

Building Better.

The role of transport infrastructure
and services in improving mental health.



A WPI Economics report
for London City Airport.

LONDON
CITY
AIRPORT

Building Better.



About this report

This WPI Economics report, commissioned by London City Airport, contributes to the growing literature on how the personal, social and economic costs of mental ill health can be tackled. It focusses on how improvements in transport infrastructure and services can be harnessed to improve the mental health of millions of people across England.

About WPI Economics and authors

WPI Economics is a specialist economics and public policy consultancy. We provide a range of public, private and charity sector clients with research, modelling and advice to influence and deliver better outcomes through improved public policy design and delivery. We work with a range of organisations - from FTSE 100/250 companies to SMEs, as well as charities, central and local government.



Matthew Oakley, Director

Matthew founded WPI Economics in 2015. He is a respected economist and policy analyst, having spent well over a decade working in and around policy making in Westminster. He has previously been Chief Economist at Which?, and Head of Economics and Social Policy at Policy Exchange. He began his career as an Economic Advisor at the Treasury. He holds an MSc in Economics from UCL. He also led the Independent Review of Jobseeker's Allowance sanctions that reported to Parliament in 2014.



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Prior to working at WPI Economics, Christina worked in policy and research in the charity sector, with a focus on youth and community work and education, as well as analysing government strategies tackling radicalisation of young people. During her Portuguese and French BA at King's College London, Christina participated in a study abroad programme, spending a semester at the Institute d'Etudes Politiques in Lyon followed by six months at the Federal University of Rio de Janeiro. Christina is also undertaking an MSc in International Public Policy from UCL.

About London City Airport

London City Airport is the city's most central airport, in London's Royal Docks, an area of rapid regeneration and investment, just five miles from the City of London and at the heart of the dynamic and inclusive East London.

The UK's most punctual airport is favoured by travellers for its convenient location and unrivalled quick and efficient passenger experience – from the front door to departure lounge in 20 minutes or less. Currently ten airlines serve over 45 domestic, European and U.S. routes and the airport welcomes over 4.8 million passengers per year. The airport offers an increasingly diverse choice of business and leisure connections – in 2018 adding Porto and in 2019, Warsaw, Budapest, Newcastle, Vilnius, Munich and Split. The three most popular routes by passenger numbers are Amsterdam, Edinburgh and Dublin. A transformational £500 million development is currently underway to create a world-class gateway for London and deliver a new airport experience for passengers, airlines, businesses and local communities.



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Foreword



Travelling can clearly be one of the most stress inducing parts of life. Every day, all over the UK, people travel to work, go on holiday, visit friends and family. For people with mental health problems travelling can be a daunting experience. Crowds and noise at airports and train stations can be stressful, upsetting, confusing and sometimes even frightening.

Given that nine of the country's 10 busiest stations are located in the capital, it is not surprising that Londoners are more prone to poor mental health than other regions of the UK. This research published today reveals that London boroughs have some of the highest rates of mental health issues in the country. In some areas of London more than 1 in 5 adults report suffering from a mental health condition.

The nature of work and life in London with many people commuting across boroughs and using services in different boroughs means that it is not possible to accurately attribute the potential costs of mental ill health to particular local authorities or local economies. We estimate that the cost to the London economy every year totals around £15.5 billion.*

Significant improvements have been made to the London Transport system, in particular the work TfL have led on making the network virtually step free. But whether at a train station, a tube station or an airport, delays, overcrowding, length of journeys and the presence of anti-social behaviour have been identified as being in the top five "stressors" from transport that are linked to poor mental health. The unpredictability and perceived lack of control a traveller experiences when transport is delayed or cancelled, ticket kiosks are shut or the journey overcrowded, can lead to significant levels of stress.

Stress relating to travel and transport is not limited to the actual time spent waiting for transport or on the journey. Pre-emptive worries about using transport can result in 'accumulation stress'. Anticipating the upcoming stress of a train commute or taking a plane to a holiday destination can mean that once the stressed traveller has arrived at the station or airport, their stress is exacerbated by the unrelaxed, and sometimes unfamiliar, environment.

Clearly transport bosses, across all modes, can play an important role in helping to improve people's mental wellbeing. Over the past 18 months we have been thinking hard about our current operations, but also the future airport we are creating in East London.

As part of this vision, we wanted to better accommodate people with physical and invisible conditions and disabilities, making their journey both to and from the airport easier, while also improving their experience at the airport.

*** The impact on public services totals around £3.5 billion a year, as millions of people go to hospital with mental health conditions. Business also suffers with the total loss estimated at £12 billion a year due to stress-related sickness absences and more people quitting their job due to poor mental health.**

A few years ago, we became the first UK airport to play music to passengers as they proceed through security. We relay real-time flight information and notifications via Facebook Messenger and Twitter. This contributes to a calm environment in the terminal with gate and departure information direct to passengers' devices. It means passengers can relax in any part of the terminal, without the need to constantly check flight information screens.

And looking to the future, there are real opportunities to build infrastructure, and an airport experience that is considerate and reflects East London's inclusive values and spirit. For example, our £500m development will include an orientation zone for arriving passengers where they can familiarise themselves with the London transport network and their onward journey.

Lastly, the airport has always been known for its speed, and we appreciate that our offer needs to diversify and to provide passengers with more thinking space and places to relax. But we also understand that if you can make the train to plane proposition seamless, then that can have a profoundly positive impact on a passenger's experience and mental health. That's why, alongside TfL, we are considering a new platform at our DLR station which will provide direct access, for passengers without bags, to our security. A just minutes train to plane offer, which would be cutting edge and help create a genuinely integrated transport experience for our growing number of passengers.

Investment in transport infrastructure across the capital could have transformational effects on the wellbeing of millions of people. Opening up new opportunities for social interaction or work by introducing new routes, or make existing journeys quicker or easier, could have significant positive impacts on mental wellbeing across the UK. This principle applies to our employees as well. We want our staff to have shorter journeys to work where possible which is why 64% of the airport's workforce live within five miles of the airport. We're also proud to have been officially accredited as a London Living Wage employer.



With large-scale developments being taken forward in London over the next decade and beyond, including Crossrail, tube upgrades and, of course, the redevelopment of London City Airport, there is a vital opportunity to make significant and tangible differences to the mental health of people living and working across the capital.

London City Airport is committed to serving London more widely and creating an enjoyable and stress-free travel experience - now and in the future, following a £500m transformation. This report is a reflection of these values, addressing one of the major socio-economic problems in London and the UK and looking at it through the lens of the transport sector, with the support of new economic analysis. It forms part of a wider "Inclusive London" Corporate Responsibility agenda, to ensure that our transport strategy and future investment results in better, healthier and more accessible journeys for everyone, including the East London communities around us.

A handwritten signature in black ink, appearing to read 'RS', followed by a horizontal line.

Robert Sinclair, Chief Executive Officer, London City Airport

Executive Summary

Mental ill health has been identified as one of the major personal and social challenges of our time. While hard to estimate with any certainty, the impact on individuals experiencing mental ill health and the knock-on effects on their families, friends, colleagues and communities are undeniably large. Just looking at the smaller, less immediate, effects in terms of the costs to public services and the economy, we see that the cost of mental ill health in England exceeds £100 billion a year.

In light of this, it is no surprise that the Government has committed to significant increases in spending and services on interventions to improve mental health, and a range of businesses, charities and support organisations are already taking action to improve mental health support at work, home and in the community.

Table 1: Public sector and economy costs of mental ill health in English regions

	Prevalence (% of 16-74 population)	Costs of the public sector (£m/ year)	Costs to the economy (£m/ year)
East Midlands	16.7	1,500	5,500
East of England	14.1	2,000	6,000
Greater London	18.9	3,500	12,000
North East	16.2	1,000	3,000
North West	19.0	3,000	10,000
South East	13.6	2,500	9,000
South West	19.9	2,500	8,000
West Midlands	18.6	2,000	7,500
Yorkshire and the Humber	16.2	2,000	6,500

Source: WPI Economics, Stevenson/Farmer Review and NHS Digital

But mental health is not just about our environments and interactions at home and work. Every day, the majority of people across England travel from home to work, visit friends and family or access social amenities and public services. These journeys are facilitated by transport infrastructure and services, making it obvious that our transport system has a vital role to play in supporting our mental health by allowing us all to engage in the activities that define our lives.

However, the mental health impacts of our transport system go beyond simply allowing us to travel; our experiences of the journeys we take and the environments we encounter during these journeys can have a profound impact on mental wellbeing. Some of these impacts are obvious, but others are more subtle. This report highlights three key areas where improvements in transport infrastructure and services could make a tangible difference to mental health for millions of people across England.

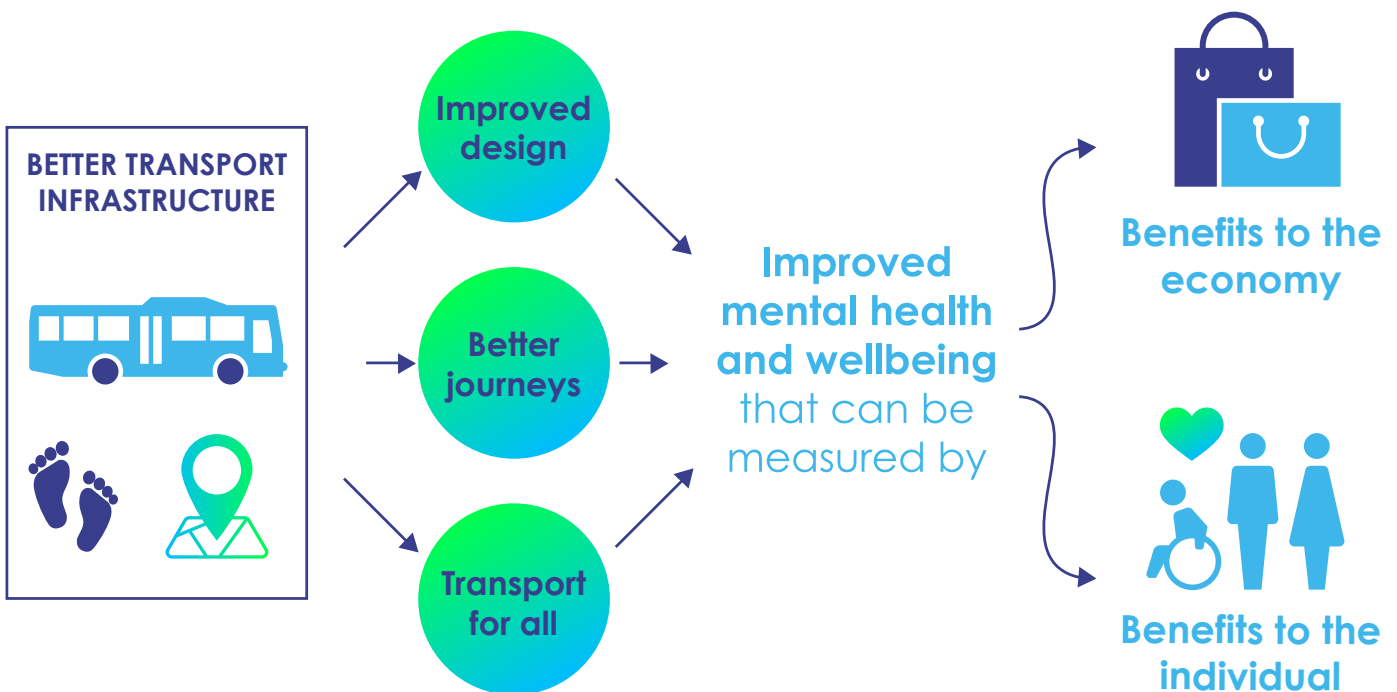
- **Better Journeys:** improvements to transport systems that reduce delays, cancellations, anti-social behaviour and overcrowding can have a significant impact on the mental health of those using the transport mode. It is also important to consider impacts on non-users; for example, by reducing congestion impacts on people using routes that connect people to transport hubs and minimising air and noise pollution (both through construction and during use);

- **Improved Design:** research has shown that the design of transport hubs, including the use of colour, natural materials and the inclusion of mixed-use spaces, allowing passengers more freedom over how they use the space, can all have significant impacts on experiences of travel and, in turn, mental health. More generally, the nature and design of information systems and announcements, the way in which passengers queue have all been shown to be important;
- **Transport for all:** there are particular groups who may be more at risk of negative mental health effects of using transport. For example, those with existing physical or mental health conditions and disabilities can find travel more difficult. Tailoring both the design of hubs and services to the needs of these groups is essential to promoting mental health.

More generally, as major businesses in their own right, England's transport hubs and service providers also have an important part to play in terms of their commitment to their own staff and to the communities around them (many of whom may not directly use their services).

This report uses the framework below to highlight case studies for how this can be delivered on the ground; showing how work at London City Airport has focussed on these areas to improve experiences for passengers and local communities alike.

Figure 1: The influence of transport infrastructure on mental wellbeing



Source: WPI Economics

However, these principles go beyond the positive action that one transport hub can take in isolation. With the significant potential benefits in mind, there is a huge opportunity ahead of us; across the country, major schemes to improve transport infrastructure and services are being designed and rolled out. As well as improvements to specific transport hubs and services, these include major pan-regional and national schemes like Crossrail 1 and 2 in London, Northern Powerhouse Rail, HS2 and the expansion of airport capacity in the South East. By using the principles above and building on existing experience of what works, improvements in transport infrastructure and services can be harnessed to play a major role in a strategy to improve mental health and wellbeing across the whole of England.

Section 1: Introduction

This report is about England's growing mental ill health problem and the extent to which improvements in transport infrastructure and services can play a role in tackling it.

The last decade has seen a transformation in the extent to which the nature, impact and widespread prevalence of mental health conditions has been accepted and understood across the UK. The most recent estimates of the extent of mental health conditions suggest that, every week, one in six people in the UK will suffer from mental ill health. Over the course of the year, one in four people will experience mental ill health.



**One in six
people suffer
from mental
ill health
every week.**

The costs of this are significant and impact most on the individuals that are affected and their friends, family and communities. But the costs are not just individual; they have been shown to feed through into increased costs to the public purse and lead to lower productivity, growth and wellbeing across the whole of the economy.

With this in mind, it is no surprise that policymakers and politicians in local, regional and national government have begun to take notice. National action has been clear. For example, the Health and Social Care Act 2012 took the bold step of committing the Government to providing a “parity of esteem” between mental and physical health services.¹ Although commentators argue that progress has been slow,² the Government has now committed at least £2bn a year of extra funding by 2023/24.³ There have also been significant local action, with significant efforts targeted on programmes to improve access to psychological therapies,⁴ and a commitment to continue to expand these efforts.⁵

These are all positive steps. However, the majority of people with poor mental health still do not access any form of treatment,⁶ and the scale of the overall challenge suggests both that more will be needed. In particular, it seems clear that it is not just the responsibility of Government to improve services and support. Instead, a more fundamental shift in action is needed from businesses, communities, charities and individuals right across the UK. By working together and understanding how each aspect of our daily lives, surroundings and interaction can impact on our mental health and wellbeing, significant and tangible improvements in health are possible.

A range of organisations are already taking forward work in this area. For example, the Time To Change campaign works with business, schools and individuals across the UK with the goal of ending mental health discrimination.

However, responses to support improved mental health are not always obvious. Every day, all over the UK, people travel to work, go on holiday, visit friends and family and take trips to access local services, shops, restaurants and leisure activities. The quality and impact of many of these on mental health is regularly considered, but the travel itself is not. This report tackles that problem. It shows that by improving the quality of both journeys and the infrastructure that supports them, investment in our transport infrastructure could be an important part of a strategy to tackle mental ill health in England.



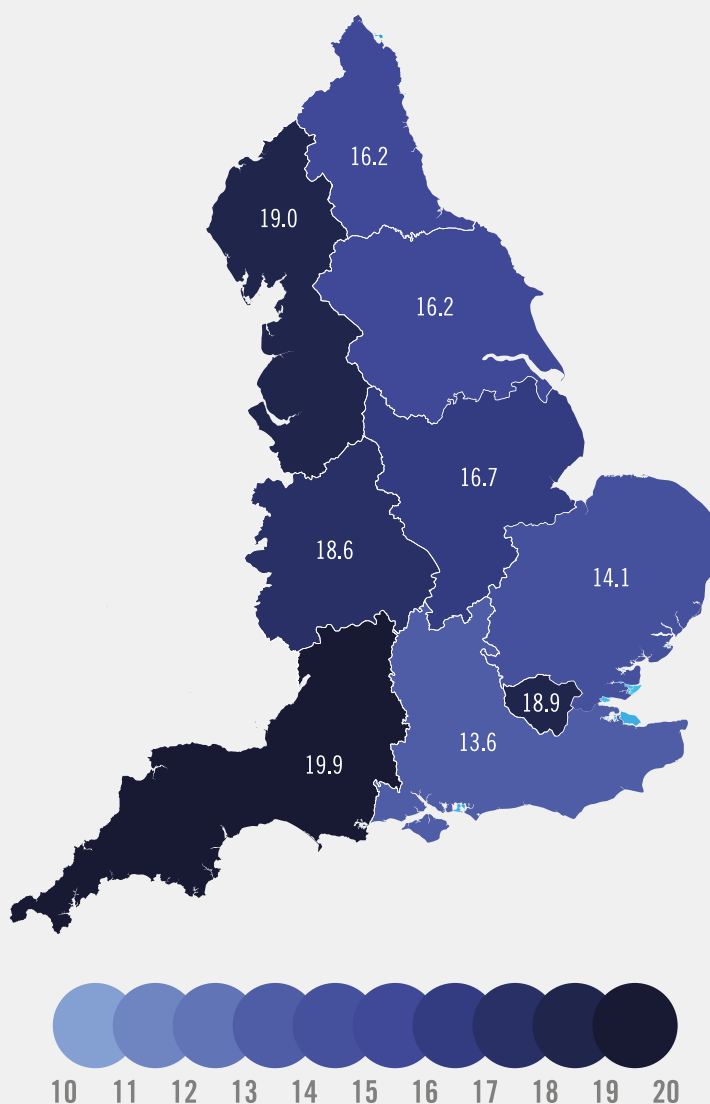
Section 2: The prevalence and costs of mental ill health in England

Before assessing the potential impact and role of transport infrastructure in supporting improvements in mental health, this section outlines what we know about the prevalence and associated costs of mental ill health in England. Figure 2 uses the most comprehensive survey evidence on mental health across the UK to demonstrate the variation in the prevalence of Common Mental Disorders amongst adults (16+) in different English regions.⁷ Box 1 provides a description of the mental health conditions that this covers.

Overall, between 14.1% and 20% of the adult population of English regions is estimated to have a mental health condition.⁸ London, the South West, West Midlands and North West have significantly higher prevalence of mental health conditions than other English regions.

Of course, it is not just adults that are affected by mental ill health. Recent estimates suggest that one in ten children aged between 5 and 16 suffer from a diagnosable mental health condition. The effects of these are just as severe as for adults, with children and young people with mental ill health more likely to have poor physical health, lower education attainment and employment prospects and weaker social relationships. While regional measures of the prevalence of CMDs in children and young people do not exist, London's young people report the lowest life satisfaction, with 15.5% reporting low life satisfaction (compared to an English average of 14.1%).

Figure 2: Prevalence of Common Mental Disorders in adults across English regions (%)



Source: WPI Economics, NHS Digital

Box 1:

Common Mental Disorders (CMD)

Common Mental Disorders is a category used to describe different types of depression and anxiety. They are typically less debilitating than major psychiatric disorders, but because of their higher prevalence, the associated costs are higher.

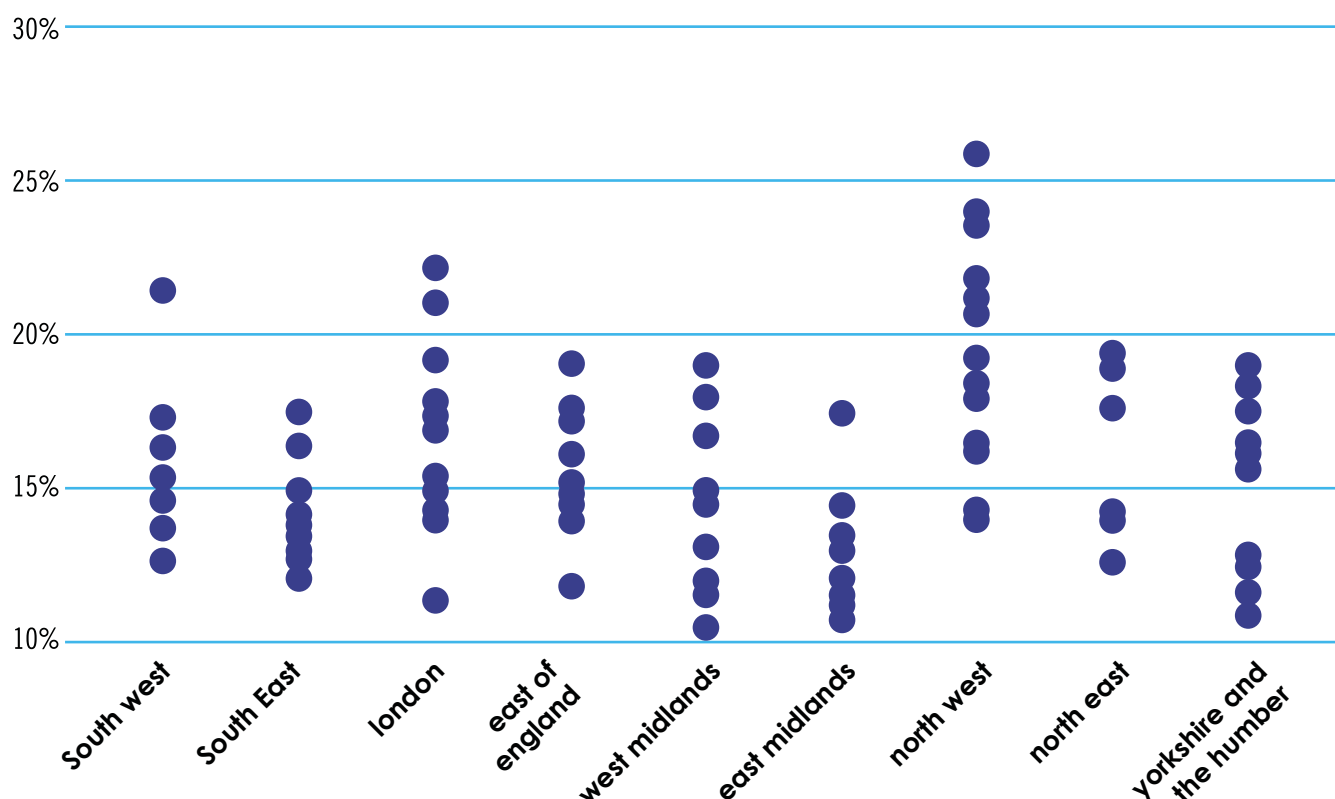
The Adult Psychiatric Morbidity Survey (APMS) is the main English survey for understanding poor mental health among adults (16+). It assesses six types of CMD: depression, generalised anxiety disorder, panic disorder, phobias, obsessive compulsive disorder (OCD), and "CMD not otherwise specified".

Mental health within English regions

As well as varying significantly across English regions, the prevalence of mental ill health varies significant within any one region. Figure 2 uses data from Clinical Commissioning Groups to show the spread of estimated prevalence rates within each English region.

In many respects this variation is not surprising; while mental ill health can affect anyone at any time, a range of risk factors have been identified as increasing the likelihood of CMDs (figure 2). As well as making particular individuals more susceptible to mental ill health, this means that the overall prevalence will be higher in local areas associated with more of these risk factors. This explains why, for example, the prevalence of CMDs tends to be higher in areas of economic disadvantage.⁹ This also demonstrates why it is important to consider both national, regional and local strategies towards tackling mental ill health; while a particular region might be performing relatively well in terms of the prevalence of CMDs, there may be areas within it where mental ill health is a much more significant issue.

Figure 3: Variation of the prevalence of CMDs within English regions



Source: WPI Economics, NHS Digital

Figure 4: Risk factors associated with mental ill health:

There are a range of risk factors and situations that are associated in some way to the prevalence of mental ill health, both for individuals and across local areas. These include:

- Quality of Relationships – including isolation, loneliness and domestic violence
- Health issues – including long-term physical health conditions and substance misuse
- (Past and present) stressful life experiences and life changes – including childhood neglect, traumatic experiences in adult life and triggers such as bereavement or unemployment
- Social/socio-economic factors – including poverty, social disadvantage and housing circumstances both personally and in the local community.
- Day to day stressors – including a wide range of factors that can trigger or worsen mental ill health, for example, work and travel.

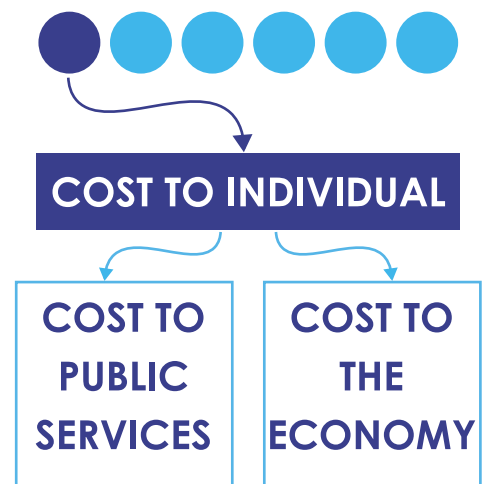
Section 3: The costs of mental ill health

While the impacts of mental ill health are felt most acutely by people affected, there are also clearly potentially significant impacts on their friends, families and communities. Alongside these direct impacts, there are a range of other impacts and costs associated with mental ill health, including the costs to public services and impacts felt by employers and the economy.

This section summarises the extensive literature on what we know about these.

Cost to the individual

The most immediate impact is on those who experience mental ill health themselves. Not only does mental ill health negatively impact an individual's psychological wellbeing and enjoyment of life, but it can also manifest in physical health problems, such as increased heart rate and insomnia, and also lead to serious physical illness: having poor mental wellbeing can be linked to an increased risk of coronary heart disease and an increased risk of death from cancer.¹⁰ It may also lead to the development of unhealthy behaviours, such as alcohol misuse and over- or under-eating, which in turn can lead to poor physical health.¹¹ Both mental and physical symptoms of mental ill health impact an individual's quality of life; personal and social life is impacted through knock-on effects, which strains family relationships and friendships, and in turn weakens social support networks. The nature of these impacts make firm estimates of the potential costs very difficult to produce, but they are likely to be the largest of all the costs associated with mental ill health.



Costs to the Public Sector

The OECD estimated that in 2016, the UK spent over £48 billion on the direct costs of mental ill health, which come in the form of use of the NHS and health related benefits, as well as nearly £39 billion on indirect costs (i.e. the impact of mental ill health on the labour market).¹² Around £1 in every £8 spent on long-term physical conditions was linked to poor mental health and wellbeing.¹³

Cost to Economy

Mental ill health is associated with higher sickness absence rates and higher employee turnover.¹⁴ Mental ill health is the third most common reason for sickness absence in the UK, after minor illnesses and musculoskeletal problems; the UK lost 15.8 million days to mental health-related sickness absence in 2016 alone. Not all people experiencing mental ill health will take time off work as a result of it; when this is the case, employees can experience burnout and a lack of motivation, which leads them to be 6% less productive than someone with good mental health. The recent Stevenson/Farmer review estimated that the combination of absenteeism and presenteeism cost employers

between £33bn and £42bn a year. The review estimated that these impacts, combined with lost output, cost the economy as a whole between £74bn and £99bn a year.¹⁵ Together, the size of these impacts is significant; the OECD judge of the cost of mental ill health to be around 4.1% of the UK's GDP, as a "conservative estimate".¹⁶

The Stevenson / Farmer Review concluded that "...at a time when there is a national focus on productivity the inescapable conclusion is that it is massively in the interest of both employers and Government to prioritise and invest far more in improving mental health."¹⁷

Understanding the costs across English regions

Costs to the public sector and economy

While estimates of the costs of mental ill health to the public sector and economy have been calculated across the UK, less attention has been paid to the potential costs in particular regions and local areas. Given the fact that previous sections in this report have highlighted the need to consider responses to mental ill health at a local, regional and national level, developing these cost estimates is important.

To estimate these potential costs at a local level, we have used evidence on the costs of mental ill health from the Stevenson/Farmer review and combined these with estimates of the prevalence of mental ill health for specific regions and local areas in England. It is worth noting that, while mental ill health amongst children and young people has both significant and long-lasting impacts, data limitations mean that the analysis in this report focuses on the prevalence and cost implications of mental ill health in the adult population.

Table 2 demonstrates the estimated costs to the public sector and the economy and the potential total welfare losses of individuals in different English Regions.

Costs to individuals

As highlighted above, estimating the potential impact of mental ill health on individuals is much more difficult. Doing so requires putting a monetary value on the negative impacts on psychological wellbeing and enjoyment of life, as well as knock-on effects on physical health problems. This would need to be undertaken

Table 2 demonstrates these for specific local areas.

	Cost to the public sector (£m/ year)	Cost to the economy (£m/ year)
East Midlands	1,500	5,500
East of England	2,000	6,000
Greater London	3,500	12,000
North East	1,000	3,000
North West	3,000	10,000
South East	2,500	9,000
South West	2,500	8,000
West Midlands	2,000	7,500
Yorkshire and the Humber	2,000	6,500

Source: WPI Economics, Stevenson/Farmer Review and NHS Digital.

both for those with mental ill health, as well as for their friends, families and communities who are undoubtedly impacted by their condition. To understand the potential scale of these costs, we have drawn on the headline values from the Housing Associations Charitable Trust (HACT) wellbeing valuation approach. This estimates the equivalent amount of money needed to increase someone's wellbeing by the same amount as the given effect.¹⁸ In tangible terms, this estimates that relief from depression or anxiety for an adult is valued at around £37,000. Table 3 shows how this work, combined with estimates of the prevalence of CMDs across English regions, leads to estimates of the total individual costs of mental ill health. Whilst these estimates are, undoubtedly, uncertain, they do provide an indication of the very significant scale of the benefits that might be provided by tackling mental ill health.

Table 3: The individual costs of mental ill health across different English regions

	Cost to individuals (£m/ year)
East Midlands	21,500
East of England	23,000
Greater London	45,500
North East	11,500
North West	37,000
South East	32,500
South West	29,500
West Midlands	29,000
Yorkshire and the Humber	23,500

Source: WPI Economics, Stevenson/Farmer Review, NHS Digital, and HACT wellbeing evaluator (2018).
Notes: Figures here will differ to the summed totals of individual CCGs presented below, due to rounding.

Section 4: What role can transport play?

The scale and nature of the costs of mental ill health to England, its regions and local areas is clear. The Government's commitment to improving the situation is also clear; with both significant increases in investment and improved services promised. However, with one in four people estimated to be impacted by poor mental health at some point every year, it is apparent that national, regional and local policymakers will be unable to tackle this issue on their own. In short, it will not be enough to attempt to improve services for those already suffering from mental ill health; instead, a more robust programme of work is needed to reduce the prevalence of mental ill health overall.

To some extent, this has already been recognised. For example, the Stevenson / Farmer Review highlighted the important role that employers can play in supporting improvements in mental wellbeing in the workplace. The review highlighted many examples of existing good practice amongst employers and suggested areas where more could be done. Organisations like Time To Change and charities like Mind, Scope and Rethink Mental Illness are already undertaking significant work to support businesses to take this forward.

Of course, businesses and the extent to which they can support wellbeing in the workplace are undoubtedly important. However, mental health is not only something to consider in the workplace and at home; the environment around us all, and the journeys we take through it are also vitally important and can fundamentally impact on our mental health.

Recent work from WPI Economics demonstrated this point by looking at the potential role of improved urban design in supporting mental wellbeing.¹⁹ It highlighted the large body of academic literature on design and wellbeing, and the Government Office for Science's recognition a decade ago that designers and developers should use the available evidence to "...design and manage the environment better for mental capital and wellbeing."²⁰ This section shows that the same is true of transport infrastructure and the journeys that it facilitates.

Mental ill health and transport

Connecting people

The first point to make is that transport infrastructure and the journeys that it facilitates are a central part of how all of us live our lives. Without it, seeing friends and family would be made more difficult, visiting museums, different parts of the UK and foreign countries would be impossible, and our working lives would be confined to the areas immediately surrounding our homes. In short, without transport and transport infrastructure, our lives would be significantly worse.

That means that improvements to infrastructure that either open up new opportunities for social interaction or work by introducing new routes, or make existing journeys quicker or easier, could have significant positive impacts on wellbeing mental across the UK. The opportunities across the UK are clear; Northern Powerhouse Rail, Crossrail 2, expansion of airport capacity in the South East, HS2 and a range of regional programmes of improvement on our roads, motorways and metro services could all have a transformational impact on our standard of life and mental wellbeing. While there is often debate about routes,



timelines and public costs, the one thing that should not be forgotten is that infrastructure development is fundamentally about connecting people and improving wellbeing.

Challenges to wellbeing

If delivered effectively, the improvement of transport infrastructure should lead to an overwhelmingly positive impact on mental wellbeing. However, just as poor design in the urban environment can damage our mental health, where poor design, implementation or management is seen in transport, this can also impact negatively on mental wellbeing. For example, delays, overcrowding, length of journeys and the presence of anti-social behaviour have been identified as being in the top five “stressors” from transport that are linked to poor mental health.^{21 22} Other work has shown that the unpredictability and perceived lack of control a traveller experiences when transport is delayed or cancelled, ticket kiosks are shut or the journey overcrowded, can lead to significant levels of stress.²³

Many of these issues may seem short-lived, but they have been shown to impact on overall life satisfaction and happiness. For example, recent research by the Royal Society for Public Health suggests that an extra 20 minutes of commuting time has a similar impact on overall living standards as a 20% reduction in salary for someone working full time on the National Living Wage. The number of GP appointments was also found to be higher for those frequently undertaking longer journeys.²⁴

Other work shows that the impacts go beyond just length of journeys, with people's transport experiences including crowding being shown to increase stress levels, reduce passenger wellbeing and have knock-on impacts on their work and family life.²⁵ One specific example of flights in the US found that stress relating to travel resulted in an average of around five hours of ‘lost time’ (i.e. time where the person was unable to work or rest) for domestic and continental work trips.²⁶

Stress relating to travel and transport is not limited to the actual time spent waiting for transport or on the journey. Pre-emptive worries about using transport can result in ‘accumulation stress’, where new stressors appear before existing stressors have been brought under control, compounding the negative feelings.²⁷ Anticipating the upcoming stress of a train commute or taking a plane to a holiday destination can mean that once the stressed traveller has arrived at the station or airport, their stress is exacerbated by the unrelaxed, and sometimes unfamiliar, environment.²⁸

In terms of the general environment, certain architectural or interior design features have positive, negative or mixed impacts on mental wellbeing: Commercialist and mono-functionalist designs negatively impact people as they are unable to use the spaces in the ways that would increase their wellbeing most.²⁹ Where engineering quality is poorer, depression has been found to get worse³⁰ and high levels of surveillance and risk mitigation make for mixed results; while feelings of insecurity can be reduced, the aesthetic may be unappealingly monotonous, and awareness of extensive surveillance may increase a sense of paranoia.³¹

Whilst anyone can be negatively impacted by these issues, there are some that are more susceptible. For example, people taking certain modes of transport only occasionally, may be more able to cope with the travel-related stress of an occasional trip. However, many people commute daily, go on frequent business trips or travel regularly to visit family, friends or for other leisure activities. For these individuals, transport- and travel-related mental ill health can be more significant, particularly for those who travel for longer periods at a time. Another group at particular risk of negative impacts to consider are those with pre-existing mental ill health,



where a wide body of evidence shows these pre-existing conditions can be exacerbated by poorly designed surroundings.³²

More generally, there is also strong evidence that transport infrastructure and the journeys it facilitates can have negative impacts on mental wellbeing of those living, working and socialising in and around the area, even if they do not directly use it.³³

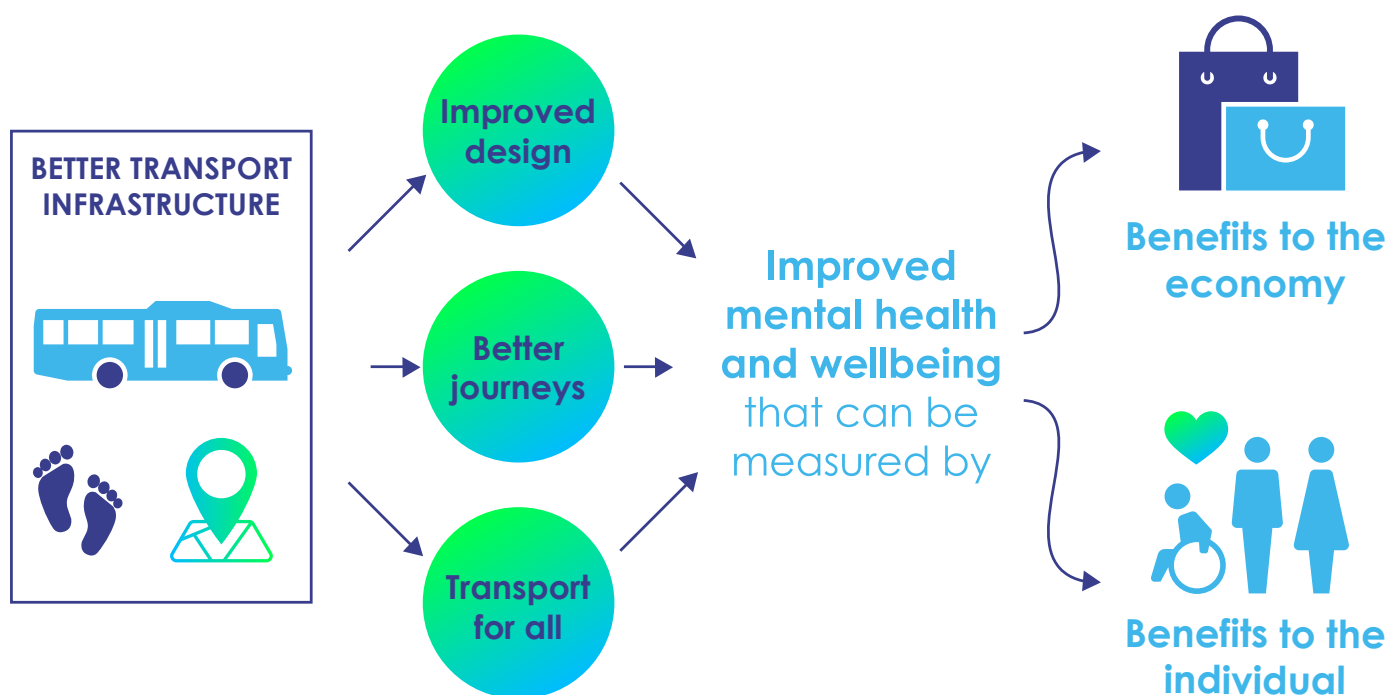
The role of improved transport infrastructure

From the examples provided above, it is clear that, as well as playing a central role in providing the connections we all rely on for our wellbeing, when transport systems go wrong, they must also be acknowledged as a potential driver of mental ill health.

As well as providing a challenge, this also presents an opportunity; with significant infrastructure investment underway right across the country, these programmes should be seen as a chance to improve the extent to which transport can act as a lever for improving mental health. Given the importance of transport to the vast majority of the population and its vital role in our day-to-day lives, these positive changes could be a significant driver of improved mental wellbeing across large proportions of the population.

This section considers the sorts of approaches that have been shown to be successful. Figure 5 demonstrates the three routes identified by the literature and examples of best practice uncovered through this report, which can be used to improve mental health.

Figure 5: The influence of transport infrastructure on mental wellbeing



Better journeys

Source: WPI Economics

The most apparent way in which improved transport infrastructure can improve mental health is by leading to better journeys. For example, reduced delays, cancellations and overcrowding would all have significant positive impacts on mental wellbeing. Here it is important to remember that it is not only the main journey which is important; for example, when travelling by rail or plane, travellers will need to reach the airport or rail hub before taking the journey. This means that journeys, and the impact they have on mental health, need to be considered as a whole, potentially across several modes, rather than in isolation.

Another challenge is that journeys to and from transport hubs also have the potential to impact on other users; if accessing rail hubs or airports via road or public transport leads to delays or overcrowding for other users, this will have an effect on mental wellbeing. In this respect, cycling and walking have been shown to improve both the mental wellbeing of those choosing these modes of transport, and also ease congestion on other transport modes.³⁴ Box 2 highlights examples of where recent developments have focussed on providing

better journeys for both primary users of the infrastructure and other users that are indirectly affected.

The examples above all focus on major decisions and investments, however, it is not always big things relating to frequency, length and reliability of services that make the difference; small changes can also have quite a marked effect on wellbeing when travelling. For example, while it is not possible for travellers to control when their transport arrives or departs, feeling well-informed about possible delays, including how long they may last, goes some way to foster a feeling of being more in control of the situation. Another example is that studies have shown that the way queuing systems are organised is also important to how they may impact peoples' stress levels.³⁵

Box 2:

Principles in practice 1 Better Journeys at London City Airport (LCY)

The airport's development will completely transform the passenger experience by building a terminal characterised by more space, better facilities, smart airport experiences, and choice.

Alongside improvements in journeys within and from the airport, LCY's overarching transport vision is to improve accessibility to public transport, both physical infrastructure and information, reducing emissions and promoting sustainable transport (cycling and walking) modes.

The Airport fully supports the expansion of cycle routes to create the right environment around the airport for healthy and sustainable travel. LCY is working closely with the London Borough of Newham which is currently rolling out a plan to improve the cycle network across the borough. The cycle network includes a route passing close to the airport and LCY is liaising with the Council to link the airport to that cycle route. LCY will be contributing £100,000 towards the project providing much needed financial contribution.

The airport understands that the passenger journey starts miles away from the terminal. That is why LCY, alongside TfL, would like to further integrate the DLR with the airport terminal by introducing faster and more efficient step free access for all passengers from the DLR platform straight into Security. This will ensure that the passenger experience remains seamless while the airport is growing.

We are also collaborating with TfL regarding building a visitors centre at the terminal to welcome people from around the world, familiarise them with the London transport system, and prepare them for their onward journey.

Improving design

Taking journeys takes time; both during the journey itself and at the hub where the journey begins and ends. For example, globally, the typical traveller spends 133 minutes at an airport before their journey.³⁶ This means that the design, ambience and functionality of transportation hubs and services themselves also play a significant role in contributing to mental health.

Of course, many transportation hubs already include features that improve the environment for users. Sounds to announce train arrivals, airport gate numbers and other information tend to be more musical than warning-like. In Japan, the departure announcement buzzer sound and train attendant whistles were replaced in 1989 with a short, pleasant melody to reduce stress and rushing-related accidents.³⁷ Two decades later, a study

in Tokyo station found that injuries caused by rushing onto trains had reduced by a quarter.³⁸ Natural light, colours and materials can improve the ambience of the space, as well as facilities that improve wellbeing. Views from windows, or even the presence of windows and plants have been found to have a positive impact on people in the workplace: this could be extended to transportation hubs, and where appropriate, trains, buses and aircraft.³⁹

Some transportation hubs have gone to greater lengths to foster a more pleasant travelling (or waiting) experience. Changi International Airport in Singapore plans to implement features inspired by nature to improve the wellbeing of passengers – most famously, a giant waterfall flanked by local plants and butterflies. Waiting for flights in a more natural, interesting environment provides distraction from the stress of delays when compared with an archetypal airport environment.

Box 3:

Principles in practice 2 Improving Design at London City Airport

As part of the airport's £500m development programme, LCY is in the process of upgrading its existing terminal meaning that, once the development is complete in 2022, the customer experience at the airport will be completely transformed. Working with partners Pascall and Watson and Atkins, London City Airport has developed the future terminal design with a key focus on improving the aesthetic feel of the airport and the passenger flow in order to deliver an excellent customer experience for all passengers.

The future airport terminal will have control acoustics to minimise the background noise in public areas to ensure clarity of speech between individuals and mitigate against external audio interference. The design of the terminal also has clear wayfinding with contrasting colours to ensure that passengers can navigate with ease all public spaces and routes. The terminal also has provision of rest point seating with telecom help points to ensure passenger comfort and the availability of assistance if required. Spaces both airside and landside are provided with clear visual boundaries and associated contrasting colours with tactile changes to assist with use. The lighting design has also been addressed with respect to maintaining well-lit spaces with good contrast at changes of level, direction and points of focus such as help desks, check in and welfare facilities. Furthermore, mobile and fixed induction loops will be installed throughout the terminal. The interior is punctuated with digital installations and interior features providing a fluid lined interior design aimed at encouraging passenger flow.

Overall, the importance of the intuitive and clear interior design helps reduce anxiety, distress and triggers for mental health issues, panic attacks and epilepsy.

All of these measures are aimed at improving the passengers' experience and boosting mental wellbeing. The image shows an example of the interior of the new terminal.



Transport for all

The sections above have highlighted aspects of travel and transport infrastructure that can improve mental health and wellbeing for both the typical person using the services and the general population. However, there are also specific groups where particular needs or vulnerabilities, or proximity to transport hubs, warrant targeted actions to improve mental health and wellbeing.

One of these groups are those with existing mental or physical health conditions, for whom access to and use of transport infrastructure might ordinarily prove more difficult or stressful. For example, passengers with Alzheimer's, anxiety disorders or reduced mobility may need tailored support to ensure they are able to make the most of the transport services available.

In the extent to which major transport hubs are large businesses in their own right, they also have a responsibility to the surrounding community. This is true both in terms of putting in place measures to mitigate potential pollution concerns and also to act as a responsible business by supporting inclusive growth across the local economy.

There are also actions that can be taken to reduce the impact of some of the most severe mental health disorders. For example, in Japan, high suicide rates, particularly in train stations, drove train operators to put in place a number of measures. This included the fitting of blue LED lights, said to have a calming effect on mood, which were fitted at the ends of platforms where most suicides occur.⁴⁰ Studies found there to be a reduction in suicides at the stations fitted with blue lights.⁴¹





Box 4:

Principles in practice 3

Transport for All at London City Airport

LCY understands that airports can be very noisy and confusing places, so it has committed to ensuring that the airport experience is seamless and enjoyable for all passengers. This is realised through a dedicated team at the airport that are available to help passengers at every stage of their journey. But the ambition is higher than this; LCY's aspiration is to be the most accessible and inclusive airport, a preferred choice for all passengers.

A key part of delivering this has been through an open and transparent dialogue with different disability organisations. At the heart of this is the external Special Assistance group which was set up in 2018 and has membership consisting of a variety of organisations including AccessAble, Business Disability Forum, the National Autistic Society, Action and Rights of Disabled People in Newham, as well as passengers who use the airport frequently.

The Special Assistance group's aim is to enable dialogue, as well as information and feedback sharing between the airport and its members. With the City Airport Development Programme progressing, this forum provides an opportunity to update the group on construction developments and receive feedback on how processes and procedures can be improved. The airport has created an internal working group with diverse membership, including airlines representatives, whose purpose will be to champion and progress LCY's accessibility work.

LCY proactively engages with the above mentioned group and listens to their feedback in order to create a welcoming environment. So far, we have enhanced the training programmes we deliver for all our staff based on feedback received through the group. We have also created a more accessible and passenger friendly Information point area to make the airport journey more seamless. LCY is also currently in the process of refurbishing the priority seating area in the departure lounge to ensure that passengers find it useful and welcoming. As part of an industry-wide initiative, LCY has launched the sunflower lanyard which is used to alert staff that the passenger may require more time or further explanation.



Section 5: Focus on London

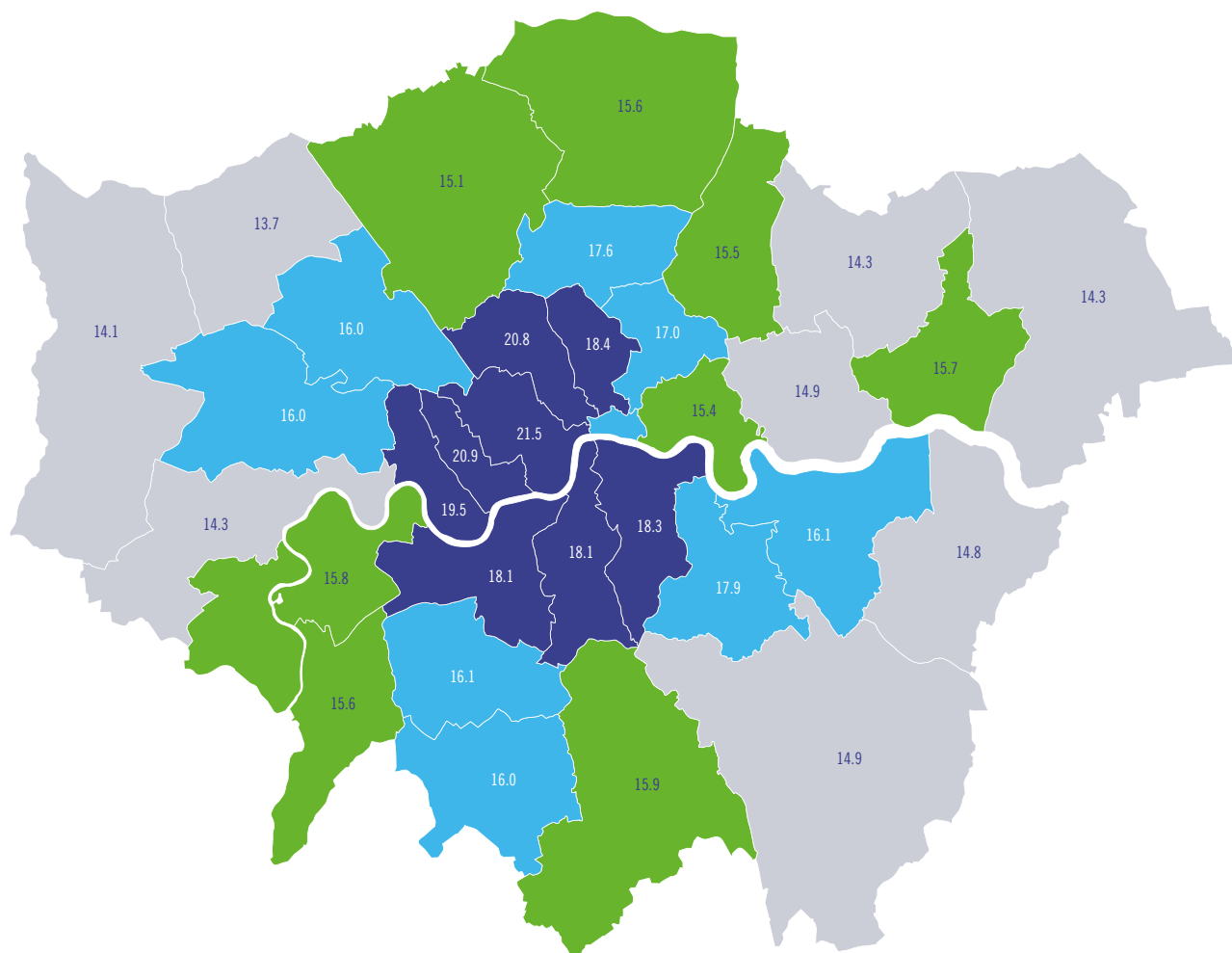
This report has already highlighted the significant variation in the prevalence of CMDs both across and within English regions. To further demonstrate the scale of this as well as to highlight the potentially important role that improved transport infrastructure can play in tackling mental ill health, this section focuses on London in more detail.

The prevalence and costs of mental ill health in London

The scale of the mental health challenge in London is significant, with the overall rate of CMDs amongst the highest over the English regions. Individual boroughs, particularly in Central and West London, also have some of the highest prevalence rates in the country, with more than one in five adults (21.5%) reporting CMDs in some parts of the capital.

The nature of work and life in London (with many people commuting across boroughs and / or using services in different boroughs) means that it is not possible to accurately attribute the potential costs of mental ill health to particular local authorities or local economies. However, we can estimate the total costs to the economy and public sector across London that can be attributed to those with poor mental health, based on their borough of residence. Table 4 demonstrates these costs.

Figure 6: Prevalence of Common Mental Disorders, by London's Clinical Commissioning Groups



Source: WPI Economics, NHS Digital

Action already being taken

Significant programmes of work to improve mental health are already underway across London. For example, Sadiq Khan launched the Thrive LDN strategy in 2017. This involves collaboration between the Mayor's office, Public Health England, the voluntary sector, police force, community groups and local authorities as well as mental health groups like the Mental Health Foundation and the Time To Change initiative. Specific actions

include both sector- and role-specific initiatives, such as a free online tool for businesses, intended to equip employers and employees with the skills to identify signs of mental ill health in the workplace and guide them towards the appropriate support, as well as mental first aid training for London businesses.

The draft London plan also discusses some areas where development and public services can support mental health.⁴² However, while the draft London Plan does also have detailed sections on transport infrastructure development and each of the main modes of transport across the capital, it does not draw explicit links between these developments and the role they could play in fundamentally improving (both directly and indirectly) the mental health and overall wellbeing of people across the capital.



How transport infrastructure can help

Anyone living, working or travelling through London knows that transport impacts on mental health:

- Around 30% of commuters arriving into London's railway stations in the morning peak are standing.
- The average delay on London's locally-managed A roads is 102 seconds per vehicle per mile.
- Congestion, delays and overcrowding on the London Underground is well documented.

All of these present significant mental health challenges to Londoners and those visiting London as they go about their day-to-day lives. This means that investment in transport infrastructure across the capital could have transformational effects on the wellbeing of millions of people. With large-scale developments being taken forward in London over the next decade and beyond (including Crossrail 1 and 2, airport expansion, and HS2), there is a vital opportunity to take the principles outlined above in terms of Better Journeys, Improved Design and Transport for All, to make a significant and tangible differences to mental health.

Table 4: Costs of mental ill health across London Clinical Commissioning Groups

London Borough	Prevalence (% of 16-74 population)	Adults with mental health condition (‘000s)	Estimated overall cost of poor mental health	
			Government cost (£m)	Cost to the economy (£m)
Central London (Westminster)	21.5	38	110	375
West London (K&C and QPP)	20.9	47	135	460
Camden	20.8	53	150	520
Hammersmith and Fulham	19.5	36	100	350
Islington	18.4	43	125	425
Southwark	18.3	58	165	565
Lambeth	18.1	59	170	575
Wandsworth	18.1	59	165	575
Lewisham	17.9	54	155	530
Haringey	17.6	48	135	470
City and Hackney	17	48	140	475
Greenwich	16.1	46	130	450
Merton	16.1	33	95	325
Brent	16	53	150	520
Ealing	16	55	155	540
Sutton	16	33	95	320
Croydon	15.9	61	175	600
Richmond	15.8	31	90	305
Barking and Dagenham	15.7	33	95	325
Enfield	15.6	52	150	510
Kingston	15.6	27	80	270
Waltham Forest	15.5	43	120	420
Tower Hamlets	15.4	47	135	465
Barnet	15.1	59	165	575
Bromley	14.9	49	140	485
Newham	14.9	52	150	510
Bexley	14.8	36	105	360
Havering	14.3	37	105	360
Hounslow	14.3	38	110	380
Redbridge	14.3	43	125	425
Hillingdon	14.1	43	120	420
Harrow	13.7	34	100	335

Prevalence: in lowest 25% lowest 25% > median median > highest 25% in highest 25%

Source: WPI Economics, Stevenson/Farmer Review and NHS Digital Notes: prevalence groupings are based on position within London, rather than all CCGs

Conclusion

There is no doubt that mental ill health is one of the major challenges facing society over the coming decades. The yearly costs to the public sector and economy already run into the hundreds of billions of pounds. The potential value of the damage that mental ill health does to individuals and their friends, families and communities is significantly higher still.



But it does not need to be like this. All levels of government and a wide range of charitable organisations and businesses are already taking significant action to improve mental wellbeing across England. What this report shows is that, by thinking holistically about the routes of mental ill health and the factors that can improve wellbeing, there are many ways in which we can all work together to improve mental health. It has focussed specifically on the role that improved transport infrastructure could play in supporting a reduction in mental ill health.

In many developments, these ideas are already being considered. In particular, case studies in this report have shown how the principles of Better Journeys, Improved Design and Transport for All are being captured in development at London City Airport and the surrounding areas. Given the fact that tens of millions of people across England travel to work, to see friends and family or to access leisure activities every day, taking this to the next level and ensuring that improved mental health is at the heart of all transport infrastructure schemes could make a dramatic difference to mental health across England.

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