



**Social Epidemiology and Public Health Development**

**LCHS7000**

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## **1.0 Task 1: Social Epidemiological Analysis**

### **1.1 Introduction**

Disabled people are those who have been affected by a physical, sensory, intellectual, or mental impairment lasting for a long period of time (Ginis *et al.*, 2021). This group is especially prone to health disparities since there is an interaction between disability and socioeconomic deprivation, unavailability of health services, and lack of access to work opportunities. According to Aitken *et al.* (2022), participation barriers were seen to have a significant mediating effect on the relationship between poorer health and wellbeing and people with disabilities, revealing that inequality is not only determined by the disability itself but also by the environment. Disability inequalities are further highlighted in recent UK research as existing in education, age, gender, and region, reinforcing disability as an important social determinant of health (Banks *et al.*, 2024).

### **1.2 Contextual Background and Underlying Factors: Most important health inequality issues**

#### **1.2.1 Diseases/illness**

##### **Higher prevalence of multiple long-term conditions**

People who are disabled have a disproportionately higher incidence of multiple morbidities. UK studies that included 18,144 individuals with intellectual disabilities found that there were many cases of mental health illnesses coupled with epilepsy, diabetes, high blood pressure, chronic pain, and gastrointestinal disorders (Cosma *et al.*, 2025). Having more than one disease might exacerbate impairments and create reliance on medical care. Earlier multidisciplinary screening and coordinated long-term condition management could reduce preventable deterioration.

##### **Poorer mental health and psychological wellbeing**

Individuals with disabilities are at higher risk for mental health issues due to the factors of impairment associated with discrimination and limited disability access to services and participation. Rysstad, Skoglund and Kildahl (2025) identified chronic mental disorder in all age groups of adults with intellectual disabilities. McBride-Henry *et al.* (2023) also identified that disabled individuals' mental health was adversely impacted by barriers to accessing healthcare. Therefore, psychological services that are easily accessible and integrated disability sensitive care are required.

##### **Higher risk of premature and infectious-disease mortality**

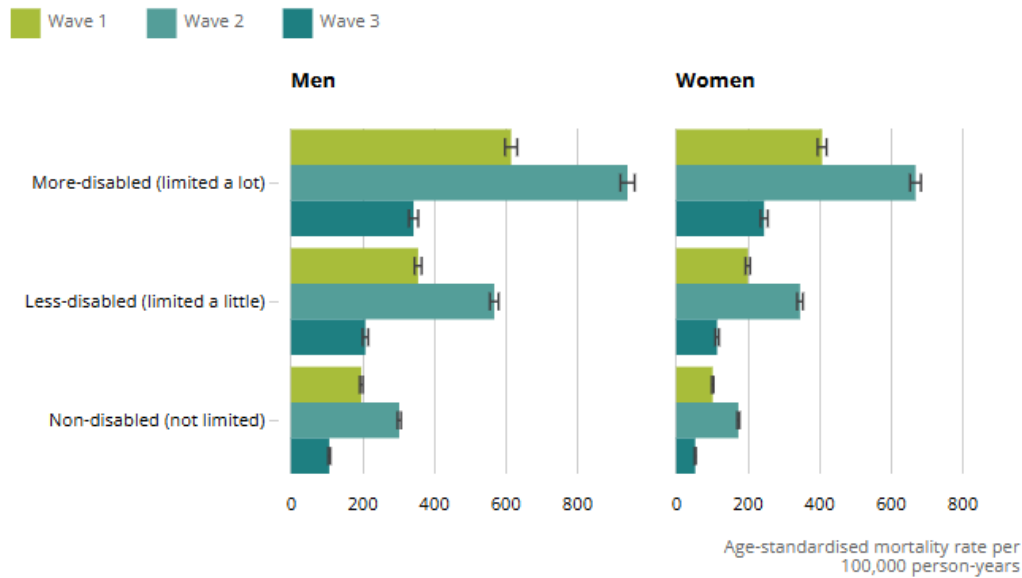


**Figure 1: Mortality Rates Involving COVID-19**

(Source: ONS, 2022)

There are significant inequalities in levels of mortality. ONS analysis found that, even after adjustment for socioeconomic, demographic, health and vaccination factors, COVID-19 mortality was 1.4 times higher among more-disabled men and 1.6 times higher among more-disabled women than non-disabled counterparts (ONS, 2022). Such differences are indicative of reciprocally influencing health and social barriers. Preventive care, access to vaccines and proactive clinical risk management will curtail excess mortality.

### **1.2.2 Social Health Inequalities**

#### **Poverty and financial disadvantage**

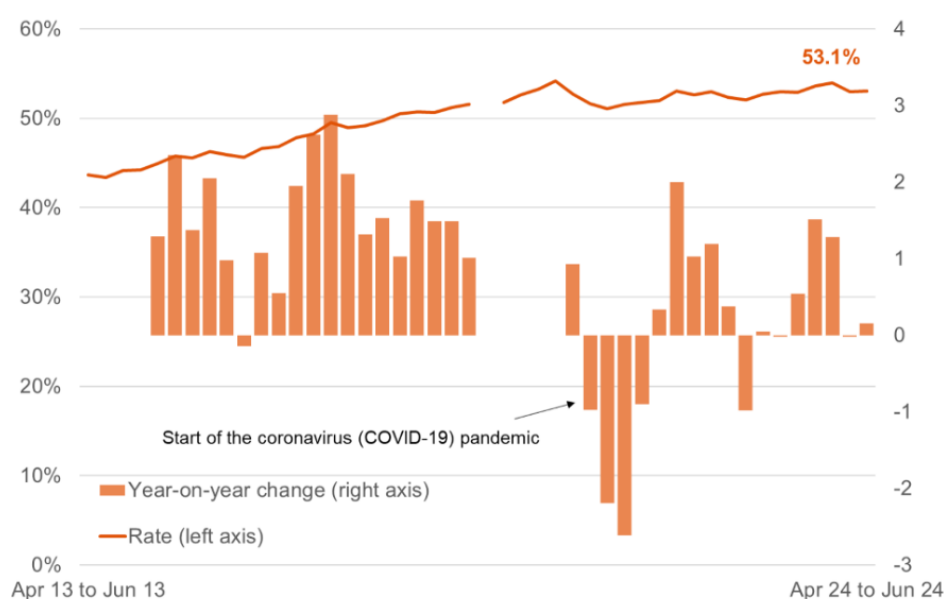
| Group                          | Poverty rate |
|--------------------------------|--------------|
| Disabled child                 | 31%          |
| Disabled working-age adult     | 33%          |
| Disabled pensioner             | 19%          |
| Not disabled child             | 31%          |
| Not disabled working-age adult | 17%          |
| Not disabled pensioner         | 15%          |

**Figure 2: Poverty Rate among Disabled Community**

(Source: Jrf.org, 2026)

The financial challenges and poverty definitely play an important role in forming the health inequalities seen in people with disabilities. Disabled households are significantly overrepresented in poverty. The proportion of disabled individuals living in poverty was 28%, and the proportion of working-age disabled adults living in poverty was 33% between 2023 and 2024 (Jrf.org, 2026). Additional disability costs and lack of work opportunities compound material deprivation and can limit access to healthy foods, heating and health care. Adequate social protection and disability-related financial support are therefore essential.

### Employment inequality and economic exclusion



### **Figure 3: The Disability Employment Rate**

(Source: GOV.UK, 2024)

Unemployment is a significant social disparity. Between 2023 and 2024, only 53.1% of disabled working-age people were employed compared with 81.8% of non-disabled people, producing a 28.4-percentage-point disability employment gap (GOV.UK, 2024). Disabled workers also have higher rates of underemployment and insecure work (Smethurst, Thompson and Freeth, 2025). Making workplace changes and making recruitment and employer-supported occupational health more accessible may lead to better participation and lower socioeconomic health inequalities.

#### **Social isolation and loneliness**

Loneliness is higher among disabled people because disability can make it harder to sustain social networks, due to inaccessible environments, mobility restrictions and a negative stigma. Macdonald *et al.* (2018) found that disabled participants N=250 were significantly more likely to experience emotional loneliness and social isolation than 355 non-disabled participants. There is potential to enhance participation and social connectedness through community-based inclusive activities, accessible transport and peer-support programmes. Loneliness as a factor can adversely affect mental and physical wellbeing, leading to higher chances of developing stress and anxiety, depression and lower levels of general wellbeing (Macdonald *et al.*, 2018). In the case of disabled people, social exclusion can prevent them from getting prescriptions, support from family and community. A person suffering from mobility issues may not go to social gatherings as some places and means of transport are not accessible for them, hence shrinking their social circle over time.

#### **1.3 National Response to Reduce Health Inequalities**

There have been some steps internationally to address inequalities faced by disabled people; the UK has taken some steps. First, the NHS England's Reasonable Adjustment Digital Flag records the individual's accessibility needs, for example, longer appointments and accessible information to ensure they are recognised by publicly funded health and social care services (NHS England, 2024). The deadline for implementation is September 2026, which will help promote access to health care services that are more equitable. Second, the Equality Act 2010 requires health and care providers to make reasonable adjustments for disabled people, which helps minimise discrimination and structural barriers to accessing services (Equality and Human Rights Commission, 2026).

## 1.4 Organisation Supporting Disabled People

Disability Rights UK presses for equality, shapes policy, advises on policy, promotes the voice of disabled people, raises awareness of discrimination and inaccessible services, and helps to raise awareness of other health and social inequalities (Disability Rights UK, 2026).

### Ending the disability price tag

We want to see disabled people and their families have an equal standard of living as non-disabled people.

### Closing the Disability Employment Gap

We want all disabled people who want to work, to move into, stay in, and progress in work.

### Transforming attitudes

We want to see a more inclusive society where attitudes towards disability, and disabled people, and disabled families are improved.

#### Figure 4: Scope's Goal

(Source: Scope, 2026)

Scope is a national, UK disability equality charity that provides information, advice, campaigns and research for disabled individuals (Scope, 2024a). It is used to tackle disabled people's experiences in research and to provide policy recommendations for government and business (Scope, 2024b). The long-term objectives of Scope are to stop the extra financial burden of disability, reduce the disability employment gap and change negative attitudes to disability in society (Scope, 2026). It aims more broadly to make a society of equal opportunities, fairness and disabled people's increased independence.

## 1.5 Conclusion

People with disabilities in the UK experience substantial health inequalities arising from both medical and social disadvantages. Higher levels of long-term conditions, mental ill-health and premature mortality interact with poverty, employment exclusion and social isolation. These inequalities are reinforced by barriers to accessible healthcare and wider participation. National measures, including reasonable adjustments and equality legislation, aim to reduce these disparities, while organisations such as Disability Rights UK and Scope provide advocacy, research and practical support to promote greater inclusion and health equity.

## **2.0 Task 2: Epidemiological Analysis**

### **2.1 Introduction**

T2DM is a chronic metabolic disorder defined by insulin resistance, progressive dysfunction of the pancreas  $\beta$ -cells and ongoing hyperglycaemia that can cause problems in the heart, kidneys, nerves, and eyes (Kalyani *et al.*, 2025). Social consequences include lower quality of life and restrictions on work, as well as greater reliance on healthcare, and cultural and socioeconomic factors may affect diet, physical activity and access to prevention. Globally, approximately 828 million adults were living with diabetes in 2022 (Zhou *et al.*, 2024). The prevalence of diagnosed T2DM in England was 7.0% of adults aged 17 years and over in 2024 (Office for Health Improvement and Disparities, 2025). The Birmingham area has a large public health need for adults, as it is expected that approximately 1 in every 10 adults has diabetes (Au-Yeung *et al.*, 2024).

### **2.2 Public Health Measures: The 3 Ps**

Prevention, protection and promotion are the 3 Ps around which Birmingham public health action can be organised for adults with type 2 diabetes. Prevention involves referring adults at risk to lifestyle and weight-management interventions that could slow progression to diabetes and improve a person's metabolic outcomes (Karvela *et al.*, 2024). Protection is provided by routine monitoring of HbA1c, blood pressure, renal function, foot function and retina for early detection of complications and minimisation of preventable morbidity. Health promotion involves structured, organised diabetes education and support for self-management to improve diet, activity, medication management, and glucose management. There is new NIHR evidence in support of delivering structured diabetes education as part of primary care, yet there are variations in uptake between different socioeconomic and ethnic groups (Davies *et al.*, 2025).

### **2.3 Key Determinants and Risk Factors**

Diabetes type 2 can be caused by diverse biological, social or environmental factors. Overweight and obesity are one of the significant contributors, with excessive abdominal fat being a factor in raised insulin resistance (Beulens *et al.*, 2022). Those who lack physical activity and eat a lot of refined carbohydrates, processed foods and sugars, increase the chances of developing diabetes as well. Old age is another factor associated with higher chances of developing diabetes.

Social determinants have their role in increasing the level of risks. For example, low financial status and poor living conditions can restrict people's access to good food, safe parks and preventive healthcare. Residents of rural areas have higher chances of being around

unhealthy food. Family background and genetic predisposition matter as well. High blood pressure, cholesterol levels, smoking and drinking should also be taken into consideration when talking about risk factors (Beulens *et al.*, 2022). Overall, Type 2 diabetes results from the interplay of biological, behavioural and social factors. Modifiable risk factors are obesity, poor nutrition, lack of exercise, high blood pressure and high blood lipids, and non-modifiable susceptibility is increasing age and family history.

In Birmingham, deprivation and ethnicity are specifically significant due to the analysis of the 108,514 individuals who attended their NHS Health Check, which revealed that diabetes was strongly associated with Asian ethnicity (POR 5.43) and Black ethnicity (POR 3.15) compared to White attendees (Au-Yeung *et al.*, 2024). Socioeconomic deprivation was estimated to contribute 64% to the burden of diabetes cases, highlighting the significant role played by structural disadvantage in increasing individual-level risk and thus assisting in targeted prevention in deprived communities (Au-Yeung *et al.*, 2024).

## **2.4 Epidemiological Studies and Health Needs Assessment**

The findings from epidemiology show that the risk of developing Type 2 diabetes among the population of Birmingham arises amongst adults who suffer from deprivation, obesity, physical inactivity, diabetes in their family members and certain types of minorities. From the study conducted by Au-Yeung *et al.* (2024), it was found that the prevalence odds ratio for having diabetes amongst the Asian attendees was 5.43 times higher than that for the White attendees and 3.15 times higher for Black attendees than for the White attendees. A health needs assessment should therefore combine local prevalence patterns, primary-care records, deprivation indices and service-use data to identify groups. The current literature shows that the diabetes disparity is also influenced by social determinants in addition to personal factors, which suggests that vulnerable populations are at risk of encountering issues with screening, prevention, and follow-up care as well (Woodward *et al.*, 2024). Hence, Birmingham should focus on the communities with low health literacy, pre-diabetes, and adults.

## **2.5 Monitoring and Surveillance Approaches**

Type 2 diabetes in Birmingham is primarily monitored by regular, active, and programmatic methods. Electronic health records of GPs and the National Diabetes Audit (NDA) give continuously updated data about patients with diagnosed diabetes, their management processes, and their results; NDA data were also used for evaluation of national diabetes incidence (Holman *et al.*, 2023; National Diabetes Audit, 2024). NHS Health Checks offer active case-finding through diagnosis of previously unrecognised cases of diabetes and pre-diabetes among eligible patients; Birmingham experience highlights their effectiveness in tracking ethnic and socio-economic trends in the community (Au-Yeung *et al.*, 2024).

Programmes' statistics on the NHS Diabetes Prevention Programme also track referrals, uptake, and follow-up of high-risk patients. Yet, insufficient attendance and disparate access to programme services can lead to selective underrepresentation of more vulnerable populations (Chatzi *et al.*, 2023).

## **2.6 Public Health Impact**

### **Short-Term Consequences**

From a short-term perspective, the prevalence of type 2 diabetes places additional strain on the primary healthcare facilities in Birmingham because of increased frequency of consultation at GPs, as well as glucose level monitoring and administration of the required medications. Additionally, inadequate glycaemic control may lead to the occurrence of such conditions as hypoglycaemia, severe hyperglycaemia, infections and hospitalisation due to emergencies (Song and Frier, 2023). Moreover, the presence of fatigue, thirst and increased urination reduces productivity and the capacity of individuals to perform their daily activities. Thus, epidemiologic surveillance is essential for early detection and treatment (Beulens *et al.*, 2022).

### **Long-Term Consequences**

In the long term, uncontrolled type 2 diabetes significantly raises the chances of cardiovascular diseases and strokes, leading to early morbidity and death (Siam *et al.*, 2024). Persistent high blood sugar can also result in nephropathy that might develop into chronic kidney disease and renal failure (Rout and Jialal, 2025). Retinopathy and neuropathy might end up in problems with vision and amputation of the feet or lower limbs (Packer and Manna, 2023). All of these complications can affect the quality of life, increase disabilities and incur high costs for both health care and social care. Longitudinal surveillance can help Birmingham identify complications, mortality patterns and inequalities (Rout and Jialal, 2025).

## **2.7 Proposed Health Intervention Programme**

The proposed Birmingham Diabetes Prevention and Self-Management Programme will address adults with either pre-diabetes or poorly managed type 2 diabetes living in high-risk areas of Birmingham. This will be achieved by a combination of community screenings, cultural dietary education, physical activity promotion, drug assessment, self-management education, and digital follow-up in GP surgeries and community organisations.

### **Expected Impact and Evaluation**

The effects of the programme will be determined through comparison of HbA1c measurements before, after six months, and after 12 months in order to determine improvements in the glycemic status of patients. The percentage of patients developing type 2 diabetes from pre-diabetes will also be considered. Improvement in the body mass index, increased physical

exercise, and healthy eating patterns will reflect improvements in the patient's lifestyle. The number of GP visits, hospital admission rates, and incidence of diabetes complications will also reflect the effect on healthcare utilisation.

## **2.8 Strengths and Weaknesses of the Epidemiological Approach**

The strength of the epidemiological framework for studying type 2 diabetes in Birmingham lies in the availability of NHS and primary care data for population-based studies. Analysis by age, ethnicity and deprivation can aid in identifying high-risk communities and planning interventions accordingly. Repeated surveillance over time will also help determine changes in disease patterns and success of interventions (Ingelbeen *et al.*, 2025). However, routine data might miss those who are not yet diagnosed or rarely seek medical care; hence, there is likely to be an underestimation of the prevalence rate. The observational data can show some relationships that exist, but it does not necessarily prove a cause-and-effect relationship, and there is room for bias.

## **2.9 Conclusion**

Type 2 diabetes is a health problem that poses a significant threat to the population of Birmingham, depending on the interplay between various behavioural, biological and social elements. Monitoring, prevention and management of the condition can prevent complications and address inequalities. Nevertheless, the design of such interventions needs reliable local information and constant evaluation.

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