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Identifying and Addressing the Health Inequalities in Regional and Local Healthcare Services in England

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List of Acronyms

NHS	National Health Service
PHE	Public Health England
SHAPE	Strategic Health Asset Planning and Evaluation
WHO	World Health Organization

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Abstract

Context: Health inequalities have been a topic of interest for researchers over time as they originate from varying vulnerabilities and exposure to health risks. Between 2010 and 2020, inequalities associated with health in England have become worse. The problem lies more in the policy interventions that lack an adequate evidence base than in the systems that are capable of delivering healthcare services to the public.

Objectives: The primary objective of the study is to identify the health inequalities in regional and local healthcare services in England. The study will also focus on exploring what kind of policies exist at governmental level in order to reduce and address the identified inequalities.

Methods: This research study makes use of existing resources and available literature to collect secondary data in order to answer the proposed research questions. The research sources were accessed using online databases. Raw quantitative data about health inequalities was accessed using Fingertips database for public health profiles, provided by Public Health England. The geospatial mapping of the some of the health service outcomes was carried out using the SHAPE Atlas web tool.

Findings: Typical measures of health outcomes included life expectancy, mortality rates, child health, smoking and alcohol consumption, and proximity to healthcare services from the place of residence. On the basis of these factors, it is concluded that some regions are at a particular disadvantage compared to the rest of the population, which puts the residents at a greater risk of suffering from poor health. It was found that no policy has had a lasting effect on reducing health inequalities, which is largely because they have not addressed the underlying socioeconomic factors.

Conclusion: There remain regions in England where access to healthcare services is more challenging than other regions. For any future interventions to be successful, it is necessary for them to be informed by research and backed by data.

Keywords: *Health, Health Inequalities, Healthcare Services, Regional Healthcare, England, NHS, Yorkshire and the Humber*

Résumé

Contexte : Les inégalités en matière de santé ont été un sujet d'intérêt pour les chercheurs au fil du temps car elles proviennent de différentes vulnérabilités et de l'exposition aux risques pour la santé. Entre 2010 et 2020, les inégalités liées à la santé en Angleterre se sont aggravées. Le problème réside davantage dans les interventions politiques qui ne s'appuient pas sur des bases factuelles adéquates que dans les systèmes capables de fournir des services de santé au public.

Objectifs : L'objectif principal de l'étude est d'identifier les inégalités de santé dans les services de santé régionaux et locaux en Angleterre. L'étude se concentrera également sur l'exploration du type de politiques existantes au niveau gouvernemental afin de réduire et de traiter les inégalités identifiées.

Méthodes : Cette étude de recherche utilise les ressources existantes et la littérature disponible pour collecter des données secondaires afin de répondre aux questions de recherche proposées. Les sources de recherche ont été consultées à l'aide de bases de données en ligne. Les données quantitatives brutes sur les inégalités de santé ont été consultées à l'aide de la base de données Fingertips pour les profils de santé publique, fournie par Public Health England. La cartographie géospatiale de certains des résultats des services de santé a été réalisée à l'aide de l'outil Web SHAPE Atlas.

Résultats : Les mesures des résultats en matière de santé comprenaient plus particulièrement l'espérance de vie, les taux de mortalité, la santé des enfants, la consommation de tabac et d'alcool, et la proximité des services de santé depuis le lieu de résidence. Sur la base de ces facteurs, il est conclu que certaines régions sont particulièrement défavorisées par rapport au reste de la population, ce qui expose les résidents à un risque accru de souffrir d'une mauvaise santé. Il a été constaté qu'aucune politique n'a eu d'effet durable sur la réduction des inégalités de santé, ce qui est en grande partie parce qu'elles n'ont pas abordé les facteurs socioéconomiques sous-jacents.

Conclusion : Il reste des régions en Angleterre où l'accès aux services de santé est plus difficile que d'autres régions. Pour que toute future intervention réussisse, il est nécessaire qu'elle soit éclairée par la recherche et étayée par des données.

Mots-clés : Santé, inégalités de santé, services de santé, soins de santé régionaux, Angleterre, NHS, Yorkshire et Humber

Chapter 1: Introduction

This chapter presents the background and overview of the topic of study. This study focuses on identifying and addressing the health inequalities in regional healthcare services in England. The chapter provides an overview of the introduction and background of the study and also discusses its main aims and objectives. Moreover, it covers the research questions and a discussion of the rationale of the study describing the reasons for selecting this topic and the contributions that the present research will make towards the literature. Finally, the chapter concludes by providing an overview of the structure of the dissertation.

1.1. Introduction and Background

The term “health inequalities” can hold a number of meanings in different contexts. In a broader perspective, health inequalities are systematic and unfair but avoidable differences in health between different groups, and across the population (Williams et al., 2020; Graham, 2009; Kawachi et al., 2002; Scambler, 2012). The term is used in many ways, and there are different kinds of health inequalities. Although health inequalities are primarily related to differences in status of health of people, but the term is commonly used for referring to differences in the kind of healthcare services that people receive followed by the opportunities they had to live a healthy life (Williams et al., 2020; Graham, 2009). In general, health inequalities refer to differences in:

1. Availability and accessibility of healthcare services i.e., available treatments, number of hospitals in a region, out of pocket payment, and specialised services in a particular geographical region (Scambler, 2012).
2. The health status of common people i.e., prevalence of different health conditions and diseases, and life expectancy (Kawachi et al., 2002).
3. The experience and quality of available healthcare services i.e., patient satisfaction levels, and treatment and recovery statistics (Graham, 2009).
4. Overarching and wider determinants of public health i.e., living conditions, and housing quality (Williams et al., 2020).

Health inequalities exist between different population groups across many dimensions. Policies about health inequalities in England are generally based on four characteristics of communities and groups (NHS, 2021). These include:

1. Socioeconomic status and deprivation e.g., low-income groups, people having poor housing facilities, and unemployment (Williams et al., 2020; NHS, 2021)
2. Specific protected characteristics e.g., sexual orientation, age, and sex (Williams et al., 2020; NHS, 2021)
3. Geographical regions i.e., rural, urban, and county (Williams et al., 2020; NHS, 2021)

4. Socially excluded and vulnerable groups i.e., migrants, homeless people, sex workers, and gypsies (Williams et al., 2020; NHS, 2021)

Health inequalities have been a topic of interest for researchers over time. According to a study by Hall and Taylor (2009), health inequalities originate from varying vulnerabilities and exposure to health risks. The findings from the existing research studies show that there are persistent and clear health inequalities existing across different regions of world (Gwatkin, 2000; Szwarcwald, 2002; Ruger and Kim; 2006). According to a report by World Health Organization (2011), there is a gap of 36 years in life expectancy between different countries; a child born in Japan could live for 83 years while this number goes down to only 47 years for a child born in Malawi. Similarly, there are significant differences in health outcomes within different countries in terms of social status, income, employment and ethnicity. For example, African American men are most likely to develop cancer among all ethnic groups in US (CDC, 2021). Every day, more than 20,000 children die before their fifth birthday, because of malaria, pneumonia, and other health conditions. Although significant progress has been made to reduce under-five mortality around the world, children from poor households and rural backgrounds remain disproportionately affected as compared to the other groups (UNICEF, 2012). Similarly, more than one hundred billion people in the world are living in hunger, according to estimates by United Nations (2011).

Similarly, the number of available healthcare services and physicians in low-income countries is ten times lower than high-income countries. For example, Switzerland and Norway have around 40 physicians per 10,000 people, while this number drops down to 4 physicians per 10,000 for countries like Myanmar and Nigeria (WHO, 2011). The maternal mortality ratio is another health inequality where developing countries account for 99% of annual maternal mortality numbers in the world. For example, the maternal mortality ratio for Chad and Afghanistan is over 1000 while the average figure for the WHO European Region is 21 (WHO, 2011). Furthermore, about 16 million of adolescent girls (aged 15 to 19 years) give birth every year and the vast majority of these births occurs in developing countries (WHO, 2021). On the other hand, health inequalities also exist in form of costs associated with healthcare services. According to careful estimates, over 150 million people face catastrophic healthcare costs ever year (WHO, 2010). In terms of access to better healthcare facilities, women in the richest 20% of the global population are up to 20 times more likely to have a birth attended by a skilled health worker than a poor woman (WHO, 2011).

1.1.1. Understanding Health Inequalities in England

In England, Marmot indicators are used to understand and measure health inequalities in specialised and non-specialised healthcare services. These indicators provide the information about social determinants and health inequalities to the local authorities annually. A range of indicators exist at smaller area and local authority levels. “Fair Society, Healthy Lives: The Marmot Review report” was published in 2010 which provided an overview and recommendations for health inequalities in England. According to the findings of the report, people with lower socioeconomic background have shorter life expectancy and worse health outcomes as compared to people higher up the scale.

Bridger et al. (2020) discuss the issue of health inequalities in England by stating that between 2010 and 2020, inequalities associated with health in England have become worse. Socioeconomic status is the most important and defining determinant of health inequalities, according to Bridger et al. (2020) with life expectancy being the most prominent metric to compare health inequality in different parts of the country. According to Asaria (2014), the origins of health inequities in England can be traced to the beginning of the NHS in 1948. The main problem is that instead of devising a fresh approach to resource allocation, the NHS distributed health resources (geographically and by medial speciality) according to the existing formula used by the government. As a result, health inequities were perpetuated instead of being eliminated (Asaria 2014). An opportunity had opened up in 1998 when the with the devolution of public policy among England, Wales and Scotland (Blackman et al. 2009). Even though this was an appropriate time for the government in England to improve budget allocation and make health services more accessible to the population, it turned out to be a missed opportunity (Blackman et al. 2009). The emphasis of the government remained on promoting pharmaceutical research instead of focusing on removing bias, introducing evidence-based care and developing effective metrics to monitor health inequalities (Blackman et al. 2009).

Even in Scotland since parliamentary and budgetary devolution, the situation has not been better, as proven in the study by Inglis et al. (2019). The challenge of poverty has continued to widen the health inequities among different communities. Media is also responsible for this because it portrays a negative image of poor communities making poor health behaviour choices which creates stigma against them and makes it challenging for them to access health services (Inglis et al. 2019). Comparing the situation in England with Scotland, Smith (2007) laments the failure of governments in both countries to develop evidence-based policies to address health inequalities. Smith (2007) argues that the governments have shown preference for designing policies on the basis of theories, which have produced mixed results for the population. According

to Goodair et al. (2020), health inequalities are worse in towns in England compared with larger cities. The health inequalities are reflected in shorter life expectancies for the residents, higher levels of child obesity and increased lung cancer cases (Goodair et al. 2020). In fact, health inequalities among different towns are even greater than the inequalities between cities and towns. On the positive side, Cash-Gibson and Benach (2019) state that the availability of a public health system is a sign that England can achieve better health equality among different regions, communities and income groups provided adequate research is carried out to address the problem. The problem lies more in the policy interventions that lack an adequate evidence base than in the systems that are capable of delivering healthcare services to the public.

1.1.2. Underlying Factors

Many studies have described how health inequalities are associated with economic, cultural, social, political and environmental factors. According to data from The King's Fund (Williams et al. 2020), health inequities are closely associated with life expectancy (Williams et al. 2020). On average, the gap in life expectancy between the most and least deprived areas is 9.4 years for men and 7.4 years for women (Williams et al. 2020). This suggests that health inequity has a significant impact on the health of individuals across England and is affected by a variety of factors, such as education and income levels (Williams et al. 2020). Differences in income levels and social status are the main driving forces for the health inequalities in England and other developed countries (Hull, 2010). In fact, the difference in life expectancy between the highest and lowest income groups in England is 17 years (Hull, 2010). Hull (2010) argues that the inequality slope in England is so steep that only those at the very top can be said to have access to healthcare services. A study by Addison et al. (2019) suggests that poverty is a major issue that is at the root of health inequities in the north of England. They also state that the situation is worsened every time the government embarks on an austerity project which makes healthcare services even less accessible for the poorer segments of the community (Addison et al. 2019). Another related issue is the lack of adequate employment opportunities due to which poverty remains a persistent issue in the community.

Throughout the healthcare system of England, there are disparities in accessibility to healthcare services based on gender differences (Martinson, 2012). This is an unexpected finding given the fact that the goal of the public-funded NHS is to provide health services to all people without discrimination. Moreover, women appear to have less access to healthcare services in England compared to men (Martinson, 2012). Hence, they are at a relative disadvantage with greater health-related risks. Compared to the rest of England, in geographical terms, the North and Northeastern regions suffer from greater health inequalities. According to Corris et al. (2020),

life expectancy gap between affluent and deprived communities within northeastern England is greater than in the rest of the country. An article published in the Lancet (2017) states that the north-south divide in terms health equality in England is a dangerous sign with higher levels of mortality in the north due to higher levels of poverty, unemployment, obesity and smoking levels compared to the South.

As far as health inequalities related to differences in social status are concerned, Maheswaran et al. (2015) argue that the efforts of the England government to reduce social inequalities since the 1990s have not been successful, as suggested by the worsening of self-assessed health (SAH) measures. Therefore, as argued by Maheswaran et al. (2015), there is a greater need to focus on reducing both income and social inequalities to create more equal access to health across the country.

Apart from income and gender, race and age are also associated with health inequities in England. A study by Watkinson et al. (2021) shows that older adults belonging to ethnic minority groups in England had lower health related quality of life ratings than White British people. One of the reasons for this was poor primary care and local healthcare services (Watkinson et al. 2021). At the same time, the ratings were worse for women than men within each ethnic minority group. While health and income-related inequalities have persisted over time as well as inequity related to type of housing and tenure, the impact of different ethnic groups is different (Darlington-Pollock & Norman 2017). This might vary according to the degree to which each group has integrated into the community as well as the marginalization that they experience on a daily basis from other ethnic groups as well as in the healthcare system (Darlington-Pollock & Norman 2017).

A report by Public Health England (2021) states that people in different parts of the country experience differences in the level of oral health. These inequalities are mostly based on differences in socioeconomic factors and geographic regions as well as ethnicity, disability status and housing. Interestingly, children from low socioeconomic backgrounds seem to be the worst affected segment in terms of oral health (Public Health England 2021). In addition, homeless people and prisoners are also likely to have less access to oral health services than other segments of the population. The British Geriatrics Society (2020) states that life expectancy for women in England has worsened in the most deprived areas between 2010 and 2018 whereas it has increased in the least deprived areas during the same period. While reduced public health funding is a major reason for the health inequalities widening in recent decades, the more important reason is the failure of the government to address socioeconomic factors like unemployment, discrimination and quality of housing (British Geriatrics Society 2021). Housing and shelter are important factors related to health inequalities in England, as the quality of housing

influences the degree of exposure to various health hazards, including those related to climate change. According to Paavola (2017), poor housing increases exposure to various climate change-induced risks such as air pollution, flooding, extreme temperatures and widespread infections. Older people are obviously at greater risk if they live in poor-quality housing without adequate temperature control and ventilation.

Other factors that influence and perpetuate health inequalities, especially in the north of England, include the quality of education, employment status and working conditions, access to food, and social support (University of Liverpool, 2014). According to the report, the severity of these factors worsens when there are austerity cuts imposed by the government. The result is the vulnerable populations (e.g., children and the elderly) living in deprived areas in the north of England suffer more due to these inequalities than those living in the south of England (University of Liverpool, 2014).

1.2. Aims and Objectives

The primary aim of the study is to identify the health inequalities in regional and local healthcare services in England. The study will also focus on exploring what kind of policies exist at governmental level in order to reduce and address the identified inequalities.

Based on the broad aims, a research study needs to have a clear and measurable set of objectives. The objectives of a study help a researcher to keep track of the overall research progress. The main objectives of the study are:

1. To identify and compare the health inequalities in regional healthcare services for different regions in England
2. To identify and compare the health inequalities in local healthcare services for Yorkshire and the Humber Region in England
3. To explore what kind of policies exist to reduce the health inequalities in England

1.3. Research Questions

It is essential to develop concrete and clear research questions for any research study. Since the present topic revolves around an under-researched area, a number of research questions have been developed to address the topic. The following research questions will provide a focal point for the researcher to investigate:

1. What kind of different health inequalities exist in different regions of England?
2. What kind of health inequalities can be found in local healthcare services in England?
3. What is being done at governmental and policy level to reduce and address the inequalities in healthcare services in England?

1.4. Rationale of the Study

Similar to other regions and countries across globe, there exist significant health inequalities across different population groups in England. The findings from a number of studies present that these health inequalities exist in all domains i.e., availability and accessibility of services, health status, quality of services, and wider determinants of health. However, there are gaps in existing literature with no studies comparing the inequalities across different regions of England. Similarly, the role of policies in reducing the identified health inequalities in England is an under-researched area. The present study will fill the identified gaps by particularly focusing on identification and comparison of what kind of health inequalities exist in healthcare services across nine regions of England. Moreover, the study will also explore the existing policies for reducing and addressing the health inequalities.

The study will have a greater significance for healthcare workers in England as it will work as a guide for designing a tool to assess health inequalities in specialised healthcare services, based on researcher's internship project.

1.5. Structure of the Dissertation

The dissertation has been divided in five sections with each covering a different aspect of the study. First chapter provides a background and overview of the topic of study followed by discussing aims and objectives and research questions. The second chapter presents the methods employed for this research including an overview of methodological approach and research instruments used. The next section presents the results and findings followed by a chapter on discussion of the presented results. Finally, the dissertation includes a conclusion and recommendation chapter.

Chapter 2: Research Methodology

This section presents the research methods employed for this dissertation. It provides an overview of methodological approach, data collection and analysis techniques, and research instruments used.

2.1. Methodological Approach

The study adopts a secondary research design which is based on using existing research sources. The scope and nature of topic of study was as such that it required greater volume of data which was easily accessible as secondary data in various databases. Due to this factor, the secondary research method was more appropriate as it gave immediate access to several databases and existing studies which could contribute to an overall understanding of the topic of study. The raw data about health inequalities was primarily used from Public Health England's database. Secondly, the study adopts a literature review approach to identify further health inequalities and for the purpose of studying the governmental policies. It is expected that the wider breadth of research carried out through secondary research will enable a more informed assessment to be made about the health inequalities in regional healthcare services of England.

2.2. Research Instruments

This research study makes use of existing resources and available literature to collect secondary data in order to answer the proposed research questions. The following instruments and research resources have been used:

2.2.1. Sources and Databases

Since the study made use of a secondary research approach, the research sources were accessed using online databases. This helped in accessing a large number of relevant scholarship sources related to the topic of study. A number of research databases such as Science Direct, PubMed, Google Scholar and JSTOR were used to collect the relevant sources. A number of keywords (**Appendix 1**) were used to extract the relevant sources such journal articles, scholarly studies and government policy reports. The identified sources were reviewed and shortlisted to be included in the dissertation.

2.2.2. Fingertips

Firstly, raw quantitative data about health inequalities was accessed using *Fingertips* database for public health profiles, provided by Public Health England. The database offers 32 national public health profiles i.e., profiles for specialised services such as cancer services, cardiovascular diseases, diabetes and kidney diseases, and other general domains of public health including an outcomes framework, wider determinants of health, and inequality tools. These profiles are a rich source of indicators across a range of health and wellbeing themes in

England. The profiles can be used to browse indicators at different geographical levels, export data to use locally, and benchmark against the England or regional average.

2.2.3. SHAPE Atlas

Following the raw quantitative data from *Fingertips* database, the geospatial mapping of the some of the health inequalities was carried out using the *Strategic Health Asset Planning and Evaluation (SHAPE) Atlas* web tool. This informs and supports the strategic planning of services and assets across a whole health economy (England in the context of this study). The tool offers a wide range of presentation and analytical features which can be used to determine the service configuration about access to care and also to carry out the spatial mapping of available services. *SHAPE* tool links national data sets clinical analysis, primary care, public health and demographic data with information on healthcare estates performance and facilities location. The application also includes a fully integrated Geographical Information System mapping tool and supports travel time analysis.

2.3. The Targeted Regions

England is further divided in nine sub-national divisions, also known as geographical regions. These include East Midlands Region, East of England Region, London Region, North East Region, North West region, South East Region, South West Region, West Midlands Region, and Yorkshire and the Humber Region. Primarily, this study compares the health inequalities across these nine regions of England using a number of key indicators. More specifically, the study also focuses on the Yorkshire and the Humber Region by using wider determinants of health indicators for identifying the inequalities at a local level.

2.4. Key Indicators

A wide variety of indicators have been used to identify the health inequalities in regional healthcare services in England. For identifying the inequalities in regional healthcare services, the indicators being used include wider determinants of health (at regional level), life expectancy and causes of death, behavioural risk factors, child health, and health protection. Similarly, the health inequalities will be identified and compared at counties and local unitary authorities' level by focusing on the Yorkshire and the Humber Region, using the income and education indicators. Finally, the wider impacts of COVID-19 on health will be assessed using two indicators i.e., impact on mortality, and disruption to healthcare.

Chapter 3: Results and Findings

This section of the dissertation presents major findings and results of the research. The inequalities in the regional healthcare services are presented under four broad categories covering a number of health indicators.

3.1. Population Demographics

This section presents the population demographics for the 2019 resident population of England, and specifically for Yorkshire and the Humber region. Figure 1 presents the distribution of male and female residents across five-year age bands. For various age bands, the population for Yorkshire and the Humber region is slightly younger than the England average.

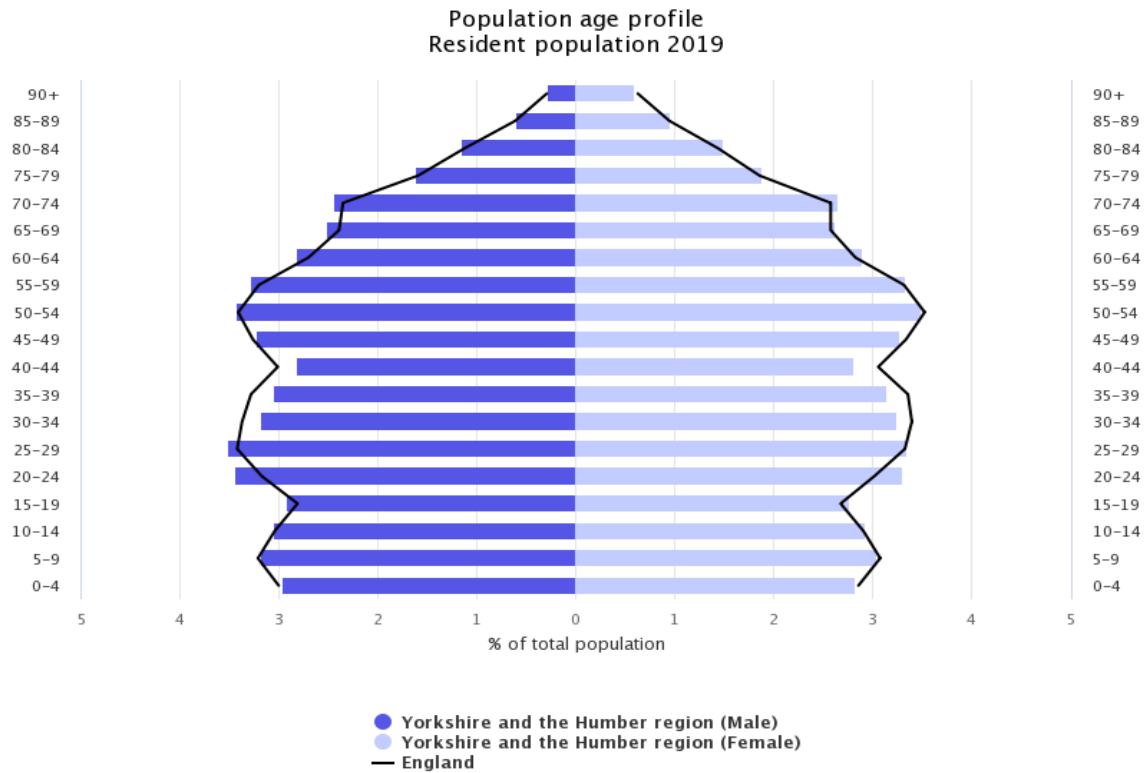


Figure 1: Population age profile for resident population of England in 2019

Table 1 presents the supporting information for population demographics of all regions including the deprivation scores, % population aged under 18, percent population aged under 65+, and percent population from ethnic minorities. It can be observed that deprivation score varied significantly for some regions as compare to England average. For example, North West region has the worst deprivation score (28.1) followed by North East region (28.0), and Yorkshire and the Humber region (26.0). According to Cabrera-Barona et al. (2015), the deprivation indices are a useful measure to analyse the health inequalities. Compared to that, South East region (15.5), East of England region (17.4), and East Midlands region (20.4) have better deprivation

score than the England average. Using this data, it will be safe to assume that some regions have more health inequalities, which will further be explored in the following sections.



Indicator	Period	England	East Midlands region	East of England region	London region	North East region	North West region	South East region	South West region	West Midlands region	Yorkshire and the Humber region
Deprivation score (IMD 2019)	2019	21.7	20.4	17.4	21.8	28.0	28.1	15.5	18.2	25.3	26.0
Supporting information - % population aged under 18	2019	21.4	20.7	21.6	22.7	19.9	21.3	21.5	19.7	21.9	21.3
Supporting information - % population aged 65+	2019	18.4	19.5	19.9	12.1	19.9	18.7	19.5	22.3	18.6	18.8
Supporting information - % population from ethnic minorities	2016	13.6	10.2	8.6	37.6	4.2	9.4	8.3	4.2	15.9	9.2

Table 1: Deprivation scores and % populations (Public Health Profiles - Fingertips Database)

3.2. Inequalities in Regional Healthcare Services

This section describes the inequalities in healthcare services for nine regions using a number of indicators including life expectancy and causes of death, child health, behavioural risk factors, wider determinants of health, and health protection. These indicators are further divided into different indices which present the comparative data for all regions. It is worth mentioning that these indicators are not the direct performance measures of healthcare services themselves (i.e., number of hospitals or GPs per head, waiting times, referrals, survival after procedures), but more like proxies or health system outcomes for a population.

3.2.1. Life Expectancy and Causes of Death

The first indicator being used to compare the health inequalities in regional health profiles is the *life expectancy and causes of death*. Life expectancy is the average number of years that an individual is expected to live based on current mortality rates. The indicator includes the comparative data about life expectancy at birth – male and female (years), under 75 mortality rate from all causes (per 100,000), under 75 mortality rate from cancer (per 100,000), under 75 mortality rate from CVDs (per 100,000), and suicide rate (per 100,000) for nine regions.

Table 2 shows the comparative data about life expectancy and causes of death in different regions of England from 2017 to 2019. Stark health inequalities can be observed in the life expectancy at birth data for males and females for various regions, when compared to the national

average. The Northeast region has the worst life expectancy at birth for males (78.0 years) followed by North West Region (78.4), Yorkshire and the Humber region (78.8), West Midlands region (79.0) and East Midlands region (79.5). The national average life expectancy is 79.8 years for males and the above mentioned five regions have the worst 95% life expectancy when compared to the national average.

Indicator	Period	England	Regions									
			East Midlands region	East of England region	London region	North East region	North West region	South East region	South West region	West Midlands region	Yorkshire and the Humber region	
Life expectancy at birth (Male)	2017 - 19	79.8	79.5	80.5	80.9	78.0	78.4	80.8	80.4	79.0	78.8	
Life expectancy at birth (Female)	2017 - 19	83.4	82.9	83.9	84.7	81.8	82.1	84.3	84.1	82.9	82.5	
Under 75 mortality rate from all causes	2017 - 19	326	332	298	299	392	383	288	294	349	361	
Under 75 mortality rate from all cardiovascular diseases	2017 - 19	70.4	72.1	62.9	69.1	82.1	86.1	57.1	60.7	77.0	80.2	
Under 75 mortality rate from cancer	2017 - 19	129.2	131.3	122.6	117.4	149.0	142.4	121.6	121.5	135.0	137.5	
Suicide rate	2017 - 19	10.1	9.5	10.5	8.2	11.6	10.6	9.6	11.3	10.2	12.0	

Table 2: Health Inequalities in life expectancy and causes of death (Public Health Profiles - Fingertips Database)

These five regions have the worst health inequalities with most of the numbers falling in worst 95% range, lower than national average for the indicators of life expectancy at birth (female), under 75 mortality rate from all causes (per 100,000), under 75 mortality rate from all cardiovascular diseases (per 100,000), and under 75 mortality rate from cancer (per 100,000). Contrary to that, the data for regions of East of England, London, South East and South West shows that they have the better 95% scores for these indicators compared to the national average. These numbers represent significant health inequities present in the different regions of England in terms of life expectancy and causes of death.

3.2.2. Child Health

The second indicator being used to compare the inequalities in regional healthcare services in England is *Child Health* which presents comparative data about under 18 conception rate (per 1,000), smoking status at time of delivery (%), breastfeeding initiation (%), infant mortality (per 1,000), and prevention of obesity (%).

The data from table 3 shows that the North West and West Midlands are two of the most neglected regions for inequalities in child health. The data from PHE health profiles shows that

both regions have continuously reported worst 95% scores than the national average of England, for all five indicators. Similarly, Yorkshire and the Humber region has worst 95% scores than the England average for four indicators i.e., under 18 conception rate (19.6 per 1,000), smoking status at time of delivery (14%), breastfeeding initiation (69.3%), and prevalence of obesity (21.9%). On the contrary, regions of East of England and South East have better 95% scores than the England average for all five indicators of child health. This data shows the significant health inequities present in the different regions of England in terms of child health.

Indicator	Period	England	Region									
			East Midlands region	East of England region	London region	North East region	North West region	South East region	South West region	West Midlands region	Yorkshire and the Humber region	
Under 18s conception rate / 1,000	2018	16.7	16.8	14.4	13.9	24.9	21.7	13.5	13.3	19.1	19.6	
Smoking status at time of delivery	2019/20	10.4	13.4*	9.5*	4.8*	15.2*	12.2*	9.7*	11.0*	12.1*	14.0*	
Breastfeeding initiation	2016/17	74.5	69.7	76.1	*	59.0	64.5	79.1	79.5	68.9	69.3	
Infant mortality rate	2017 - 19	3.9	4.1	3.5	3.4	3.4	4.5	3.7	3.2	5.6	4.2	
Year 6: Prevalence of obesity (including severe obesity)	2019/20	21.0	20.8	19.1	23.7	23.2	22.8	17.8	18.0	23.9	21.9	

Table 3: Regional inequalities in child health (Public Health Profiles - Fingertips Database)

3.2.3. Behavioural Risk Factors

The third indicator to compare the health inequalities across nine regions of England is *Behavioural Risk Factors*. The indicator presents the comparative data about admission episodes for alcohol-specific conditions (per 100,000), smoking prevalence in adults (%), percentage of physically active adults, and percentage of adults classified as overweight or obese.

Table 4 shows that the North West and North West regions have the worst health inequalities overall as their scores for all five indicators of behavioural risk factors are worse than national average of England. Moreover, Yorkshire and the Humber region reported the worse scores than the England average for four indicators i.e., admission episodes for alcohol-related conditions (729 per 100,000), smoking prevalence in adults – current smokers (15.7%), percentage of physically active adults (65.4%), and percentage of adults classified as overweight or obese (65.2%). On the other hand, the regions of London and South East reported better scores than the England average for a total of four indicators each. This data represents the existing health inequalities in terms of behavioural risk factors across regions of England.

Better 95% Similar Worse 95% Not compared

Indicator	Period	England	East Midlands region	East of England region	London region	North East region	North West region	South East region	South West region	West Midlands region	Yorkshire and the Humber region
Admission episodes for alcohol-specific conditions - Under 18s	2017/18 - 19/20	30.7	25.6	23.7	15.4	55.4	43.6	31.2*	45.4	25.8	30.2
Admission episodes for alcohol-related conditions (Narrow)	2018/19	664	700	634	556	908	742	526*	680	739	729
Smoking Prevalence in adults (18+) - current smokers (APS)	2019	13.9	14.8	13.7	12.9	15.3	14.5	12.2	14.0	14.1	15.7
Percentage of physically active adults	2019/20	66.4	65.9	67.3	65.2	64.7	63.9	69.5	70.9	63.1	65.4
Percentage of adults (aged 18+) classified as overweight or obese	2019/20	62.8	65.4	62.3	55.7	67.6	65.9	61.5	62.0	66.8	65.2

Table 4: Inequalities data for behavioural risk factors (Public Health Profiles - Fingertips Database)

3.2.4. Wider Determinants of Health

The next indicator to compare the inequalities in the regional healthcare services of England is *Wider Determinants of Health*. The indicator includes the comparative data about children in low-income families (%), average attainment 8 score, percentage of people aged 16-64 in employment (%), statutory homelessness (per 1,000), and violent crimes (per 100,000).

Better 95% Similar Worse 95% Not compared

Indicator	Period	England	East Midlands region	East of England region	London region	North East region	North West region	South East region	South West region	West Midlands region	Yorkshire and the Humber region
Children in low income families (under 16s)	2016	17.0	16.6	14.1	18.8	22.6	18.0	12.9	14.0	20.3	19.7
Average Attainment 8 score	2019/20	50.2	49.0	50.3	53.4	48.4	48.9	51.3	50.4	49.0	48.4
Percentage of people aged 16-64 in employment	2019/20	76.2	76.8	77.9	75.1	71.1	74.9	79.6	79.2	73.9	74.0
Statutory homelessness - Eligible homeless people not in priority need	2017/18	0.8	0.4	0.6	1.0	0.6	1.1	0.7	0.3	1.1	1.0
Violent crime - hospital admissions for violence (including sexual violence)	2017/18 - 19/20	45.8*	37.1	36.1	47.5	63.4	66.4	31.6*	35.2	43.0	53.5

Table 5: Inequalities in wider determinants of health (Public Health Profiles - Fingertips Database)

Based on the data presented in table 5, it can be observed that the regions of Yorkshire and the Humber and North West have worse scores than the England average for all indices of

the mentioned indicator. The scores vary significantly for all other regions with data for London, West Midlands and North East regions showing worse inequality scores for four indices each. In contrast, the regions of South East, South west, East of England and East Midlands reputed better scores than the England average for most of the indices. This data can be used to deduce that significant inequalities exist in terms of wider determinants of health, across nine regions of England.

3.2.5. Health Protection

The fifth indicator to compare the inequalities under regional health profiles of England is *Health Protection* which presents the comparative data for nine regions of England about excess winter deaths index (%), new STI diagnoses (per 100,000), and TB incidence based on three-year average (per 100,000).

		Better 95% Similar Worse 95% Not compared									
Indicator	Period	England	East Midlands region	East of England region	London region	North East region	North West region	South East region	South West region	West Midlands region	Yorkshire and the Humber region
Excess winter deaths index	Aug 2018 - Jul 2019	15.1	16.4	16.4	14.3	16.2	13.4	14.3	15.2	13.9	17.8
New STI diagnoses (exc chlamydia aged <25) / 100,000	2019	900	622	637	1939	648	782	714	658	701	644
TB incidence (three year average)	2017 - 19	8.6	7.3	5.9	19.7	3.9	6.9	5.9	3.9	10.4	6.4

Table 6: Regional inequalities in health protection (Public Health Profiles - Fingertips Database)

Table 6 presents the data for health inequalities about three different indicators of health protection. It can be observed that health inequalities exist in London region for the New STI diagnoses and TB incidence with scores worse than national average of England. Similarly, Yorkshire and the Humber region has worst excess winter deaths index than any other region in England representing the inequality score to be worse than national average.

3.3. Inequalities in Local Healthcare Services in Yorkshire and Humber Region

This section presents the inequalities in local healthcare service outcomes for Yorkshire and the Humber region by presenting comparative data at counties and local unitary authorities' level UAs). The indicators being used to assess the inequalities at a local level include income and education which fall under healthcare service outcomes rather than rather than the quality or

quantity of the services. These indicators are further divided into different indices which present the comparative data for 15 counties and UAs of Yorkshire and the Humber region.

3.3.1. Income

First indicator for comparing the local health inequalities in Yorkshire and the Humber region is *Income*. The indicator includes the comparative data about a number of indices with all data presented in %, except the average weekly earnings (GBP).

		Better 95%				Similar		Worse 95%		Not compared		Quintiles: Best					Worst		Not applicable	
Indicator	Period	England	Yorkshire and the Humber region																	
			Barnsley	Bradford	Calderdale	Doncaster	East Riding of Yorkshire	Kingston upon Hull	Kirklees	Leeds	North East Lincolnshire	North Lincolnshire	North Yorkshire	Rotherham	Sheffield	Wakefield	York			
Children in absolute low income families (under 16s)	2018/19	15.3	20.4	19.7	30.4	20.3	21.5	13.6	26.4	22.8	19.8	21.3	17.9	12.0	20.2	20.9	17.1	10.7		
Children in relative low income families (under 16s)	2018/19	18.4	23.4	22.8	34.7	23.1	24.7	15.6	30.7	25.9	22.9	24.8	20.8	13.6	23.1	23.9	19.9	12.4		
Fuel poverty	2018	10.3	10.1	9.7	12.4	10.2	9.6	9.4	10.6	10.6	10.3	10.1	9.8	9.9	9.5	10.4	8.8	8.5		
Average weekly earnings	2020	474.4	432.6	421.2	437.7	448.4	432.4	438.2	387.5	437.1	480.7	438.0	396.8	429.8	402.8	412.4	405.0	440.4		
Gender pay gap (by workplace location)	2020	16.6	15.1	4.9	5.2	16.1	23.0	12.3	15.9	13.1	13.6	20.9	18.9	11.4	18.3	23.2	10.7	18.4		

Table 7: Inequalities in income indicators in Yorkshire and the Humber region (Public Health Profiles - Fingertips Database)

It can be observed from the data presented in Table 7 that significant health inequalities exist across different counties and UAs of Yorkshire and the Humber region. For the indices of children in absolute low-income families and relatively low-income families, 12 out of 15 counties reported a worse score than the national average of England, providing the evidence for present health inequalities in the system. Similarly, a total of 10 counties reported lower average weekly income than the England average. This data can be used to infer that health inequalities exist in terms of various income indices, across the counties of Yorkshire and the Humber region.

3.3.2. Education

Second indicator for comparing the local health inequalities in Yorkshire and the Humber region is *education*. According to Raghupathi and Raghupathi (2020), the level of education is a good indicator of health inequalities in any particular geographical region with those with less education report being in poorer health. The indicator presents the comparative data for a number of indices related to education in region of Yorkshire and the Humber.

Better 95% Similar Worse 95% Not compared Quintiles: Best Worst Not applicable

Indicator	Period	England	Yorkshire and the Humber region	Barnsley	Bradford	Calderdale	Doncaster	East Riding of Yorkshire	Kingston upon Hull	Kirklees	Leeds	North East Lincolnshire	North Lincolnshire	North Yorkshire	Rotherham	Sheffield	Wakefield	York
School readiness: percentage of children achieving a good level of development at the end of Reception	2018/19	71.8	70.0	70.4	68.0	70.5	72.5	73.8	67.7	69.7	66.4	71.2	71.7	72.8	70.3	70.0	70.8	75.6
School Readiness: percentage of children with free school meal status achieving a good level of development at the end of Reception	2018/19	56.5	54.1	58.6	55.4	51.0	57.8	55.4	58.8	54.7	48.4	61.0	55.0	50.7	55.8	54.2	53.6	53.3
School readiness: percentage of children achieving the expected level in the phonics screening check in Year 1	2018/19	81.8	80.2	80.3	80.9	82.6	80.4	82.8	79.2	79.3	78.9	81.7	81.6	81.7	79.9	77.1	80.2	84.3
School readiness: percentage of children with free school meal status achieving the expected level in the phonics screening check in Year 1	2018/19	70.1	68.2	70.5	73.3	71.8	70.5	68.1	69.9	66.9	67.1	72.1	68.2	65.0	66.8	63.4	65.3	71.0
Average Attainment 8 score	2019/20	50.2	48.4	46.7	46.4	51.4	46.7	50.7	45.7	48.9	48.1	45.2	48.4	51.1	48.1	47.9	48.4	53.6
Average Attainment 8 score of children in care	2019	19.2	20.0	26.1	18.8	22.1	20.6	24.5	16.0	25.4	23.6	17.1	18.9	15.0	10.6	17.2	21.6	23.5
GCSE achieved 5A*-C including English & Maths with free school meal status	2014/15	33.3	28.5	22.6	26.6	34.2	27.4	30.4	31.0	34.1	25.7	27.8	33.3	30.0	31.0	27.6	26.5	24.2
Pupil absence	2018/19	4.73	4.96	5.36	5.42	4.52	5.19	4.53	4.89	4.71	4.85	4.85	4.67	4.69	5.13	5.14	5.27	4.60
16-17 year olds not in education, employment or training (NEET) or whose activity is not known	2019	5.5	5.6	4.1	4.6	3.0	4.6	4.6	5.8	3.1	7.2	6.5	4.3	8.8	5.7	6.7	5.8	3.5

Table 8: Inequalities in education indicators in Yorkshire and the Humber region (Public Health Profiles - Fingertips Database)

Table 8 presents the data for health inequalities across the counties and local unitary authorities of Yorkshire and the Humber region. With most of the data falling in worst 95% category, it is evident that significant health inequalities exist for the mentioned indicators. Similarly, the overall scores of the region are significantly lower than the England average for 7 out of 9 indices. This data can be used to infer that health inequalities exist for most of the education indices, across the counties and local unitary authorities of Yorkshire and the Humber region.

3.4. Geospatial Mapping of Local Health Inequalities

This section presents the geospatial mapping of some indicators of the health inequalities using the *Strategic Health Asset Planning and Evaluation (SHAPE) Atlas* web tool. This integrated Geographical Information System mapping tool has been used to map the health proxies/health services outcomes to provide an overview of health inequalities in Yorkshire and the Humber region. The selected indicators include the index of multiple deprivation, and journey time to by car (accessibility).

3.4.1. Index of Multiple Deprivation

This map shows the index of multiple deprivation for the selected area. The indicator focuses on the Index of Multiple Deprivation (IMD) from the Indices of Deprivation 2019.

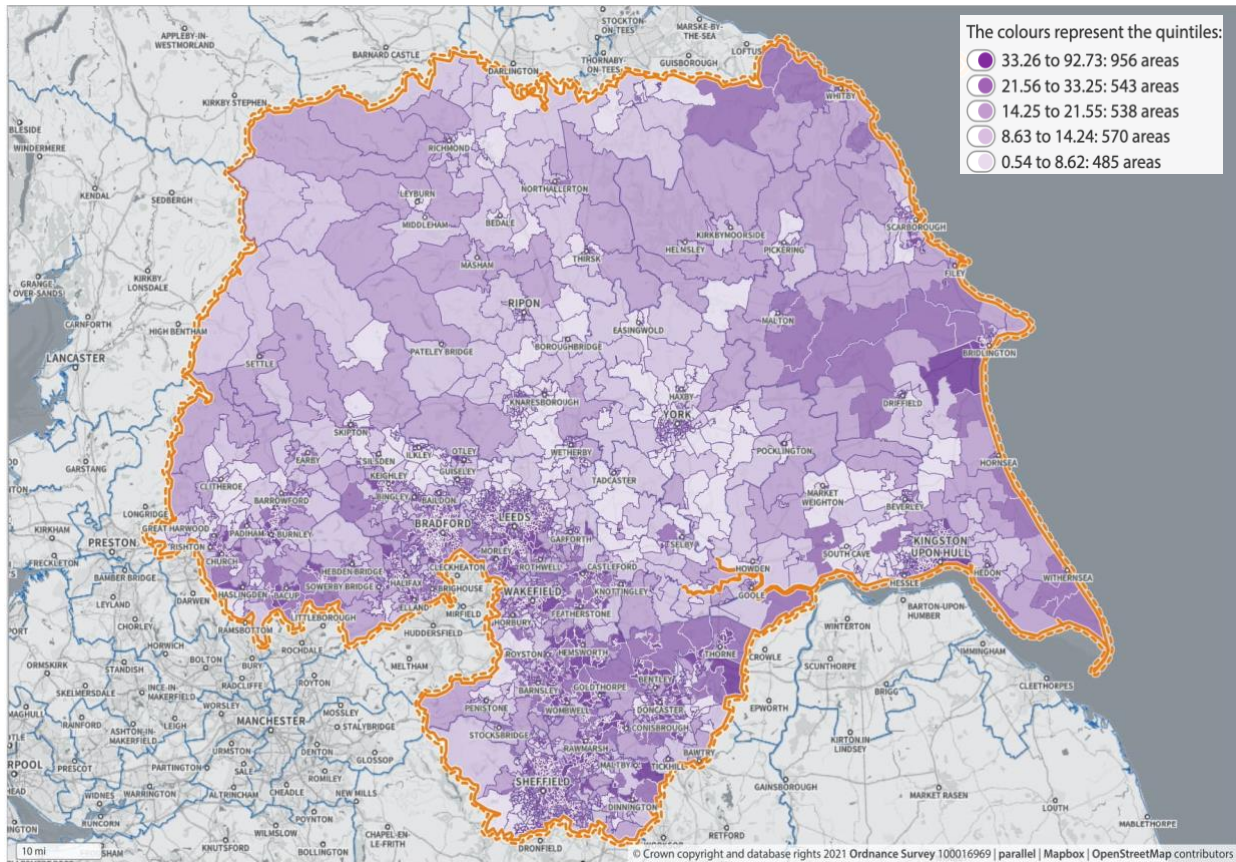


Figure 2: Index of Multiple Deprivation for Yorkshire and Humber Region

The seven domains were combined using the following weights to produce the overall Index of Multiple Deprivation (IMD): Health Deprivation (13.5%), Income Deprivation (22.5%), Employment Deprivation (22.5%), Education Deprivation (13.5%), Crime Deprivation (9.3%), Barriers to Housing and Services (9.3%), and Living Environment Deprivation (9.3%). The England-wide Index of Multiple Deprivation distribution is 0.54 to 92.73 with a mean value of 21.67. For the selected area in Figure 2, the index of Multiple Deprivation average score is 26.35. The values of LSOAs within the selected boundary are shown. The overall multiple deprivation average score for the selected region is higher than the England average which denotes the evident inequalities in the domains of income, employment, education and crime.

3.4.2. Journey Time to GP by Car

The indicator compares percentage of households with access to GPs within 15mins by car. The England-wide LSOA distribution is 0% to 100% with a mean value of 97.96%. For the selected region shown in figure 3, the percentage of households with access to GPs within 15mins

by car is 97.28%, in the selected region. The values of LSOAs within the selected boundary are shown. Although the percentage of households with access to GPs within 15 minutes by car (97.28%) for the selected region is almost identical to the England average (97.96%), certain counties and UAs of Yorkshire and the Humber region are lagging behind.

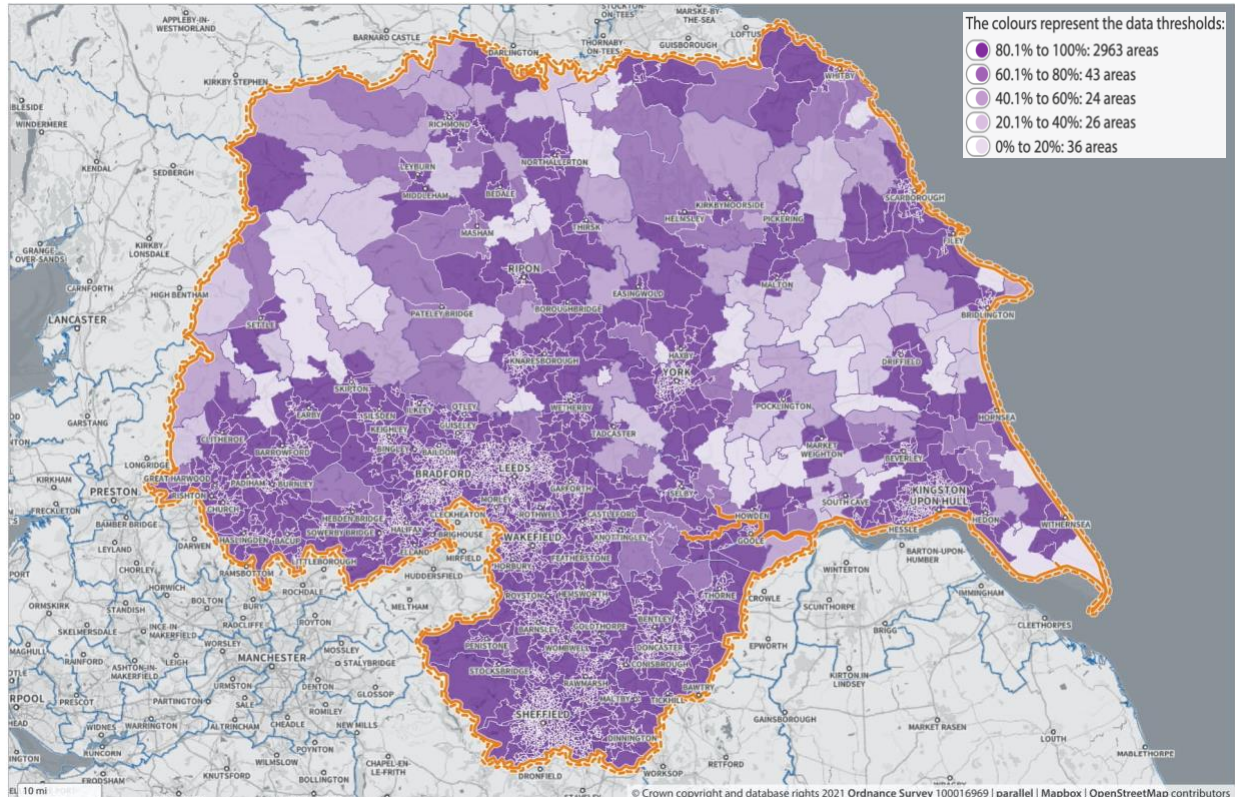


Figure 3: Journey time to GP by car

3.5. COVID-19 Pandemic and the health Inequalities in England

The COVID-19 pandemic has brought to surface the underlying socioeconomic inequities in the healthcare sector, illustrating how health inequalities continue to influence access to COVID-19 treatment (Keys et al. 2021). This section discusses how COVID-19 has worsened the health inequalities across the nine regions of England. The indicator being used for this assessment is the *disruption to healthcare*.

The data from table 9 shows how COVID-19 has worsened healthcare inequalities in terms of disruption to healthcare for various regions. It is evident that regions of West Midlands, North West, North East, and South West faced the most disruption in terms of emergency admission, hospital admissions for asthma, and other forms of hospital admissions. The data shows that these are most impacted regions with their scores falling in worst 95% category as compared to the England average, for most of the indicators.

Better 95% Similar Worse 95% Not compared

Indicator	Period	England	East Midlands region	East of England region	London region	North East region	North West region	South East region	South West region	West Midlands region	Yorkshire and the Humber region
Children and young people											
Emergency admissions (aged 0-4)	2018/19	167.6	152.5	154.2	117.8	216.0	242.3	156.8	180.6	181.5	158.2
A&E attendances (0-4 years)	2018/19	655.3	626.1	520.5	755.2	967.4	776.3	573.4	522.1	629.7	624.5
Hospital admissions for asthma (under 19 years)	2019/20	160.7	119.7	130.8	167.6	221.1	224.4	125.9	138.8	199.7	140.9
Hospital admissions caused by unintentional and deliberate injuries in children (aged 0-4 years)	2019/20	117.0	93.8	108.0	84.4	173.6	165.0	104.1	133.5	122.2	118.2
Hospital admissions caused by unintentional and deliberate injuries in children (aged 0-14 years)	2019/20	91.2	75.0	84.2	67.3	132.2	121.2	84.6	96.4	97.0	95.3
Hospital admissions caused by unintentional and deliberate injuries in young people (aged 15-24 years)	2019/20	132.1	119.0	128.5	94.8	167.5	150.1	143.3	154.1	118.3	133.2
Older people											
Emergency hospital admissions due to falls in people aged 65 and over	2019/20	2222	2164	2094	2215	2412	2437	2326	2067	2174	2097
Permanent admissions to residential and nursing care homes per 100,000 aged 65+	2019/20	584	512	566	431	763	736	527	519	640	655
Percentage of people aged 65 and over offered reablement services following discharge from hospital.	2019/20	2.6	2.3	2.6	3.4	2.9	2.9	2.4	2.5	2.5	2.4

Table 9: Disruption to healthcare caused by COVID-19 (Public Health Profiles - Fingertips Database)

Since 20% of the population of England as well as the NHS comprises of Black, Asian and other ethnic minority groups, it is generally forgotten that the NHS leadership has a very small representation of these communities, due to which discrimination in access to health services continues to exist. A report published by the Marmot et al. (2020) stated that socioeconomic and geographic factors that increase health inequities in England continue to grow despite many interventions to reduce them. Bibby et al. (2020) argue that these ever-widening gaps suggest a bleak picture for the health of England’s residents during the current COVID-19 pandemic, mainly because the government has persistently downplayed the impact of the pandemic on the health of vulnerable communities. For example, the decision of the government to impose lockdowns has affected daily wage earners and other poor segments of the community more than those from

higher income groups (Bibby et al., 2020). Furthermore, even those who have been allowed to work in essential services and travel by public transport are given less protection against the virus than is required.

Another report by Public Health England (2020) suggests that ethnic minorities have borne a disproportionately larger impact of the COVID-19 pandemic on their health than other groups in England. Apart from ethnicity, people who had less access to health resources during the pandemic included older people, males and those living in poorer regions of the country. It is the responsibility of the government to identify those most affected by these inequities and address the factors that cause them to persist. Mishra et al. (2021) presented their findings on the basis of evidence that the COVID-19 pandemic has affected those belonging to low socioeconomic backgrounds, ethnic minorities and deprived communities more than other people in England. Apart from people of Chinese ethnicity, all other ethnic groups are significantly more likely to be COVID-19 positive than other groups. Mortality rates are also 2.7 times greater in black people than in white people. It is also suggested that the risk is higher due to higher poverty and unemployment among those ethnic groups. Coronini-Cronberg et al. (2020) further argue that despite the government's efforts to reduce health inequalities since 2012, the COVID-19 pandemic could not only inflict more damage on the deprived communities, but also worsen the factors that cause health inequalities, thereby widening the gap even more.

3.6. The Government Policies to Reduce Health Inequalities

Since 2000, the government has been trying actively to remove health inequities in the country, but with limited success (Exworthy et al., 2003). An example of the successful efforts in reducing health inequities is the relative success witnessed with the Stop Smoking Services program by the NHS in England which lasted from 1999 to 2012 (McLeod, 2020). The SSS program targeted tobacco smoking which was regarded as a major source of health inequities in England (McLeod 2020). Health inequities reduced during this period as more people enrolled in this program; however, it could not sustain beyond 2012 and enrollments continued to decline (McLeod, 2020). Another example is the English health inequalities strategy that was launched in 1997 and was implemented until 2015. The purpose of this was to reduce health inequalities across geographical regions in England as measured by differences in life expectancy for women and men (Barr et al. 2017). The results state that the policy succeeded in reducing the gap in life expectancy for both genders as long as the policy was in effect. Subsequent to its termination, the gap increased again.

On the contrary, since the late 1990s, health action zones were set up in 26 areas across England that were identified as having health inequalities. However, the primary reason why the

HAZs failed to achieve their goals was due to the lack of vision for integrating their achievements with the mainstream health infrastructure. Similar suggestions are made by Holding et al. (2021), who argue that the likelihood of success of government policies can be increased by adopting a system-wide approach instead of focusing on specific regions. They argue that such an approach would provide the government with data on relevant socioeconomic determinants which have been neglected so far in any policy intervention to reduce health inequalities in England (Holding et al., 2021). It has been suggested by Brown (2020) that past policies have not undertaken measures that can promote social mobility in the public through which the people can attain better access to healthcare services. Even the policies that have been implemented since the early 1990s have not been evaluated on the basis of whether social mobility was facilitated by their interventions.

Baker et al. (2015) proposed in a policy paper published by the Royal College of General Practitioners that more GPs should be admitted into the NHS to increase the capacity to serve underserved communities throughout the UK, increase NHS funding in deprived areas, and undertake research in new healthcare models aimed at the deprived communities rather than the general population.

Considering that a greater proportion of the health inequalities in England and the UK is driven by income inequalities, Smith & Eltanani (2015) suggest that policy approaches for reducing health inequalities should focus on enabling progressive income and wealth distribution along with increased investment in healthcare services in underserved communities. Smith & Eltanani (2015) also suggest the implementation of evidence-based policies to reduce lifestyle-related risks such as the SSS program.

In a paper by Orton et al. (2014), it has been suggested that children in deprived households are at a high risk of injuries that can lead to lifelong disability. Hence, to bring down this risk to a level that is more comparable to the risk of children in affluent areas, the government should introduce a policy whereby safety assessments are carried out in vulnerable houses (Orton et al. 2014). The Marmot Review was an important policy initiative launched in 2010 (Bambra et al. 2010) which offered evidence-based interventions to reduce health inequalities in England in a number of areas, including cardiovascular disease, drug use, mental health, and elderly care among others. However, as suggested by subsequent evaluations, these recommendations have had limited impact.

3.7. Critical Assessment and Analysis of the Health Inequalities

The literature has discussed health inequalities in England in terms of various factors. Different studies have focused on aspects as diverse as geographic region, income levels,

ethnicities, education levels, and housing type, among others. It can be said that all these factors are relevant. However, more studies seem to have investigated the impact of geographic region, ethnicity and income levels more than other factors. However, there are hardly any studies that have investigated the role of discrimination, bias and prejudice in increasing health inequalities across England. This suggests a research gap that can be investigated in future studies on health inequalities.

Through the research and data that has been reviewed in this paper, it also appears that the NHS needs to improve its policy framework as many of its efforts have met with limited success and the health inequalities are predicted to become worse after the Covid-19 pandemic. While it is true that the policy interventions encompass diverse domains, such as economic policies, social assimilation policies, education, it is also necessary for the NHS to step up and take the lead for collaborating with policymakers to share its concerns with them. The research does not suggest that the NHS has taken such a comprehensive approach to address the issue, which might be a reason why the problem persists to this day.

In addition, the current research reflects great variety in the evaluation of policies that have been adopted since the inception of the NHS right up to 2017 and the current measures being taken by the government to address the COVID-19 pandemic. It needs to be mentioned that while the policies have had mixed results with some successes and some failures, the key takeaway from the discussion on the policies is that the government needs to be constantly engaged to consolidate the benefits of these policies. Otherwise, the gains can dissipate once the policies are terminated or funding to them is reduced.

Even where the research investigates the policy interventions, the researchers tend to focus on a single policy and its effects over time. While this is a useful way of assessing the effectiveness of a single policy, it would be useful for policymakers to undertake a comparative analysis so that it can be determined which policies have produced better results in terms of clear measures of health inequality. Therefore, the gap that exists in this area is the lack of standardized measures of determining health inequalities. Apart from life expectancy and mortality which are purely biological measures for comparing health inequalities, measures also need to be devised to compare the socioeconomic factors such as housing, income, education and so on.

In terms of regional comparisons of health inequalities in England, it appears that most studies on this topic have focused on comparisons between the northern and southern regions of England. In fact, the researchers have coined a term called the north-south divide to suggest it as the defining aspect of health inequalities in England. This is a gap that must be addressed by investigating differences in health outcomes and resources available to people in other regions of

England, such as the eastern and western parts of the country, in addition to differences between the northern and southern parts.

While ethnic differences have been investigated by several researchers as the basis for health inequalities in England, relatively few have investigated differences between communities. In most of such studies, different communities such as Blacks, Asians and Arabs have been grouped together, with perhaps only Blacks being studied as a distinct ethnic group affected by health inequalities. Thus, there is a need to carry out more research on the different ethnic communities that are deprived or underserved by the healthcare system. This would include groups such as Arabs, South Asians, Southeast Asians, East Europeans and various other ethnic minorities living in England.

The most critical healthcare crisis that the world faces today—the COVID-19 pandemic—has also been investigated in several studies. The studies have largely been alarming in their findings as they suggest that COVID-19 has not only reinforced the existing health disparities, but also has the potential to widen the gaps between the deprived and affluent communities. However, the studies that have been conducted so far are not commensurate with the risks and implications of this pandemic, especially for the most vulnerable and underserved segments. Therefore, there is a dire need to carry out more studies on this topic.

It is also important that the government may adopt a multidimensional approach to addressing this issue because the success of any policy would depend on how well the different aspects or factors of the problem are addressed. For example, researchers need to investigate the effect of a policy that combines an increase in government funding for health resources in underserved areas, programs to increase education levels, support for better and safer housing and work environments, as well as social awareness campaigns to promote societal integration. In addition, the impact of cultural competence training and language training on the ability of NHS workers and staff to encourage people from deprived communities to approach NHS services should also be investigated as current research on this area within the English context is missing.

The research seems unanimous in the view that no policy so far has had a lasting effect on reducing health inequalities, which is largely because they have not addressed the underlying socioeconomic factors. This implies that merely increasing funding is not the most effective solution to reduce health inequalities. It is also important to achieve improvements in social integration so that people find it easier to approach healthcare professionals and get the services that they need without fearing a lack of affordability or discrimination.

Chapter 4: Discussion and Recommendations

On the basis of the data that available about the health services in nine regions of England, it appears that different types of health inequalities exist across regions when compared with the rest of England. For Yorkshire and the Humber region, income seems to be a significant reason for health inequalities because 12 counties in the region out of 15 are unable to access adequate health services for their children because of low-income levels. This is followed by education in which the region trails behind other regions of England. Both of these factors produce a combined effect to limit the ability of the residents to access healthcare services and to follow life habits that contribute to a healthier lifestyle. In terms of life expectancy as well, Yorkshire and the Humber region has one of the worst life expectancy rates compared to the rest of England. Higher prevalence of exposure to crime and homelessness also increases the risk among residents of Yorkshire and the Humber region to have poorer health levels than people from other regions of England. Mortality rates and child health levels are also worse off than the rest of England, which places the residents at a significant disadvantage when it comes to improving their health standards and gaining access to the necessary healthcare services. While the region fares better on average when it comes to having access to a healthcare facility by car, the situation appears to vary between different parts of the region. Moreover, the fact that homelessness and low income are endemic problems of the region, makes this facility available only to those people with access to some form of private transportation. The policy measures that have been implemented by the government over several decades indicate moderate and limited success at alleviating the issues that perpetuate these problems and suggest the challenge of the government to sustain these policies because of problems in funding and political support.

The findings are supported by various studies that have been discussed in this dissertation, which lends credibility to the data and its analysis. According to Bridger et al. (2020), for instance, health inequalities in England are dependent on socioeconomic factors. As shown by the research data, education, employment, housing quality, access to private transport and income levels directly as well as indirectly influence the ability of people to access health services in the country. The correlation between health inequities and life expectancy, for instance, is laid down clearly by Williams et al. (2020) whereas Hull (2010) draws a clear link between low-income levels and limited access to healthcare services and resources. Addison et al.'s (2019) argument that health inequality is linked with employment status is also borne out through the data about the health disparities among the different regions of England. Moreover, Bridger et al.'s (2020) argument corroborates the findings of the research and assures that the investigation is proceeding in the right direction. The fact that the health inequalities between different regions

are pervasive and chronic seems, as suggested by the research, is supported by the arguments presented in various studies that critique the effectiveness of previous health improvement policies of the government. Researchers like Smith (2007) and Goodair et al. (2020), among others, explain that government policies have generally been short-sighted and are effective only as long as they are implemented. Beyond that, the communities are unable to sustain the gains for a long period. The fact that health inequalities remain endemic in the Yorkshire and Humber region attest to the validity of the criticisms made by these researchers. Hence, whether it is the link with systemic factors or the relationship with wider determinants of health, the findings of this study are adequately supported by the prior research.

On the other hand, there are some areas where the findings do not align well with the prior research. This is mainly due to the fact that the scope of this research is more limited compared to the prior research and that earlier studies have investigated a wider range of factors and determinants than was not possible for this study. For example, where Martinson (2012) argues that gender is an important factor in determining accessibility to health, the data gathered for this research does not focus specifically on gender or age as a particularly significant issue or challenge to equal access to health services. It is important to clarify at this stage that the data does not suggest that a relationship does not exist. However, in the course of having limited data access for this study, enough evidence was not present to discuss the relationship that has been argued in many studies on health inequalities in England. Similarly, whereas another study suggested a clear north-south divide in terms of access to healthcare services, the data obtained for this research does not provide conclusive evidence to make such a claim. While it is true that some of the northern regions fare relatively worse in several determinants compared to the rest of the country, there are aspects where the northern regions are not widely apart from the southern regions in terms of health equality, for example, in accessibility to health centres by private car. Similarly, the data does not show support for the view that race is a major factor in influencing access to health, as suggested in several studies, such as Watkinson et al. (2021). This is not to suggest, however, that race is not a significant factor in this equation. What matters is that due to the limitations of the data collected for this dissertation, findings do not provide evidence for a relationship between racial background or identity and health services accessibility.

The above findings have important implications for the residents England, healthcare professionals, government officials and policymakers. Since it is apparent from the data that some of the regions in question are underserved and disadvantaged in terms of health services and important health determinants, there is a need to address the issues that prevent the people from improving their health status and condition. Every stakeholder has an important role to play in this

process so that the overall health, life expectancy and quality of life of the people can be improved and government resources can be allocated in the right way to facilitate these changes, be it in the form of developing new evidence and data-based policies, awareness campaigns, employment opportunities or community-based interventions. The findings that have been presented and analysed in this dissertation can be of use to community groups, policymakers and government officials as they identify the areas where current deficiencies prevent health levels from improving. For instance, government officials can use the findings about comparative income and education levels to create more schools and adult education programs as well as jobs in various sectors according to the skill level of the residents. Additionally, the data about housing quality, homelessness and crime rates can help to improve law enforcement and introduce affordable housing schemes in the region so that the determinants of health in the community can be improved. Policymakers can also use this data to identify gaps and weaknesses in the previous and existing policies, on the basis of which they can develop better and more effective policies that address the real issues and challenges to improve the health of the people across regions of England.

The findings make it difficult to deny that the government has, over the decades, failed to ensure that health services are equally accessible to the entire population of England and that the lifestyle of the people is elevated to the level where they are equally aware of healthy habits and capable of accommodating those factors into their daily life. The disparity between the data scores for the different regions of England, and especially for the Yorkshire and Humber region, makes it evident that government policies have failed to make a lasting improvement in terms of the health status of the people. Where such policies have been successful or partially successful, the communities have failed to maintain the same standard of improvement once the government has withdrawn the program or the policy has met its targets. This leaves two different approaches open to the government. On the one hand, it can concentrate its efforts to develop policies that produce enduring and lasting outcomes for the communities by avoiding the mistakes that were made in previous policies. On the other hand, the government can focus on the other determinants of health such as providing more education and employment opportunities, better housing and shelter, and reducing crime levels, so that quality of life, health status and life expectancy can be improved in the disadvantaged communities. This is not to say that the choice is a mutually exclusive one. Better outcomes may be achieved through a coordinated effort that addresses issues in the health system such as more evidence-based solutions, increased recruitment of healthcare staff and setting up health centres in remote areas, along with a strategy to generate

employment and increase income levels in the affected communities, raise literacy levels and improve law enforcement through better policing and vigilance.

4.1. Limitations

The study has a number of limitations in terms of data collection and the indicators used for comparison. A clearer picture of the health inequalities in England could be acquired by comparing the results for multiple regions, especially between the southern and northern regions so that the validity of the north-south divide can be verified through the findings. However, this limitation can be overcome by replicating the methodology of this study with other regions of the country and compare their findings to present a holistic picture to aid policymakers and legislators in prioritizing their initiatives for improvement. Another important limitation of this study is that it focuses on a relatively limited set of factors or determinants compared to the wide range of factors that are investigated in the existing research. While it is necessary to limit the scope of the study to obtain any meaningful findings, the limited scope prevents the researcher from commenting on the existing research on the basis of the data and findings. To overcome this limitation, the study may be repeated by including other factors such as gender, race, and age that have been addressed at length by other researchers.

4.2. Recommendations

The following recommendations are proposed to assist policymakers and leaders in the public healthcare sector to bridge the health inequality gap between various regions of England.

1. Measures should be taken to generate employment in the disadvantaged communities. The reason that health standards in these sectors are inadequate and lower than in other regions is that the people cannot afford health services as well as the other means that lead to a healthier lifestyle, such as nutritious food and a clean environment. Therefore, by generating employment, it is possible to increase the income levels of the people which they can spend on purchasing nutritious food, visiting the physician on time, acquiring necessary medication and improving the quality of their housing and lifestyle. The incentive to engage in crime would also be reduced, which would enable these communities to develop a positive attitude towards pro-health habits and preferences.
2. The second recommendation is for the government to increase funding in the affected areas by identifying the number and type of healthcare services, including professionals, that are required in each area or region. This should be based on the type of diseases that are common in those regions, the demographics of the population, such as by age and by the linguistic diversity of the population so that

culturally appropriate care can be provided to the people. In this way, the people would be encouraged to visit the healthcare centres when they believe that they will not have to wait for long periods to see a doctor and that their concerns and beliefs will be respected instead of being dismissed by the healthcare staff.

3. The third recommendation is for the policymakers to develop health awareness campaigns, screening programs and inoculation drives in the disadvantaged communities on the basis of credible research evidence. Policies that are backed by research data are likely to include more effective interventions that have a high chance of resonating with the target population and motivating them to adopt healthier attitudes.

Chapter 5: Conclusion

Despite decades of government efforts to make quality healthcare accessible to the vast majority of the population, there remain regions in England where access to healthcare services is more challenging than other regions. The research suggests that the main reason for this is the difference in education and income due to which the residents have less pro-health attitudes and fewer means to access healthcare services. The health inequalities between the Yorkshire and Humber region and the rest of England were studied in this dissertation which showed that this region was lagging behind the rest of the country in terms of health outcomes as well as income and education levels. Typical measures of health outcomes included life expectancy, mortality rates, child health, smoking and alcohol consumption, and proximity to healthcare services from the place of residence. On the basis of these factors, it is concluded that some regions are at a particular disadvantage compared to the rest of the population, which puts the residents at a greater risk of suffering from poor health. Hence, it becomes necessary to take serious steps to minimize these differences so that the people in these communities can also enjoy convenient access to health services as well as an enabling environment that facilitates healthy behaviours and lifestyles.

In terms of the actions taken by present and past governments, it is concluded that their efforts have failed to elevate the health status of different regions in the country, as evidenced by the data from the Yorkshire and Humber region which shows that the region fares poorly in terms of number of healthcare services as well as behavioural and socioeconomic determinants of health. Hence, any strategy that aims to address this issue should be based on a multipronged approach that combined an educational component with an administrative component. The major weakness of the government's policies that has been identified in the research is that the programs and interventions are based on the theoretical beliefs, assumptions and preferences of those in charge of drafting the policies instead of being based on objective and verifiable research data. Hence, for any future interventions to be successful, it is necessary for them to be informed by research for which inspiration and guidance may be taken from other countries within the region that have faced similar challenges and have overcome them successfully. It is unwise to expect any intervention or policy change to produce immediate results, especially because the results would depend not only on the dynamism of the public health sector, but also on the performance of the economy and the success of educational outreach programs, which may take almost a decade to produce substantial results. Therefore, political will is critical for the success of such interventions so that the policy can be sustained over time instead of being changed according to the orientations and political motivations of the government of the day.

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Appendix 1: Keywords and Terms Searched

Access to health services in England
Education and healthcare
Employment and healthcare
Health differences in England
Health in regions of England
Health inequalities
Health inequalities in England
Health inequalities in regions of England
Health services in England
Health services in Yorkshire and the Humber region
Healthcare differences across communities in England
Income and healthcare
Local healthcare services in England
NHS health inequalities
Public health and health inequalities
Regional Healthcare inequalities
Regional Healthcare services in England