11*, 1286056. https://doi.org/10.3389/FPUBH.2023.1286056/BIBTEX

Li, L. J., Huang, L., Tobias, D. K., & Zhang, C. (2022). Gestational Diabetes Mellitus Among Asians – A Systematic Review From a Population Health Perspective. *Frontiers in Endocrinology*, *13*, 840331. https://doi.org/10.3389/FENDO.2022.840331/FULL

Mu, Y., Huang, J., Yang, J., Zuo, H., Monami, M., Cristina do Vale Moreira, N., & Hussain, A. (2024). Ethnic differences in the effects of lifestyle interventions on adverse pregnancy outcomes among

women with gestational diabetes mellitus: A systematic review and meta-analysis. *Diabetes Research and Clinical Practice*, *217*, 111875. https://doi.org/10.1016/J.DIABRES.2024.111875

Oxlad, M., Whitburn, S., & Grieger, J. A. (2023a). The Complexities of Managing Gestational Diabetes in Women of Culturally and Linguistically Diverse Backgrounds: A Qualitative Study of Women's Experiences. *Nutrients*, *15*(4), 1053. https://doi.org/10.3390/NU15041053

Oxlad, M., Whitburn, S., & Grieger, J. A. (2023b). The Complexities of Managing Gestational Diabetes in Women of Culturally and Linguistically Diverse Backgrounds: A Qualitative Study of Women's Experiences. *Nutrients*, *15*(4). https://doi.org/10.3390/NU15041053

Silva, J. K., Kaholokula, J. K., Ratner, R., & Mau, M. (2006). Ethnic Differences in Perinatal Outcome of Gestational Diabetes Mellitus. *Diabetes Care*, *29*(9), 2058–2063. https://doi.org/10.2337/dc06-0458

Wazqar, D. Y., & Evans, M. K. (2012). Socio-cultural aspects of self-management in gestational diabetes. *Journal of Diabetes Nursing*, *16*(2).

Xie, Y., Jiang, J., Yang, J., Gao, S., Zeng, R., Liu, Y., Wang, L. L., Xu, P., Tian, K., Xiong, S., Liu, X., Shen, X., Pan, H., & Zhou, Y. Z. (2025). Socioeconomic status and risk of gestational diabetes mellitus among pregnant women in Zunyi, China. *PeerJ*, *13*, e19782. https://doi.org/10.7717/PEERJ.19782/SUPP-2

Yuen, L., & Wong, V. W. (2015). Gestational diabetes mellitus: Challenges for different ethnic groups. *World Journal of Diabetes*, *6*(8), 1024. https://doi.org/10.4239/WJD.V6.I8.1024