

ETHNICITY, DEPRIVATION AND DIABETES INEQUALITY

Position Statement: June 2022

Key points

- Diabetes does not affect everyone equally. Unjust inequalities are evident in the care
 and treatment options available to people living with all types of diabetes and their
 health outcomes. Amongst the wider population, inequality significantly impacts on the
 opportunities individuals have to lead healthy lives and their risk of developing type 2
 and gestational diabetes, resulting in worse health outcomes and costing lives. This
 has to change.
- Poverty is one of the most significant causes of health inequalities in the UK and is a major factor underpinning inequities in diabetes risk, care and outcomes. Prevalence of type 2 diabetes is significantly higher amongst people from the most deprived areas, compared with the least deprived areas. People living with all types of diabetes from more deprived communities also experience poorer access to care and treatment, and in turn have worse outcomes. Continued rising costs of living, pushing up food and fuel costs, will result in more people falling into poverty, impacting negatively on their health and wellbeing.
- Significant ethnic health inequalities also exist in access to diabetes care and treatment, and in outcomes. For example, people from Black and Asian backgrounds with type 2 diabetes are less likely to be prescribed newer medication and those with type 1 diabetes are less likely to be using wearable diabetes technology than White people living with the condition. Ethnicity is also a factor underpinning a person's chances of developing type 2 diabetes, with prevalence higher amongst people from Black and South Asian backgrounds.
- Structural inequalities underpin the disparities we see across diabetes outcomes. They are the result of imbalances of economic and political power; and permeate our institutions and our daily experience of life. They create and maintain advantage for some and disadvantage for others, depending on factors such as socio-economic status and ethnicity. Structural inequalities have profound impacts on health and wellbeing; and prevent a person's human right to the highest attainable standard of health, which includes the right to non-discrimination on the grounds of race and social status, 1 from being fully realised.



- People with and at risk of diabetes often experience inequalities on multiple different fronts. For example, a person's age, their physical and or mental wellbeing, level of deprivation and ethnicity all interrelate to impact on, and compound to negatively effect, their health outcomes. The interactions between different kinds of inequality, and the factors that drive them, are often complex and interrelated. There is more we need to know and better understand to effectively address certain aspects of inequality, but this must not lead to inaction or slow us down.
- Action to address the wider social determinants of health is needed now to reduce health inequalities for people living with and at risk of developing diabetes. Action is also required at both a national and local level within the health system to identify and address the inequalities that exist in access to care between people from different ethnic groups and economic backgrounds. Better data collection is essential to being able to identify and then act upon inequalities, particularly in Northern Ireland which does not have a diabetes audit in place. At Diabetes UK we are committed to work with government and the health system to address these inequalities and their underlying causes.

Why we have produced this position

Diabetes UK is committed to addressing inequalities throughout our work to ensure that everyone with or at risk of diabetes is supported to achieve the best outcomes they can. We are also committed to ensuring that new developments in diabetes prevention, treatment and care do not create new inequalities, or exacerbate existing ones.

This position statement focuses on inequalities related to ethnicity and deprivation due to the size of the evidence base and the clear links between these factors and increased diabetes risk, unequal outcomes and access to care and treatment. It provides an overview of the evidence base of the inequalities that exist in these areas, and how these often overlap and intersect. It also sets out Diabetes UK's key asks and priorities to address this inequality.

Further activity is planned in the coming year to explore many of these issues in more depth to identify recommendations for targeted action. In addition, further position statements are in development which will set out in more detail our recommendations for action to address the social determinants of health in the prevention of type 2 diabetes and gestational diabetes.

How we have produced this position

We developed this statement by reviewing literature, engaging with key stakeholders in the diabetes community with an interest in race, ethnicity and inequalities, and through consultation with Diabetes UK's Council of Healthcare Professionals and the Council of People Living with Diabetes.



Our asks and priorities in this area

- 1. Understanding and addressing the social determinants of health in the UK. Action is needed at different levels to address the structural inequalities that underly our unequal health environment and ensure that current health inequalities do not persist into future generations. Governments, national and local, should adopt a "health in all policies" approach as a step towards accountability. At Diabetes UK, we will explore our role, both independently and working in coalition, to push for bold policies to reduce inequalities within our wider society. This includes addressing poverty and other barriers to accessing healthy food.
- 2. Understanding inequality in access to and experience of care and treatment. We know that inequalities exist within health and care services for people with and at risk of diabetes, but due to incomplete data it can be difficult to have a clear picture of where they occur, what the impacts are, and where specific interventions can best be targeted to address them. In Northern Ireland in particular the absence of a diabetes audit programme and lack of systematic and robust collection and analysis of data on diabetes care delivery and outcomes is a major barrier to identifying and addressing inequalities. Better data collection within health services across the UK, as well as further targeted research, is a priority to ensure that those developing services and providing treatment, care and support for people living with and at risk of diabetes are in the best position to fully understand and address inequalities. We will work with the research community to ensure that the findings that underpin new developments are also representative, through improving diversity of recruitment to clinical trials. We will also work with relevant organisations and people with lived experience of inequality to better understand their experiences and use these insights to inform new areas of research development.
- 3. Addressing inequality in access to and experience of care and treatment. Gathering evidence and growing understanding is important, but it must not be used as an excuse to delay action. Addressing inequalities must be fully considered when developing new programmes or pathways for people at risk of and living with diabetes, ensuring that interventions are developed to be culturally competent, appropriate and mindful of issues like digital exclusion. Transparency is also key. Health and care leaders at a national and local level should make publicly available the data they already have showing the inequalities that exist across different ethnic and economic groups, and the progress they are making year on year to reduce these. We will work with the diabetes system now to help them address identified inequalities, including by supporting the system to gather insights from people with



lived experience of inequality and using these to inform approaches to address inequality in access to and experiences of care and treatment.

4. Being driven by the diverse experiences of our audiences.

We will work to ensure that inequality is fully considered when developing internal projects or programmes of work. We will work to reach out more often and more effectively to diverse communities, including across both ethnicity and socioeconomic status, at every stage of our decision making, to ensure that our priorities reflect the experiences of the communities we serve. We will improve the equality of access to all our information, support and services so each person living with or at risk of diabetes has fair and equal access to Diabetes UK.

Evidence and analysis

1. Likelihood of developing type 2 diabetes

1.1. Risk factors for type 2 diabetes

We know that a number of different risk factors can impact someone's likelihood of developing type 2 diabetes. The more of these risk factors a person has, the higher their risk of developing the condition. The interplay between different risk factors can be very complex.

Ethnicity: People of South Asian ethnicity (including Indian, Pakistani, Bangladeshi) are two to four times more likely to develop type 2 diabetes than people of White European ethnicity. Black African and Black Caribbean people are 1.5 to 3 times more likely to develop type 2 diabetes than White Europeans². Both South Asian and Black people are at a higher risk of developing type 2 diabetes earlier (with the risk increasing form age 25), being diagnosed on average 10 years younger. Storing fat in a visceral way is more common in people of South Asian descent than White Europeans³. The reasons for this are not clear but it could help explain why South Asians get diabetes at a lower BMI than White Europeans⁴⁵. However, people of Black African ethnicity are typically diagnosed with lower levels of visceral fat than White Europeans⁶. This suggests that the factors driving the increased diabetes risks in these groups are different. We focus predominantly on Black and South Asian groups in this statement due to the size of their populations in the UK. We now know there are also approximately 7000 children and young people diagnosed with type 2 diabetes, and there is a higher prevalence in people of South Asian or Black ethnicity. As a consequence of this increased risk, obesity is defined at lower thresholds in non-White populations to ensure that interventions are targeted equitably based on equivalent diabetes prevalence⁷.



Deprivation: Incidence of type 2 diabetes has been found to be associated with lower socio-economic status⁸. People with type 2 diabetes are more likely to live in more deprived areas – the prevalence of type 2 in the most deprived areas of England and Wales is 1.6 times higher than in the least deprived areas – at 24% compared to 15%⁹. Amongst children, young people and adults aged under 40 with type 2 diabetes, the prevalence from the most deprived areas is a much more marked at 35%, compared to 8% in the least deprived areas¹⁰. There is a complex relationship between economic deprivation and development of ill health, including long-term conditions like type 2 diabetes. Much of this link is due to the social determinants of health, discussed further below.

Weight: Around 90% of people newly diagnosed with type 2 diabetes are living with obesity or overweight¹¹. Fat can be predominately stored either viscerally (around the organs) or subcutaneously (under the skin). Having a lot of visceral fat is associated with the development of type 2 diabetes¹². Different people store fat in different ways, so at the same weight, one person may have visceral fat than another person.

Genetics and family history: The genetics of diabetes is very complex. Many genes impact your likelihood of getting diabetes by influencing how your body responds to the external environment, for example, diet and exercise. We know that having some versions of genes makes people more likely to develop type 2 diabetes than other versions.

Other factors: Type 2 diabetes risk increases with age. Certain health conditions, including a history of gestational diabetes, polycystic ovary syndrome and certain mental health conditions can also increase risk. Other factors, such as smoking, excess alcohol consumption, sedentary lifestyles and disturbed sleep are also associated with an increased risk.

1.2. Relationship between factors impacting risk

The risk factors outlined above are not straightforward and they do not operate independently. Inequalities in factors that shape our health - such as quality of health and care services, individual behaviours, the places and communities in which people live - are inter-related. Disadvantages are concentrated in particular parts of the population and can be mutually reinforcing.¹³ This complex interplay of factors leaves some people at much greater risk of developing type 2 diabetes. For example:

Impact of deprivation on obesity: In England there is a large difference in obesity prevalence from the highest income quintile (22%) to the lowest (35%)¹⁴. In Wales these figures were 20% in the highest income quintile and 33% in the lowest¹⁵. In Northern Ireland obesity prevalence in the most deprived areas was 32%, compared with 25% in the least deprived¹⁶. Waist circumference, a measure associated with having visceral fat, is also associated with area deprivation¹⁷.



Links between obesity and deprivation start at an early age, with National Child Measurement Programme data showing that obesity prevalence in the most deprived areas of England (33.8%) was more than twice as high as the least deprived (14.3%) for year 6 children. Prevalence of children in the highest weight category (those with a BMI centile of between 99.6 and 100) was over five times as high for children living in the most deprived areas (10.6% compared to 1.8%)¹⁸. In Scotland, the number of Primary one children at risk of overweight or obesity has gone up in the most deprived areas but gone down in the least deprived areas' demonstrating a strong and increasing association between deprivation and obesity¹⁹.

Almost 4 million children in the UK live in households that would struggle to afford to buy enough fruit, vegetables, fish and other healthy foods to meet the official nutrition guidelines²⁰. In Northern Ireland, 39% of people living in the most deprived areas reported eating five or more portions of fruit and vegetables each day, compared with 54% in the least deprived areas²¹.

Activity levels decrease as deprivation increases, from 73% of people being active in the least deprived areas to 57% in the most deprived areas of England²². Physical inactivity is associated with obesity and higher risk of developing type 2 diabetes.

Ethnicity and obesity: According to the Active Lives Survey, people from Asian, Black and other ethnic groups are more likely to be physically inactive than those from White British, White other and mixed ethnic groups²³.

In England, Black adults are the most likely of all ethnic groups to be living with overweight or obesity, increasing their risk still further²⁴. White British adults were also more likely than average to be living with overweight or obesity²⁵.

Ethnicity and deprivation: In England, people from White British, White Irish and White Other ethnic groups people are least likely to be living in the most income-deprived 10% of neighbourhoods. People from Bangladeshi and Pakistani ethnic groups are the most likely, three times more likely than White people²⁶. After housing costs, people in households where the head of the household was from the Bangladeshi ethnic group experienced the highest poverty rate, at 55%.²⁷ In Northern Ireland there is a growing gap in the poverty rate between people in households headed by someone from a minority ethnic group or of mixed ethnicity and households headed by someone of White ethnicity.²⁸

Multimorbidity, mental health, and deprivation: There are complex associations between type 2 diabetes risk and people living with multiple health conditions including mental health conditions, and deprivation.



A high proportion of people with type 2 diabetes are also living with other health conditions. One large study found 97.5% of their cohort had at least one condition alongside type 2 diabetes, and 88.5% had at least two additional health conditions.²⁹ There are links here with deprivation: a higher proportion of people living in the most deprived areas have been shown to have one or more comorbidities present at the time of diagnosis compared to the most affluent areas.³⁰

The association or "clustering" of type 2 diabetes and mental illness has been well reported. And the prevalence of depression in people newly diagnosed with type 2 diabetes is more common in the most deprived areas.³¹

Deprivation also plays a significant role in the link between diabetes and serious mental illness. While there is some variation in prevalence of diabetes by deprivation quintile amongst the wider population, this is much more marked amongst those living with serious mental illness. So, in the most deprived quintile in the country, 35% of those with a serious mental illness also have diabetes, compared to just 8% of those in the general population in the least deprived quintile.³²

People with severe mental illnesses have poorer physical health and a life expectancy that is lower than the general population. Diabetes contributes significantly to this health inequality.³³

Mental health conditions can also be linked to poorer diabetes outcomes, including increased risk of macrovascular complications³⁴.

Learning difficulties and neurodiversity: Adults with a learning disability have much higher levels of multi-morbidity than the general population, with health problems starting at an earlier age, including diabetes³⁵. Recent data indicates prevalence of diabetes is around 10% - nearly double the rate of the general population³⁶. In most cases this is type 2 diabetes. In the UK around 40% of adults with a learning disability are living with obesity and one in four adults with a learning disability report walking for no more than 10 minutes at a time³⁷.

It was recognised in 2016 that there is a significant need to reduce the health gap inequalities for adults living with autism spectrum disorder, with a particular emphasis on preventative health care to identify and manage unmet health needs³⁸. Adults with autism are 1.4 times more likely to be living with obesity and are at an increased risk for diabetes, depression and other health problems.^{39 40}

1.3. Social determinants of health

Many of the levers for addressing risk factors for type 2 diabetes sit outside the diabetes health system as we currently know it. Addressing inequality in the wider social



determinants of health will be necessary to address inequality in risk, prevalence and outcomes.

The social determinants of health can be defined as the conditions in which people are born, grow, live, work and age. They are impacted by structural inequalities in power, wealth and resources, which in turn affect the conditions of daily life people experience.

Racial discrimination is also determinant of poorer health⁴¹. Research on perceived discrimination and health shows that discrimination is linked to increased risk of obesity and poorer mental and physical health outcomes. It showed that perceived discrimination produces significantly heightened stress responses that have a physiological impact with a negative and long term impact on health as well as being related to individuals participating in unhealthy behaviours and being less likely to participating in healthy behaviours" ⁴².

Sustained and coordinated cross-government action is required to address these conditions, to begin to dismantle the structural inequalities that underpin our unequal health environment in the UK.

The Marmot Review and its subsequent updates⁴³ proposes action on eight different policy objectives to reduce health inequalities:

- Give every child the best start in life policy proposals include increased spending on early years and reduction in levels of child poverty.
- Enable all children, young people and adults to maximise their capabilities and have control over their lives including putting equity at the heart of national decisions on education policy and reducing inequalities in attainment.
- Create fair employment and good work for all including reducing conditionalities and sanctions in benefit entitlement and increasing the National Living Wage.
- Ensure a healthy standard of living for all by putting health equity and wellbeing at the heart of economic planning and strategy at all levels and reviewing the taxation and benefits system.
- Create and develop healthy and sustainable places and communities including investment in the development of the most deprived communities, increasing affordable housing and aiming for net-zero carbon emissions by 2030.
- Strengthen the role and impact of ill health prevention.
- Tackle discrimination, racism and their outcomes.
- Pursue environmental sustainability and health equity together.

Diabetes UK support the implementation of the recommendations made in the Marmot Review.



2. Receiving the best treatment and care

2.1. Access to medication

Multiple studies have demonstrated unequal access to medication for people with type 2 diabetes from Black and Asian backgrounds. One large study, for example, identified that people from South Asian and Black ethnic groups in the UK with type 2 diabetes "experienced greater therapeutic inertia following identification of uncontrolled HbA1c", being intensified to noninsulin combination therapy and insulin therapy more slowly than those in White groups. 44 A further UK study showed that Black people with type 2 diabetes were 50% less likely than White people to be prescribed newer medication, while Asian people were 15% less likely than white people to be prescribed insulin and 50% less likely to be prescribed GLP-1 agonists. 45

People of African, African Caribbean and South Asian ethnicity who have type 2 diabetes are also less likely to be prescribed statins for the management of cardiovascular complications than those of White European ethnicity. One study found that people of African/African Caribbean ethnicity newly diagnosed with type 2 diabetes were 24% less likely to receive a statin prescription than people of White European ethnicity, while people of South Asian ethnicity were 9% less likely. The researchers concluded that policies to increase statin use among people of African/African Caribbean and South Asian ethnicity with type 2 diabetes could substantially reduce the excess burden of cardiovascular events in these groups.⁴⁶

2.2. Access to diabetes technology

There is clear data showing poorer access to wearable diabetes technology amongst people from ethnic minority groups and more deprived areas. The National Paediatric Diabetes Audit (NPDA) 2019–2020 showed that in England and Wales despite increases in usage of both real-time continuous glucose monitoring (CGM) and insulin pumps across all quintiles of deprivation, the gap between usage of these technologies among children and young people living in the most and least deprived areas widened over the preceding 6 years⁴⁷. The NPDA 2020-21 showed a slight reversal in this trend in relation to CGM usage, with the gap between deprivation quintiles slightly decreasing between 2019-20 and 2020-21, although the gap widened in relation to insulin pump usage. The 2020-21 audit also showed that while CGM use was more prevalent amongst those living in the least and second least quintile within most ethnic groups, Black children and young people typically had lower use than other ethnic groups irrespective of deprivation status. White children and young people were more likely to be using a pump compared to those within Asian and Black ethnic groups.⁴⁸



A Diabetes UK technology survey conducted in 2019 found that in all four nations more people were using diabetes technology in the least deprived areas than the most deprived.

Evidence into the specific factors underpinning the inequalities in access to treatments and technologies experienced by people from ethnic minority backgrounds and those from more deprived areas in the UK is lacking. However plausible explanations include healthcare professional bias, where prejudicial assumptions are made about which patients will benefit from, or be able to use, diabetes technologies and comply with specific treatment courses. Studies from the US for example have highlighted that systemic racism is a factor in care and treatment disparities between ethnic groups⁴⁹.

Awareness of different treatment and technology options amongst different social and ethnic groups may also be key, and a report by NFP Synergy for JDRF found that "the lower a person's social grade, the less likely they are to know about and use different types of technology. For example, 25% of people from social grade DE have no awareness of Flash glucose monitoring technology, compared to only 12% in social grade AB. These findings are consistent when people were asked about all types of technology."⁵⁰

Additional possible factors include the acceptability and usability of diabetes technologies which may not be developed with the specific needs of people with diabetes and their families from diverse backgrounds in mind.

2.3. Care processes

The National Diabetes Audit (NDA) in England and Wales shows that people with diabetes living in more deprived areas are less likely to receive all their care processes. In 2018-19, the difference between the most deprived quintile and least deprived quintile was 37% to 44% for people with type 1 diabetes, and 52% to 57% for type 2 diabetes⁵¹.

Information is provided on ethnicity in relation to care processes, however a large proportion of participants in the NDA have their ethnicity listed as 'not stated' or 'not known'. The Scottish Diabetes Survey has similar issues and audit data is not yet available at all in Northern Ireland. This makes analysis of care processes challenging. The NHS and national governments should work with GP practices to ensure better recording of ethnicity in primary care records and should consider the use of incentives to improve recording for people with diabetes and those at risk of developing it.



2.4. Access to prevention interventions

Data from 2018/19 showed that people offered a place on the NHS Diabetes Prevention Programme (NDPP) were more likely to be of Black or Asian ethnicity and more likely to be from a more deprived area⁵². However, published data to date shows completion rates of the programme have been lower for those in Asian, Black, and other minority ethnic groups than those in White groups⁵³. Exploration of the reasons for this rate of incompletion and potential underlying structural issues is required.

Data from the NDPP also show poorer completion rates amongst younger age groups to date. However, the high proportions of people younger than 40 years diagnosed with type 2 diabetes from ethnic minority groups, particularly those of South Asian heritage, and more socially deprived localities, highlight important target populations for the future development of the programme, particularly given evidence of earlier mortality and the very high risk of macrovascular and microvascular complications following a diagnosis earlier in life⁵⁴.

2.5. Access to remission interventions

NHS England have recently begun to trial a low-calorie diet approach for people with recently diagnosed type 2 diabetes, with the aim of bringing about type 2 diabetes remission. Similar programmes are also being trialled elsewhere in the UK, through the Type 2 Diabetes Programme in Scotland and the Diabetes Remission Programme in Northern Ireland. These programmes are in the very early stages, but we will monitor any inequality implications in how they are accessed and experienced.

2.6. Access to structured education

In our 'future of diabetes' survey, only 27% of people from Asian backgrounds reported attending a formal group education course, compared to 39% of white people.

An analysis of the DAFNE structured education programme for people with type 1 diabetes found that male gender, older age, non-white ethnicity and coming from an area of social deprivation were all associated with non-attendance⁵⁵.

A Cochrane review published in 2015 showed that culturally appropriate diabetes education "showed consistent benefits over conventional care in terms of glycaemic control and diabetes knowledge" for people with type 2 diabetes⁵⁶.

Health systems should collect and closely monitor data to identify and address disparities in access to care and treatment between people with different ethnic and economic backgrounds. Further exploration of the extent to which health professionals bias and other systemic issues within the health system is needed to inform further appropriate



action, as well as developing a better understanding of individual and family factors which may also be at play.

3. Diabetes outcomes

3.1. Access to structured education

People in the least deprived quintile, are more likely to achieve all three treatment targets than those in the most deprived quintile. For people with type 1 diabetes this difference is 16% (most deprived) to 24% (least deprived). For people with type 2 it is 40% (most deprived) to 43% (least deprived).⁵⁷

The National Paediatric Diabetes Audit annual report 2019/20 outlined a six year trend of Black children and young people with type 1 diabetes, having consistently higher HbA1c than those in other ethnic groups, as well as higher HbA1c for the most deprived group⁵⁸.

An analysis of data for people with type 2 diabetes from 2012 to 2016 found that the most deprived groups showed poorer HbA1c than the least deprived groups, and people of Black ethnicity had worse HbA1c than those of White ethnicity⁵⁹.

However, as set out above in relation to care processes data, information provided on ethnicity in relation to treatment targets is limited as a large proportion of participants have their ethnicity listed as 'not stated' or 'not known' within the recorded achievement of three treatment targets related to HbA1c, blood pressure and cholesterol in the NDA in England and Wales. Again, similar issues also apply to treatment target data within the SDS in Scotland. This makes analysis of treatment targets challenging. And the absence of a diabetes audit programme in Northern Ireland entirely prevents action to identify and act upon inequalities in care processes.

The NHS and national governments should work with GP practices to ensure better recording of ethnicity in primary care records, and they should consider the use of incentives to improve recording for people with and at risk of diabetes. The Northern Ireland Executive should enable the health service to capture and make available local data, and the Northern Ireland Diabetes Network, with the support of the Department of Health should ensure, as committed to in 2016's Diabetes Strategic Framework, that a systematic and robust method of auditing on diabetes prevalence and care is out in place, like the National Diabetes Audit in England and Wales, to inform where to target investment and address inequalities.

3.2. Diabetes complications

According to the NDA, complication rates are higher in more deprived areas, with steep gradients for heart failure, angina, renal replacement therapy (RRT) and diabetic



ketoacidosis (DKA) and hyperglycaemic hyperosmolar state (HHS) both life-threatening complication of diabetes that require urgent hospital treatment, in type 1 diabetes and angina, major amputation, (RRT) and DKA/HHS in type 2 and other⁶⁰.

NDA data also shows that in type 1 diabetes, Asian ethnicity is associated with higher rates of heart failure, angina, MI and RRT; Black ethnicity is associated with higher rates of RRT⁶¹. A systematic review has shown South Asians with type 1 diabetes have higher mortality compared to White Europeans, mainly contributed to by excess cardiovascular disease⁶².

NDA data shows that in type 2 and other diabetes, White ethnicity is associated with higher rates of heart failure, angina and stroke; Asian and Black ethnicities are associated with higher rates of RRT⁶³. The DRIVE study found that the prevalence of retinopathy in type 2 diabetes is highest in people of African/Afro-Caribbean descent compared to South Asians or White Europeans⁶⁴.

International evidence looking at outcomes of homeless people living with diabetes has also shone a light on poorer outcomes amongst those living in destitution. Homeless people with diabetes were found to have higher blood sugar levels compared to the housed population, with two studies reporting that over 40% of those with diabetes had an HbA1c (average blood sugar level) of 64mmol/mol – significantly higher than the 48mmol/mol target for people with diabetes. Homelessness was also associated with higher rates of DKA, and higher rates of lower limb amputation – a result of diabetes-related foot complications.⁶⁵

3.3. Health outcomes following gestational diabetes

An analysis of health records of nearly 11,000 women who had experienced gestational diabetes showed that Black and South Asian women face a higher risk of poor health following a pregnancy involving gestational diabetes than White women. The study showed that South Asian women were nearly twice as likely to develop type 2 diabetes when compared to White women; Black women were nearly 1.5 times more likely to have recurrent gestational diabetes when compared to White women and Black women were nearly 3 times more likely to have hypertension when compared to White women.⁶⁶

Key definitions

Ethnicity is a term used to categorise populations based on a diverse collection of common traits. It "usually it refers to group identity based on culture, religion, traditions, and customs" and cannot be biologically or genetically defined due to the large amount of genetic variation between individuals.



Health in all policies is an established approach to improving health outcomes and health equity through joined up action to address the social, environmental, economic and commercial conditions in which people live. It is an approach "that systematically takes into account the health implications of decisions, seeks synergies, and avoids harmful health impacts in order to improve population health and health equity.⁶⁷"

Health inequalities are unfair and avoidable differences in health across the population, and between different groups within society. Health inequalities arise because of the conditions in which we are born, grow, live, work and age.

Structural inequalities is a term used covering two core components: persistence and intersectionality. Persistence refers to inequalities that are continually reinforced and compounded over time, both over generations and throughout an individual's life-course, as a result of certain social structures and institutions. Intersectionality considers the relationships between inequalities and the cumulative effects of experiencing varying combinations of inequality. In this way, intersectionality recognises that inequality is fundamentally different for each individual and that certain groups in UK society face greater inequalities with increased persistence, and these differences can be explained by specific social structures and institutions. Structural inequalities are the result of the historical and persisting uneven distribution of political and economic power in society.

¹ International Covenant on Economic, Social and Cultural Rights, Article 12

² Health and Social Care Information Centre (2006). Health Survey for England 2004, Health of Ethnic Minorities and Ntuk, U.E., Gill, J.M.R., Mackay, D.F., Sattar N. & Pell, J.P. (2014). Ethnic-Specific Obesity Cut offs for Diabetes Risk: Cross-sectional Study of 490,288 UK Biobank Participants. Diabetes Care 37(9), 2500–7 https://doi.org/10.2337/dc13-2966

³ Eastwood SV, T Tillin, HM Dehbi et al. Ethnic differences in associations between fat deposition and incident diabetes and underlying mechanisms: the SABRE study. Obesity 2015;23:699–706. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4463764/

⁴ Sanjoy K. Paul PhD, Ebenezer S. Owusu Adjah MSc, Mayukh Samanta PhD, Kiran Patel MD, Srikanth Bellary MD, Wasim Hanif MD, Kamlesh Khunti PhD (2017). Comparison of body mass index at diagnosis of diabetes in a multi-ethnic population: A case-control study with matched non-diabetic controls. Diabetes, Obesity and Metabolism Volume 19, Issue 7: 1014-1023 https://dom-pubs.onlinelibrary.wilev.com/doi/full/10.1111/dom.12915

⁵ Tillin T, N Sattar, I F Godsland, A D Hughes, N Chaturvedi, and N G Forouhi (2015). Ethnicity-specific obesity cut-points in the development of Type 2 diabetes – a prospective study including three ethnic groups in the United Kingdom. Diabetic Med. 2015 Feb; 32(2): 226–234. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4441277/

⁶ Bello O, C Mohandas, F Shojee-Moradie. et al. Black African men with early type 2 diabetes have similar muscle, liver and adipose tissue insulin sensitivity to white European men despite lower visceral fat. Diabetologia 62, 835–844 (2019). https://doi.org/10.1007/s00125-019-4820-6

⁷ Ntuk, U.E., Gill, J.M.R., Mackay, D.F., Sattar N. & Pell, J.P. (2014). Ethnic-Specific Obesity Cut offs for Diabetes Risk: Cross-sectional Study of 490,288 UK Biobank Participants. Diabetes Care 37(9), 2500–7 https://doi.org/10.2337/dc13-2966

⁸ Agardh E, P Allebeck, J Hallqvist, T Moradi, A Sidorchuk (2019). Type 2 diabetes incidence and socioeconomic position: a systematic review and meta-analysis. Int J Epidemiol. 2011 Jun;40(3):804-18. https://pubmed.ncbi.nlm.nih.gov/21335614/



- ⁹ NHS Digital (2021) National Diabetes Audit Report 1 Care Processes and Treatment Targets 2020-21, Full Report https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/report-1-care-processes-and-treatment-targets-2020-21-underlying-data
- ¹⁰ NHS Digital (2021) National Diabetes Audit Report Young People with Type 2 Diabetes 2019-20 https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/young-people-with-type-2-diabetes-2019-20
- ¹¹ NHS Digital (2020) National Diabetes Audit Report 1 Care Processes and Treatment Targets 2018-19 Characteristics of People with Diabetes https://digital.nhs.uk/data-and-
- information/publications/statistical/national-diabetes-audit/report-1-care-processes-and-treatment-targets-2018-19-full-report
- ¹² Chiyoko Usui, Meiko Asaka, Hiroshi Kawano, Tomoko Aoyama, Toshimichi Ishijima, Shizuo Sakamoto, Mitsuru Higuchi (2010). J Nutr Sci Vitaminol (Tokyo). 2010;56(2):109-16 https://pubmed.ncbi.nlm.nih.gov/20495292/
- ¹³ Kings Fund (2020) What are health inequalities? | The King's Fund (kingsfund.org.uk)
- ¹⁴ NHS Digital (2020). Health Survey for England 2019 Overweight and obesity in adults and children https://files.digital.nhs.uk/9D/4195D5/HSE19-Overweight-obesity-rep.pdf
- ¹⁵ Welsh Government (2020) National Survey for Wales, 2019-20: adult lifestyle https://gov.wales/adult-lifestyle-national-survey-wales-april-2019-march-2020
- ¹⁶ Department of Health (2020) Health Survey Northern Ireland 2019-20 https://www.health-ni.gov.uk/sites/default/files/publications/health/hsni-trend-tables-19-20.xlsx
- ¹⁷ NHS Digital (2019) Health Survey for England 2018 Overweight and obesity in adults and children https://files.digital.nhs.uk/52/FD7E18/HSE18-Adult-Child-Obesity-rep.pdf
- ¹⁸ NHS Digital (2021). National Child Measurement Programme, England 2020/21 School Year. https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2020-21-school-year/deprivation
- ¹⁹ Scottish Health Survey 2018: main report revised 2020. https://www.gov.scot/publications/scottish-health-survey-2018-volume-1-main-report/pages/62/
- ²⁰ The Food Foundation (2018) Affordability of the UK's Eatwell Guide. https://foodfoundation.org.uk/wp-content/uploads/2018/10/Affordability-of-the-Eatwell-Guide_Final_Web-Version.pdf
- ²¹ Department of Health (2020) Health Survey (NI) First Results 2019/20 https://www.health-ni.gov.uk/sites/default/files/publications/health/hsni-first-results-19-20.pdf
- ²² NHS Digital (2020) Statistics on Obesity, Physical Activity and Diet, England, 2020 https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet/england-2020/part-5-adult-physical-activity-copy
- ²³ Gov.UK (2019) Ethnicity facts and figures: Physical inactivity https://www.ethnicity-facts-figures.service.gov.uk/health/diet-and-exercise/physical-inactivity/latest
- ²⁴ D. Lane, DG Beevers & GYH Lip (2002) Ethnic differences in blood pressure and the prevalence of hypertension in England. J Hum Hypertens 16, 267–273. https://www.nature.com/articles/1001371
- ²⁵ Gov.UK (2021) Ethnicity facts and figures: Overweight adults https://www.ethnicity-facts-figures overweight of the state of the stat
- figures.service.gov.uk/health/diet-and-exercise/overweight-adults/latest
- ²⁶ Gov.UK (2020) Ethnicity facts and figures: People living in deprived neighbourhoods https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/demographics/people-living-in-deprived-neighbourhoods/latest
- ²⁷ DWP, Households Below Average Income, 2019/20
- ²⁸ JRF (2022) Poverty Northern in Ireland 2022
- ²⁹ Kristy Iglay, Hakima Hannachi, Patrick Joseph Howie, Jinfei Xu, Xueying Li, Samuel S. Engel, Lori M. Moore & Swapnil Rajpathak (2016) Prevalence and co-prevalence of comorbidities among patients with type 2 diabetes mellitus, Current Medical Research and Opinion, 32:7, 1243-1252, https://doi.org/10.1185/03007995.2016.1168291
- ³⁰ Nowakowska, M., Zghebi, S.S., Ashcroft, D.M. et al. The comorbidity burden of type 2 diabetes mellitus: patterns, clusters and predictions from a large English primary care cohort. BMC Med 17, 145 (2019). https://doi.org/10.1186/s12916-019-1373-y
- ³¹ Nowakowska, M., Zghebi, S.S., Ashcroft, D.M. et al. The comorbidity burden of type 2 diabetes mellitus: patterns, clusters and predictions from a large English primary care cohort. BMC Med 17, 145 (2019). https://doi.org/10.1186/s12916-019-1373-y
- ³² Cohen, A. et al. (2018) "Diabetes Outcomes in People with Severe Mental Illness," The British journal of general practice: the journal of the Royal College of General Practitioners, 68(669), pp. 166–167



- ³³ Han, L. et al. (2021) "Impact of Severe Mental Illness on Healthcare Use and Health Outcomes for People with Type 2 Diabetes: A Longitudinal Observational Study in England," The British journal of general practice: the journal of the Royal College of General Practitioners, 71(709)
- ³⁴ Ismail, K., Moulton, C. D., Winkley, K., Pickup, J. C., Thomas, S. M., Sherwood, R. A., Stahl, D., & Amiel, S. A. (2017). The association of depressive symptoms and diabetes distress with glycaemic control and diabetes complications over 2 years in newly diagnosed type 2 diabetes: a prospective cohort study. Diabetologia, 60(10), 2092–2102. https://doi.org/10.1007/s00125-017-4367-3
- ³⁵ Cooper S-A, McLean G, Guthrie B, McConnachie A, Mercer S, Sullivan F, et al. (2015) Multiple physical and mental health comorbidity in adults with intellectual disabilities: population-based cross-sectional analysis. BMC family practice.16(1):110.
- ³⁶ Diabetes UK (2018) Improving care for people with diabetes and a learning disability Fact sheet 1.pdf
- ³⁷ 3. Robertson J, Emerson E, Baines S, Hatton C. (2014) Obesity and health behaviours of British adults with self-reported intellectual impairments: cross sectional survey. BMC Public Health.14(1):1-7
- 38 ar1011_ncg-autism-report-july-2016.pdf (wordpress.com)
- ³⁹ Croen L.A. et al. (2015) The health status of adults on the autism spectrum PubMed (nih.gov)
- ⁴⁰ Weir E, Allison C, Warrier V, Baron-Cohen S. (2021) Increased prevalence of non-communicable physical health conditions among autistic adults. *Autism.* 25(3):681-694. doi:10.1177/1362361320953652
- Williams D R, H W Neighbors, and J S Jackson (2003) American Journal of Public Health, Vol 93, No. 2 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447717/pdf/0930200.pdf
- ⁴² Elizabeth A. Pascoe and Laura Smart Richman (2009) Perceived Discrimination and Health: A Meta-Analytic Review. *Psychological Bulletin*, 135(4), 531–554. https://doi.org/10.1037/a0016059
- ⁴³ Michael Marmot, Peter Goldblatt, Jessica Allen, et al. (2010) Fair society, healthy lives: the Marmot Review, https://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review/fair-society-healthy-lives-full-report-pdf.pdf: The Health Foundation (2020). Health equity in England: the Marmot review 10 years on https://www.health.org.uk/publications/reports/the-marmot-review-10-years-on; Institute of Health Equity (2022) All together fairer: Health equity and the social determinants of health in Cheshire and Merseyside-report-FINAL.pdf
- ⁴⁴ Mathur R, Farmer RE, Eastwood SV, Chaturvedi N, Douglas I, Smeeth L (2020) Ethnic disparities in initiation and intensification of diabetes treatment in adults with type 2 diabetes in the UK, 1990–2017: A cohort study. PLoS Med 17(5): e1003106. https://doi.org/10.1371/journal.pmed.1003106
- ⁴⁵ Whyte MB, Hinton W, McGovern A, van Vlymen J, Ferreira F, Calderara S, et al. (2019) Disparities in glycaemic control, monitoring, and treatment of type 2 diabetes in England: A retrospective cohort analysis. PLoS Med 16(10): e1002942 https://doi.org/10.1371/journal.pmed.1002942
- ⁴⁶ Eastwood SV, Mathur R, Sattar N, Smeeth L, Bhaskaran K, Chaturvedi N (2021) Ethnic differences in guideline-indicated statin initiation for people with type 2 diabetes in UK primary care, 2006–2019: A cohort study. PLoS Med 18(6): e1003672. https://doi.org/10.1371/journal.pmed.1003672
- ⁴⁷ RCPCH (2021) National paediatric diabetes audit. Annual report 2019-20.
- https://www.rcpch.ac.uk/sites/default/files/2021-06/Appendix%201%20NPDA%20201920.pdf
- ⁴⁸ RCPCH (2022) National paediatric diabetes audit. Annual report 2020-21.
- https://www.rcpch.ac.uk/sites/default/files/2022-04/NPDA%20report%202020-
- 21%20Appendix%201%20Full%20audit%20analysis_0.pdf
- ⁴⁹ For example Golden SH, Joseph JJ, Hill-Briggs F (2021) Casting a health equity lens on endocrinology and diabetes. J Clin Endocrinol Metabol. 2021; 106: e1909-e1916
- https://www.thelancet.com/journals/landia/article/PIIS2213-8587(21)00144-3/fulltext and Golden SH (2021) The contribution of structural racism to metabolic health disparities in the USA. The Lancet Diabetes and Endocrinology. Comment, Vol 9, Issue 8, p478-480 https://doi.org/10.1016/S2213-8587(21)00144-3

 50 JDRF (2020) Barriers and drivers to technology https://jdrf.org.uk/wp-content/uploads/2020/02/jdrf-
- pathway-to-choice-full-report-2020.pdf
- ⁵¹ NHS Digital (2020) National Diabetes Audit Report 1 Care Processes and Treatment Targets 2018-19, Full Report https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/report-1-care-processes-and-treatment-targets-2018-19-full-report
- NHS Digital (2020) National Diabetes Audit Report Non-Diabetic Hyperglycaemia, 2018-19 Diabetes Prevention Programme https://files.digital.nhs.uk/FB/18A4DF/NDA NDH MainReport 1819.pdf



- ⁵³ National Institute for Health Research (2021) Providers of the Diabetes Prevention Programme need to be more consistent, and offer flexibility and equality of access <a href="https://evidence.nihr.ac.uk/alert/diabetes-prevention-programme-providers-need-more-consistency-flexibility-equality-of-access/#:~:text=people%20from%20Asian%2C%20Black%2C%20and,did%20not%20affect%20their%20 participation
- Holman N, S H Wild, E W Gregg, J Valabhji, N Sattar, K Kunti et al. (2021) Comparison of mortality in people with type 1 and type 2 diabetes by age of diagnosis: an incident population-based study in England and Wales. The Lancet Diabetes and Endocrinology, https://doi.org/10.1016/S2213-8587(21)00293-X
 Harris SM, P Shah, H Mulnier, A Healey, S M Thomas, S A Amiel, D Hopkins (2017) Factors influencing attendance at structured education for Type 1 diabetes in south London. Diabet. Med. Volume34, Issue6 https://doi.org/10.1111/dme.13333
- ⁵⁶ Creamer J, Attridge M, Ramsden M, Cannings-John R, Hawthorne K. Culturally appropriate health education for Type 2 diabetes in ethnic minority groups: an updated Cochrane Review of randomized controlled trials. (2015) Effect of culturally appropriate diabetes education for Type 2 diabetes. Diabet med. 33(2):169-83. https://doi.org/10.1111/dme.12865
- ⁵⁷ NHS Digital (2020) National Diabetes Audit Report 1 Care Processes and Treatment Targets 2018-19, Full Report https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/report-1-care-processes-and-treatment-targets-2018-19-full-report
- ⁵⁸ RCPCH (2021) National paediatric diabetes audit. Annual report 2019-20. https://www.rcpch.ac.uk/sites/default/files/2021-06/Appendix%201%20NPDA%20201920.pdf
- ⁵⁹ Whyte MB, Hinton W, McGovern A, van Vlymen J, Ferreira F, Calderara S, et al. (2019) Disparities in glycaemic control, monitoring, and treatment of type 2 diabetes in England: A retrospective cohort analysis. PLoS Med 16(10). https://doi.org/10.1371/journal.pmed.1002942
- ⁶⁰ NHS Digital (2019) National Diabetes Audit 2017-18 Complications and Mortality https://files.digital.nhs.uk/64/0AFA78/National%20Diabetes%20Audit%2C%202017-18%2C%20Report%202b.pdf
- ⁶¹ NHS Digital (2019) National Diabetes Audit 2017-18 Complications and Mortality https://files.digital.nhs.uk/64/0AFA78/National%20Diabetes%20Audit%2C%202017-18%2C%20Report%202b.pdf
- ⁶² Sarwar, K. N., Cliff, P., Saravanan, P., Khunti, K., Nirantharakumar, K., & Narendran, P. (2017). Comorbidities, complications and mortality in people of South Asian ethnicity with type 1 diabetes compared with other ethnic groups: a systematic review. BMJ open, 7(7), e015005. https://doi.org/10.1136/bmjopen-2016-015005
- ⁶³ NHS Digital (2019) National Diabetes Audit 2017-18 Complications and Mortality https://files.digital.nhs.uk/64/0AFA78/National%20Diabetes%20Audit%2C%202017-18%2C%20Report%202b.pdf
- ⁶⁴ Sivaprasad S, B Gupta, M C Gulliford, H Dodhia, M Mohamed, Di Nagi, J R Evans (2012) Ethnic Variations in the Prevalence of Diabetic Retinopathy in People with Diabetes Attending Screening in the United Kingdom (DRIVE UK). PLOS ONE https://doi.org/10.1371/journal.pone.0032182
- ⁶⁵ Research led by Dr Catherine Russell presented at Diabetes UK Professional Conference (DUKPC) 2021. https://www.diabetes.org.uk/about_us/news/DUKPC-highlights-part-1
- ⁶⁶ Study led by Dr Elpida Vounzoulaki at University of Leicester presented at DUKPC 2022 <a href="https://arc-em.nihr.ac.uk/news-events/news/leicester-researcher-reveals-health-inequalities-black-and-south-asian-women#:~:text=The%20study%2C%20led%20by%20Elpida,previously%20diagnosed%20with%20gestational%20diabetes.
- ⁶⁷ World Health Organisation (2015) https://www.who.int/social_determinants/publications/health-policies-manual/key-messages-en.pdf