# G6PD deficiency may mask diabetes diagnosis in black and South Asian men in the UK



A significant but frequently undiagnosed genetic deficiency may be contributing to serious complications from type 2 diabetes in black and South Asian men in the UK by affecting routine diagnostic testing, researchers have warned. This condition, known as glucose-6-phosphate dehydrogenase (G6PD) deficiency, could delay diagnosis and lead to underestimated blood sugar levels, putting thousands at heightened risk of complications such as eye, kidney, and nerve damage.

The study, conducted by the University of Exeter and Queen Mary University of London, analysed data from over half a million individuals, revealing striking disparities in the prevalence of G6PD deficiency among ethnic groups. Approximately one in seven black men and one in 63 South Asian men in the UK carry the deficiency, compared to fewer than one in 100,000 white men. Yet, less than 2% of men with G6PD deficiency are clinically recognised.

G6PD is a crucial enzyme in red blood cells that protects them from premature destruction. Its deficiency means the red blood cells are more fragile and can be destroyed earlier than usual when exposed to certain substances, leading to anaemia. While G6PD deficiency itself does not cause diabetes, it can impact the accuracy of the HbA1c blood test, which is the standard for diagnosing and monitoring diabetes. HbA1c measures average blood glucose levels over two to three months by assessing glucose attached to haemoglobin in red blood cells; premature destruction of these cells in G6PD-deficient individuals can cause artificially low HbA1c readings, masking true glucose levels.

This diagnostic challenge has serious clinical implications. The researchers found that men with G6PD deficiency have a 37% increased risk of developing severe diabetes-related complications. These findings were published in the journal Diabetes Care and described as “deeply concerning” by experts, who call for urgent changes in diabetes screening practices to address this health inequity.

Professor Ines Barroso of the University of Exeter emphasised the need for routine screening for G6PD deficiency alongside diabetes testing, stating that current HbA1c testing may not be reliable for these individuals. Dr Veline L’Esperance, a GP and senior clinical research fellow at Queen Mary University, highlighted the risk posed by this widespread diagnostic blind spot, particularly in communities already disproportionately affected by type 2 diabetes. “Too many people are being left undiagnosed until it is too late to prevent serious complications,” she said, urging greater healthcare professional awareness and updated policies.

The challenge is underscored by the fact that diabetes affects nearly 5.8 million people in the UK, including an estimated 1.8 million undiagnosed cases. Black and South Asian populations are twice as likely to have undiagnosed type 2 diabetes compared to white individuals and also fare worse once diagnosed. Anna Morris, assistant director of research at Diabetes UK, warned that inaccuracy in the most common diagnostic test could exacerbate these disparities, risking missed or delayed diagnoses.

Importantly, this issue extends beyond the UK. The World Health Organization estimates that over 400 million people globally have G6PD deficiency, and studies in other populations corroborate its impact on HbA1c. Research focused on East Asian populations identified specific G6PD variants linked to lower HbA1c independently of actual blood glucose, suggesting a broader risk of underdiagnosis where HbA1c is used as the sole diagnostic criterion.

Additional studies, including recent research on children and adolescents with type 1 diabetes, reinforce that G6PD deficiency lowers HbA1c readings by up to 1.3%, potentially delaying diagnosis and increasing complications. These findings underline the necessity of screening for G6PD deficiency in populations with high prevalence to ensure accurate diagnosis and management of diabetes.

Dr Esther Mukuka, director of research inclusion at the National Institute for Health and Care Research (NIHR), which funded the Exeter and QMUL study, remarked that addressing G6PD deficiency’s impact on diabetes testing is a vital step towards reducing health inequalities and ensuring that medical advances benefit all communities equally.

The growing body of evidence makes clear that relying solely on HbA1c tests without considering G6PD deficiency could perpetuate health disparities, particularly in ethnic groups already facing elevated diabetes risks. Improving diagnostic strategies through routine G6PD screening, alternative testing methods, and increased clinical awareness is essential to provide equitable diabetes care and prevent the avoidable burden of complications.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/)
* Paragraph 2 – [[1]](https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/)
* Paragraph 3 – [[1]](https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/)
* Paragraph 4 – [[1]](https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/)
* Paragraph 5 – [[1]](https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/)
* Paragraph 6 – [[1]](https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/)
* Paragraph 7 – [[1]](https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/), [[2]](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7103857/)
* Paragraph 8 – [[1]](https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/), [[3]](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10973487/), [[4]](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10973487/), [[5]](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10973487/), [[6]](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10973487/), [[7]](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10973487/)

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## Bibliography

1. <https://www.irishnews.com/news/uk/genetic-condition-raises-diabetes-complication-risk-in-black-and-south-asian-men-V56UYM4ASVKCFMMUNSYLKYQ5RI/> - Please view link - unable to able to access data
2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7103857/> - A study published in 2020 examined the impact of G6PD deficiency on HbA1c levels in East Asian individuals. The research identified two specific G6PD variants, Canton and Kaiping, which were associated with lower HbA1c levels independently of glycemia. This finding suggests that individuals carrying these variants may be at risk of underdiagnosis of type 2 diabetes if HbA1c is used as the sole diagnostic criterion. The study highlights the importance of considering G6PD deficiency in diabetes diagnosis within East Asian populations.
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10973487/> - A 2023 study investigated the effect of G6PD deficiency on HbA1c values in children and adolescents with type 1 diabetes. The research found that G6PD deficiency led to an average reduction in HbA1c of 1.3% in deficient subjects and 0.3% in intermediate subjects. This reduction may result in falsely normal HbA1c values, potentially delaying diagnosis and increasing the risk of complications. The study emphasizes the need for G6PD screening in populations with a high prevalence of the deficiency to ensure accurate diabetes diagnosis and management.
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