Employment Outcomes for People with Long-Term Conditions

A rapid evidence assessment

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Executive summary

This report has been produced by CFE Research and its academic associates on behalf of the Department of Health. It summarises the findings from a rapid evidence assessment (REA) which sought to address five research questions relating to the determinants of employment for people with long-term physical and mental health conditions.

Introduction

At present, improving the efficiency of health services and helping individuals with health problems to find and retain work are seen as important targets, particularly given the limited availability of public finance. The National Health Service (NHS) Outcomes Framework, introduced in 2010, illustrates that raising the productivity of the health service and boosting the quality of life for those with long-term conditions and mental illness (in which employment is seen to play a vital role) are key objectives. The Department of Health commissioned CFE Research to undertake a two-stage research project exploring the impact of health and social care interventions on the employment of individuals with long-term physical health conditions and mental health problems in April 2015. This REA of published and grey literature, along with a paper considering the feasibility of developing an econometric model to quantify the impact of the health and social care system on the employment gap for individuals with and without long-term condition represents stage one. The econometric modelling will be conducted during stage two and will involve documenting the trend in the employment gap using Labour Force Survey data at the aggregate quarterly level from 1997 onwards. This will be supplemented with a more detailed analysis of the contribution of the health and social care system at Local Authority (LA) level. Stage two will be completed by December 2015.

Aims and method

The central aim of this research is to investigate the impact of health and social care systems/interventions, as well as other external drivers, on the employment outcomes for those with long-term physical conditions and mental illness. An REA, alongside econometric modelling, is the methodological approach adopted to achieve the research objective. We adopted an REA to enable a robust review of the studies in this area within the limited timeframe available.

This review looked to explore the impact of health and social care systems/interventions on the employment outcomes for these groups, while also identifying which approaches were most effective and why. Employment can be determined by a range of different factors, and hence our research examined what else influences employment outcomes for those with long-term physical conditions and mental illness. Whilst we initially wished to consider whether these determinants varied depending on the type of employment an individual was working in and the severity of the health condition, this did not prove to be feasible due to a paucity of research in the field. Additionally, health can impact on one's ability to work, whilst employment/unemployment can also influence the health of an individual. Given that

employment is viewed as being critical in enhancing a person's quality of life, the relationship between health and employment was also investigated.

Key findings

Whilst one may anticipate that employment will lead to better health outcomes, the literature gathered indicated that this may not always be the case, especially in instances of unfavourable working conditions, such as having low job control. Simply helping those with long-term conditions and mental health issues into work will not be sufficient to raise their quality of life and additional support may be required to enable them to remain in employment while managing their health condition. There is greater consensus in relation to the impact of health on employment, with poorer health more likely to lead to an individual leaving the labour market. However, the magnitude of this relationship is influenced by a number of other factors, some of which can be altered by government policy, such as employment rehabilitation measures and the benefits system.

Our findings highlighted that health and social care interventions generally have a positive effect on employment for those with mental health problems, although no evidence currently exists in this area for physical conditions. Anti-depressant medication, cognitive behavioural therapy and combinations of treatments were all found to improve employment outcomes. With this said however, current evidence fails to explore the reasons as to why this is the case and why certain treatments have greater influence than others. One of the issues arising from the literature is the trade-off between using rigorous methodological approaches and ensuring the research takes place over a sufficient period of time for an effect to occur. Randomised control trials (RCTs) often last for no more than a few months, whereas employment outcomes can change a number of years after the original intervention. The inability to account for the time lag is a limitation of the current research. Researchers did, however, highlight that the effectiveness of health interventions may depend on economic circumstances prevailing at the time the initiative is introduced.

Labour market conditions, the structure and generosity of the welfare system, as well as the implementation of employment interventions were all noted as being key determinants of employment for those with mental health conditions. Although there is currently less literature on physical conditions, the importance of working environment and reducing stigma were noted as prerequisites for successful and sustained employment for those with physical conditions and mental illnesses.

01. Introduction

This report has been produced by CFE Research and its academic associates on behalf of the Department of Health. It summarises the findings from an REA which sought to address five research questions relating to the determinants of employment for people with long-term physical health conditions and mental health issues.

The current context

The employment rates of people with long-term conditions and mental illness continuously lag behind the rates found amongst the general population. For instance, in 2012, the employment gap between those with long-term conditions and the general population was around 12 per cent, whilst the corresponding figure for mental illness was just under 40 per cent.[1] However, the size of the gap varies according to factors such as age, type of illness and occupation.

Amongst the general population, long-term conditions such as diabetes are increasing in prevalence, as a result of influences such as an ageing population and lifestyle factors, including poor diet and inactivity. More than 15 million people in England currently have a long-term condition and this will rise over the coming years, alongside the number of people with multiple long-term conditions. Figures from National Health Service (NHS) England (2013a) indicate that the current cost of treating long-term conditions accounts for more than two-thirds of health and social care expenditure. Furthermore, research has estimated the economic and social cost of mental health problems to the UK economy at around £105 billion (Centre for Mental Health, 2010), as a result of sickness absence and lower levels of labour force participation.

Economically, the UK government is currently focussed on reducing the public deficit by cutting expenditure. Helping individuals move into and remain in employment is one method by which it is hoped that this will be achieved and there are a number of factors which may be influential, such as healthcare and welfare provision. Universal Credit was introduced in October 2013, with a view to simplifying the benefits system and increasing the incentive to work. Those requiring welfare support are provided with a single payment in a bid to reduce the complexity of the current arrangement, with payments gradually reduced as people increase their working hours and earnings. The aim is to prevent a welfare trap from developing and to encourage individuals to take on even small amounts of work. These reforms complemented other changes such as the introduction of the Statement of Fitness for Work (fit note) which aimed to reduce the length of sickness absence, including amongst those with long-term health conditions and mental health problems It also aimed to get people back to work more quickly through improved advice for individuals and communication between individuals, GPs and employers (Shiels et al., 2013). Obtaining work could also lead to a fall in the dependency of those with long-term conditions on health and social care services as individuals experience a better quality of life, easing the demand and financial pressures on the publicly-funded NHS. Given the forecasts for the number of

[1] Figures taken from the Labour Force Survey

people expected to develop long-term conditions and the strain on public health services that could arise as a result, this has been described by NHS England's national director for patients with long-term conditions, Dr Martin McShane, as "the healthcare equivalent of climate change".[2]

In an environment of fiscal restraint and changing demands on higher healthcare, the previous government highlighted the need to increase the accountability and productivity of the healthcare system; The NHS Outcomes Framework was introduced in 2010. The target for the framework is to develop better health outcomes within the population while simultaneously reducing health inequalities. The issue of long-term conditions relates to Domain 2 in the NHS Outcomes Framework, and is one of the 11 priorities in the NHS England Scorecard: *Enhancing quality of life for people with long-term conditions; improving health-related quality of life for people with long-term conditions* (NHS England, 2013b). The aim of Domain 2 is for the NHS to help and support those with long-term conditions to live as normal a life as is feasible, with employment playing a crucial part in enabling this to occur.

The NHS Outcomes Framework is not the only initiative that seeks to boost the productivity of health services. The Quality and Outcomes Framework, brought in 11 years ago, shares this aim. In particular, this Framework focusses on GP practice outcomes, such as their effectiveness in managing long-term conditions including diabetes and asthma (two illnesses considered in depth in this report), as well as their service quality and ability to avoid the need for emergency admissions to hospital.[3]

Aims and objectives

Given the present situation and the targets contained within the NHS Outcomes Framework, this research seeks to determine the key drivers of employment for those with long-term physical conditions and mental illness. In particular, the central objective is to explore the impact of health and social care systems/interventions on the employment outcomes for these groups, alongside other external drivers such as changes to the benefits system. As noted above, employment may have an impact on health outcomes, while health may influence one's ability to work. This can ensure that people experience a better quality of life through work, which is a key focus within Domain 2 of the Outcomes Framework. The two-way relationship between these variables is examined in this study to shed further light on the nature of this link.

To meet the aims of this project, our methodology involves conducting an REA and an initial assessment of the feasibility of developing empirical models of the employment gap between the general population and those with a mental illness or a long-term physical health condition. The REA sets the scene and discusses the key literature in this field from the UK and internationally. Meanwhile, our report to assess the possibility of building econometric models highlights how UK secondary data sources may be used to explore the employment gap for individuals with and without long-term physical conditions and mental health

[2] http://www.theguardian.com/society/2014/jan/03/nhs-overwhelmed-long-term-medical-conditions

[3] http://www.hscic.gov.uk/qof

problems over time, in an effort to inform estimates of the impact of the health and social care system on this outcome of interest.

Key definitions

Before we go on to discuss the approach adopted for the REA (see Chapter 2), it is useful to clarify what is meant by the terms that refer to the key areas of interest in this study, such as 'long-term condition' and 'employment gap'.

Health and social care in the UK

Healthcare looks to address problems with an individual's quality of health. In the UK, the majority of healthcare is supplied via the publicly-funded NHS, which comprises four systems; one for each country in the UK. The remainder of healthcare is delivered privately and by charities. Data from the Office for National Statistics (ONS) (Lewis & Cooper, 2015) provides estimates of the size of the healthcare sectors in the UK. In 2013, expenditure on public sector healthcare was £125.5 billion, whilst private sector expenditure was £25.1 billion,[4] hence public healthcare spending in the UK accounted for 83% of overall expenditure. Finance allocated to public healthcare has trebled since 1997 and runs the risk of becoming unsustainable in prevailing macroeconomic and demographic conditions, as highlighted by Appleby (2013).

Meanwhile, there appears to be little consensus on a single definition of social care. In general, it is understood to refer to the range of services that are required to address problems with people's quality of life. However, the vagueness of the definitions for social care and quality of life means that there is often overlap between the two terms.

The Adult Social Care Outcomes Framework (ASCOF) defines social care-related quality of life in terms of the following "domains": control, personal care, food and nutrition, accommodation, safety, social participation, occupation, and dignity (Department of Health, 2013, p.13). Additionally, Section 65 of the Health and Social Care Act 2012 states that adult social care excludes any care provided by education and children's services but includes;

> All forms of personal care and other practical assistance provided for individuals who, by reason of age, illness, disability, pregnancy, childbirth, dependence on alcohol or drugs, or any other similar circumstances, are in need of such care or other assistance. [5]

Informal care from friends and family plays an important role in the provision of social care in the UK, with private providers and the state also contributing to supply. Indeed, the estimated value of informal care ranges from £55-£97 billion. Meanwhile, the sum of NHS spending on social care and local authority-arranged care amounts to just over £20 billion, with privately-purchased care valued at approximately £10 billion. (National Audit Office, 2014).

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[4] The ONS defines public sector healthcare expenditure as follows: "Public sector expenditure on healthcare is made up of all governmental expenditure on healthcare including expenditure in prisons and defence. Research and development, and education and training in healthcare are not included." (Lewis & Cooper, 2015, p.18)

[5] http://www.legislation.gov.uk/ukpga/2012/7/section/65/enacted

Long-term conditions

The NHS uses the following definition of a long-term condition:

> A long term condition is one that cannot, at present, be cured but is controlled by medication and/or other treatment/therapies. (Department of Health, 2012, p.3)

This definition is consistent with that put forth by the Royal College of General Practitioners (2011, p.2), which adds that due to the likelihood of different interpretations, "the best means of defining what is and isn't a long term condition [...] is part of a conversation between an individual and their doctor."

Around 30% of the population in England have a long-term condition, with the most prevalent physical conditions being diabetes and asthma. With regards to mental health, the most common illnesses include depression and anxiety. Whilst long-term conditions are especially frequent amongst older people, they are becoming increasingly prevalent amongst children and younger people.

In addition, having a long-term condition increases the likelihood of developing and/or exacerbating a second condition. For example, people with long-term physical health conditions often experience mental health problems (Naylor *et al.*, 2012, p.2). Having multiple conditions is also known as comorbidity. Comorbidities in England are rising, with 2.9 million people anticipated to have multiple long-term conditions by 2018 (Department of Health, 2014, p.3).

Types of mental illness and physical conditions

Within our review of the literature, we focus on a number of types of mental and physical illnesses for reasons given in Chapter 2; hence, we supply from the outset an outline of the key conditions and associated symptoms. Later in this report, we discuss the main methods used in diagnosing particular health conditions and how the severity of an illness is determined, as indicated by the literature.

Depression

A number of organisations have supplied a definition of this mental illness. One such example is the regional office for the World Health Organisation (WHO) in Europe, which considers depression to be:

> A common mental disorder characterised by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness and poor concentration. It can be long-lasting or recurrent, substantially impairing a person's ability to function at work or school, or cope with daily life.[6]

Similarly, the National Institute for Clinical Excellence (NICE) (2009) highlights how depression consists of low mood and/or loss of interest in most activities. Furthermore, the NHS choices website indicates that the symptoms of depression can be categorised into three broad categories – psychological, physical and social.[7] Whilst psychological symptoms may

[6] http://www.euro.who.int/en/health-topics/noncommunicable-diseases/pages/news/news/2012/10/depression-in-europe/depression-definition

[7] http://www.nhs.uk/Conditions/Depression/Pages/Symptoms.aspx

include feeling helpless and having low self-esteem, physical factors encompass experiences such as unexplained pains and changes in appetite. Those suffering from depression sometimes take part in fewer social activities and neglect their hobbies, which are elements of the social symptoms of this condition. Anti-depressants, psychological therapy or even combinations of treatments may be used to combat depression. The exact course followed will often depend on the severity of depression experienced by an individual.[8] Attempts have been made to calculate the cost of treating various mental health conditions in England, with the figure estimated to be £1.7 billion for depression (McCrone *et al.*, 2008, p.15). This statistic includes the expense of prescribed drugs, support services and other NHS treatment.

Anxiety

According to the National Institute of Mental Health (NIMH) in the US, anxiety disorders involve more than temporary worry or fear and can interfere with daily activities such as job performance, school work and relationships.[9] There are three types of anxiety disorders; generalised anxiety, panic and social anxiety disorder. In all cases, the symptoms cluster around excessive, irrational fear and dread. Within the UK context, it is often generalised anxiety disorder that receives the most attention. NICE regards general anxiety disorder as 'one of a range of anxiety disorders characterised by disproportionate, pervasive, uncontrollable and widespread worry and a range of somatic, cognitive and behavioural symptoms that occur on a continuum of severity.'[10] It is recognised that this condition can have a significant impact on an individual's day-to-day functioning and is most common amongst adults between 35 and 55 years of age. The methods adopted in treating anxiety are similar to those for depression. Additionally, applied relaxation therapy may also be used as a form of treatment, and looks to help individuals learn how to relax their muscles during periods of greater anxiety.[11] Treating this condition has been found to cost approximately £1.2 billion (McCrone *et al.*, 2008, p.35).

Schizophrenia

WHO classifies schizophrenia as a severe mental disorder, typified by 'profound disruptions in thinking, affecting language, perception and the sense of self,' [12] with the NIMH also regarding it as a severe brain disorder.[13] The symptoms of schizophrenia are often categorised into positive and negative symptoms.[14] Positive symptoms represent a change in behaviour or thought with individuals experiencing, for example, hallucinations and delusions. Meanwhile, negative symptoms lead to withdrawal or a lack of function usually seen in healthy people, such as not wanting to leave the house and being less likely to initiate

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[8] http://www.nhs.uk/Conditions/Depression/Pages/Treatment.aspx

[9] http://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml

[10] http://cks.nice.org.uk/generalized-anxiety-disorder#!topicsummary

[11] http://www.nhs.uk/Conditions/Anxiety/Pages/Treatment.aspx

[12] http://www.who.int/mental_health/management/schizophrenia/en/

[13] http://www.nimh.nih.gov/health/publications/schizophrenia/index.shtml

[14] http://www.nhs.uk/Conditions/Schizophrenia/Pages/Symptoms.aspx

conversations. In addition, NIMH has also identified cognitive symptoms of the illness, such as struggling to understand information and then using it to make decisions. However, these are more subtle aspects, hence making them more difficult to detect. Aside from psychotherapy treatment, antipsychotics may be prescribed to help individuals to deal with the symptoms of schizophrenia.[15] In England, the expense of treating this condition has been calculated to be £2.2 billion (McCrone *et al.*, 2008, p.51).

Bipolar disorder

This condition is known to impact on mood, with individuals experiencing marked mood swings, ranging from extreme highs (mania) to severe lows (depression). In the UK, NICE (2014) provides a detailed definition of this illness:

> Bipolar disorder is a potentially lifelong and disabling condition characterised by episodes of mania (abnormally elevated mood or irritability and related symptoms with severe functional impairment or psychotic symptoms for seven days or more) or hypomania (abnormally elevated mood or irritability and related symptoms with decreased or increased function for four days or more) and episodes of depressed mood. It is often comorbid with other disorders, such as anxiety disorders, substance misuse, personality disorders and attention deficit hyperactivity disorder.

Within the UK, the peak age of onset of this particular condition is between the ages of 15 and 19. Typically, medication and/or psychological treatment will be put in place to reduce the symptoms associated with this condition. McCrone *et al.* (2008, p.69) estimate the cost of treatment for this health problem at £1.6 billion.

Diabetes

Diabetes is a long-term condition whereby either the pancreas does not produce enough insulin (type 1) or the body is unable to effectively use the insulin it creates (type 2). Type 2 diabetes is far more prevalent than type 1, accounting for approximately 90% of cases across the world. In the short run, diabetics can experience symptoms such as increased thirst and hunger, whilst in the longer term, the condition can lead to damage of areas such as the eyes and kidneys.[16] As diabetes is an incurable condition, those individuals with type 1 diabetes must regularly inject insulin into their bloodstream to ensure that their blood sugar levels can be controlled. For those with type 2 diabetes, lifestyle changes are recommended in the first instance, with individuals advised to control their diet and weight, whilst also participating in sufficient physical activity. In the longer term, should these measures be insufficient when it comes to controlling blood sugar level, medication may need to be taken.[17] In the UK, the cost of treating diabetes and its complications is around £14 billion.[18]

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[15] http://www.nhs.uk/Conditions/Schizophrenia/Pages/Treatment.aspx

[16] http://www.who.int/diabetes/action_online/basics/en/

[17] http://www.nhs.uk/Conditions/Diabetes-type2/Pages/Treatment.aspx

[18] http://www.diabetes.co.uk/cost-of-diabetes.html

Asthma

The Global Initiative for Asthma (GINA, 2002) defines asthma using an operational description.

> Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. The chronic inflammation causes an associated increase in airway hyper-responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment.

This definition is in line with that of NICE, which also states that breathlessness, tightness in the chest, coughing and wheezing are the classic symptoms of asthma.[19] Those with asthma will often manage their condition by regularly using an inhaler, which enables the medication to directly enter their lungs. Reliever inhalers are used to open up the airways and make it easier to breathe, whereas preventer inhalers look to reduce the level of inflammation inside the airways.[20] The NHS spends around £1 billion per year treating and looking after those with asthma.[21]

The employment gap

The employment gap for people with long-term conditions is the difference in employment rates, measured in percentage points, between people with and without long-term conditions. As Figure 1 shows, the employment gap varies by age – increasing as people get older, but decreasing with greater levels of economic inactivity at either end of the age range (when a greater proportion of people are in education or retirement).

[19] https://www.nice.org.uk/guidance/qs25/resources/guidance-asthma-pdf

[20] http://www.nhs.uk/Conditions/Asthma/Pages/Treatment.aspx

[21] http://www.asthma.org.uk/asthma-facts-and-statistics

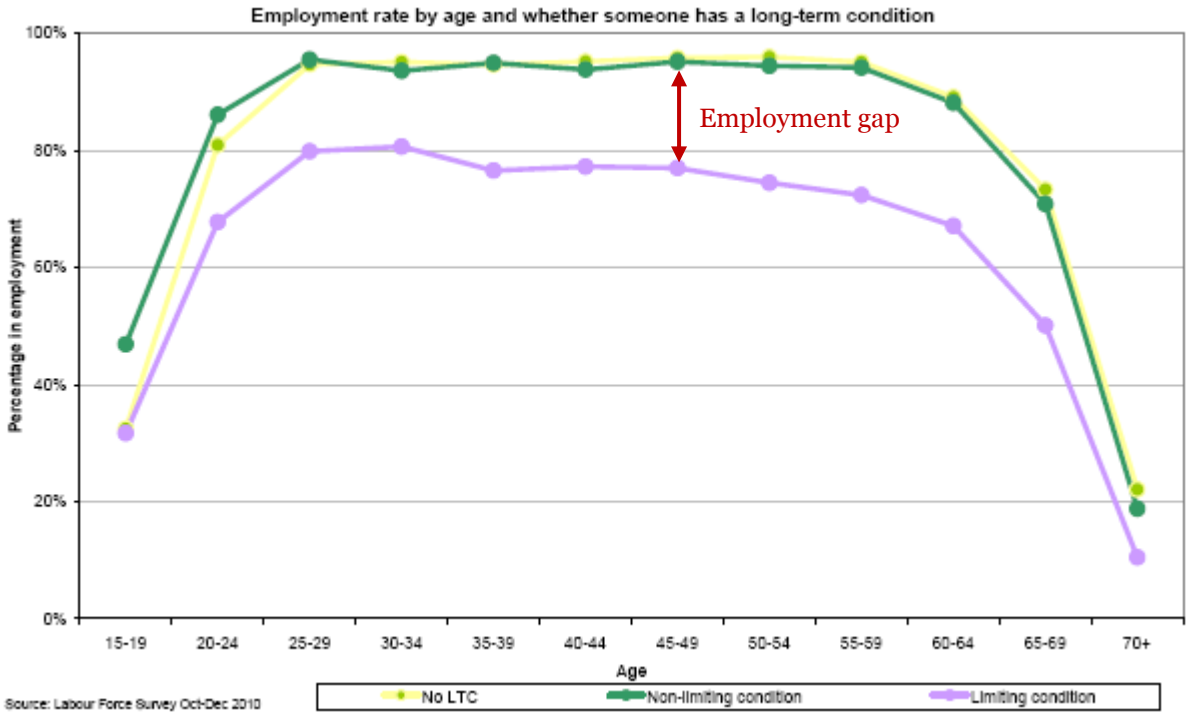

Figure 1: Employment rates of people with and without long-term conditions [Department of Health, 2012]

We describe the approach adopted for the REA in the following chapter before considering the findings in-depth.

02. Methodology

This chapter sets out the methodology adopted in obtaining and reviewing relevant literature for the REA.

In this chapter, we consider the methodology for the REA, with information on the econometric modelling phase provided in a separate document. This type of assessment was chosen to enable the execution of a rigorous review in a short timeframe, with our methodology being devised using guidance from Part B of The Magenta Book.[22] We begin this section by summarising the key research questions that we aimed to answer through the literature review. Following this, we discuss the process used to search and assess the literature with regards its suitability for inclusion in the review.

Approach to the REA

The research questions

The employment of those with long-term physical conditions and mental illness can be influenced by the health and social care system through both proactive and reactive measures. However, at the same time, their employment outcomes may also depend on a range of external factors, such as the structure of the welfare system and the strength of the economy. Individuals with long-term conditions will experience varying degrees of health problems and those with more severe health issues may find it more difficult to work. Moreover, there may be instances where moving into a job actually results in deteriorating health and thus it is essential to understand more about how health and employment are related. Given these matters of concern, the following research questions were devised for further exploration following discussion between CFE Research and the Department;

Q1. a) What is the impact of health and social care systems/interventions on the employment gap for individuals with long-term physical conditions and mental illness?

Q1. b) Which health and social care interventions have an impact on employment outcomes?

Q1. c) Which interventions are most effective and why?

Q2. a) Besides health and social care interventions, what factors influence the employment gap for those with long-term physical conditions and mental illness?

Q2. b) What is the relative importance of these various determinants?

Q3. How do the determinants of employment for these two groups differ (if at all) by type of employment (e.g. full-time/part-time)?

Q4. a) Does the importance of these factors vary depending on the severity of the health condition?

Q4. b) How do researchers define 'severity'?

[22] https://www.gov.uk/government/publications/the-magenta-book

Q5. What more can be said about the nature of the relationship between health and employment?

Academic literature search

One of the characteristics of an REA that enables it to be completed in a shorter period is the use of a smaller number of search terms than a more systematic literature review. Within our search, we identified four sets of search terms, which are illustrated in the table below.

Category A	Category B	Category C	Category D
Employment terms	**Mental Health terms**	**Physical Health terms**	**Other**
Work	Mental illness	Long-term physical illness	Economic cycle
Jobs	Depression	Long-term physical condition	Recession
Employment	Anxiety	Diabetes	Intervention
Unemployment	Bipolar disorder	Asthma	Benefit
Labour market	Schizophrenia		Welfare
Hours			Income

Table 1: Search terms used for the REA

The conditions chosen within the mental and physical health categories were based on the prevalence of conditions within the population, whilst those in the 'other' category looked to ensure that we covered some of the main expected external drivers of employment rates for those with long-term physical conditions and mental illness. The search combinations used in sourcing academic literature are indicated in Table 2. Hence, when combining A and B, the word 'work' would be searched alongside 'mental illness', followed by 'depression' and so on. This procedure was carried out for all terms and relevant combinations, thus ensuring that only articles with titles that contained the relevant search combination were found.

Combination	Number of searches
A + B	30
A + C	24
A + B + D	180
A + C + D	144

Table 2: Search combinations

Whilst we looked to source papers published from 2005 onwards, we also discussed certain papers that were released before this providing they were particularly relevant to the study. These papers were found through the grey literature search or through citations in the literature. The 10-year search limit was used to ensure that an appropriate level of literature

was initially sourced for further sifting and review within the available timeframe. Furthermore, by concentrating on those papers produced in the past decade, we ensured that focus was placed on the most up-to-date literature that was also relevant to the current political and economic context. The number of papers found through the initial search for each combination is illustrated in the table below.

Combination	A + B	A + C	A + B + D	A + C + D
Initial number of sources	1505	607	197	16
Sources after removing duplicates	999	411	111	10
Filtered for relevance	263	104	37	2

Table 3: Search results

Initial sifting

The search process identified more than 1500 papers. The combination of broad search terms such as 'work' and 'depression' generated titles which were clearly out of scope, such as articles concerning the economic depression of the 1930s and papers on wider health-related topics such as parenting style. The titles of all 1500 papers were therefore scanned to eliminate those that were clearly irrelevant to this project. After initial screening, approximately 400 sources remained, as demonstrated by Table 3. The titles and abstracts of the remaining literature were further screened and relevant papers matched to one or more of the key research questions. For those questions where there were still a very high number of relevant studies, we have sifted further by considering methodological quality, alongside relevance. For instance, for Q5, concerning the relationship between health and employment, those papers that tried to determine causality were generally given a higher rating than those that only looked at associations or failed to try and take into account confounding factors.

Grey literature

The academic literature was supplemented with grey literature identified and obtained through internet-based searches. We additionally collected 55 documents classified as 'grey literature'. These are reports published by organisations outside academia, which are not listed in bibliographic databases (see Appendix 1 for those used in our searches). The search terms used were based on those listed above for the academic literature while the search parameters were mainly restricted to documents published within the last 10 years, unless of particular relevance to the research.

Final outcome of the search

The REA revealed gaps in the literature on some of the topics under investigation and this has limited the extent to which we have been able to address some of the key research questions through existing literature. Research to date has not considered how the determinants of employment for those with long-term physical and mental health conditions

vary according to type of employment (Q3) while only one paper has addressed discrepancies by severity (Q4a). In addition, there are a limited number of papers that consider the impact of health and social care interventions and their effectiveness on employment outcomes, especially in the case of long-term physical conditions.

Structure of this report

Given the lack of information on some of the specific research questions, the structure of this report is therefore as follows. We start in Chapter 3 by outlining the methods used by researchers to establish the severity of particular types of long-term physical conditions and mental illness (Q4b). We then move on to Chapter 4 to discuss evidence concerning the relationship between health and employment, with attention paid to causal impact (Q5). This is followed in Chapter 5 by a closer look at the determinants of employment for those with long-term physical conditions and mental illness, and, where possible, consideration of whether certain health and social care interventions are more effective than others (Q1 and Q2). Concluding comments are provided in the final chapter of the report.

03. Severity of long-term conditions

Within this chapter, we provide an outline of the main tools and techniques used to diagnose and/or confirm the severity of a health condition affecting an individual.

In the introduction to this report, we outlined how some of the key organisations and institutions have sought to define particular illnesses. Here, we take this further and analyse the methods by which practitioners verify whether an individual has a particular condition and/or the extent of their health problem. Although we aimed to explore how the determinants of employment may differ depending on the severity of a condition, the REA identified that this area is currently under-researched, with only one paper relevant to this topic (reviewed in Chapter 5).

Defining severity of long-term physical conditions

Discussion concerning the severity of long-term physical conditions is undertaken separately for patients with diabetes and asthma. Both of them are measured with disease severity indicators, including complications and chronic disease comorbidity.

Diabetes

Von Korff *et al.* (2005) used the Self-Completion Patient Outcome Instrument to examine diabetes. This instrument for subjective health assessment comprises six multi-item scales: physical function, energy, depression, psychological distress, barriers to activity and symptoms. Through this measure, the various symptoms of diabetes are assessed, including cold/numb/pain in hands and feet, polyuria, excessive hunger, abnormal thirst, shakiness, blurred vision, and feeling faint, as well as fatigue. Patients were asked to confirm how often they experience these symptoms ranging from 'never' to 'every day', giving some indication of the severity of their current health status. The instrument has also been utilised within the UK to assess diabetes, as exemplified by Whitty *et al. (*1997).

Asthma

To assess asthma severity, the GINA guidelines are used (GINA, 2002). These guidelines measure asthma severity retrospectively from the level of treatment required in order to control symptoms and exacerbations. They include the assessment of asthma control, treatment issues, and any comorbidities that could contribute to symptom burden and poor quality of life, for which there are separate assessment tools for adults, adolescents and children between 6-11 years of age.

The European Respiratory Society and American Thoracic Society Task Force on Severe Asthma consider severe asthma patients to be those with refractory asthma and those with incomplete treatment of comorbidities. Bousquet *et al.* (2010) deemed severe asthma to consist of 3 groups: (1) untreated severe asthma; (2) difficult-to-treat severe asthma; and (3) treatment-resistant severe asthma. However, since most asthma patients can receive good symptom control and minimal exacerbations with regular treatment, asthma severity is now often defined by treatment steps (GINA, 2002). According to the guidelines, severe asthma is

that which requires treatments using medium/high-dose ICS/LABA (inhaled corticosteroid/long-acting beta-agonist inhalers) and/or add-on treatment.

Defining severity for mental illnesses

The Ministry of Health and Long Term Care in Canada defines serious or severe mental illness by diagnosis, disability and duration (cited by Rebeiro Gruhl *et al.*, 2012). Researchers in the US consider those with severe mental illness as "having a DSM–IV–TR Axis I disorder or borderline personality disorder combined with severe impairment in psycho-social functioning" (Mueser *et al.*, 2014, p. 114). DSM–IV, the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychiatric Association, 2013), is a diagnostic classification manual used to categorise people as having severe mental illness. It is used in the UK within the NHS alongside another classification system, namely the WHO's International Statistical Classification of Diseases and Related Health Problems (ICD-10). Based on these two classification systems, various measurement tools using scales in defining severity of mental illness are evident in the literature. Higher scores on the scale indicate greater symptom severity.

Specifically, we now focus on the definitions for the different types of mental illness selected for review in this research.

Severity of depression, anxiety and bipolar disorder

NICE has adopted the DSM-IV system to assess severity of depression, which requires at least five out of nine depressive symptoms to be present for a formal diagnosis of major depression. As the NICE guidelines (2009) state, severity of depressive disorder is determined not simply by the number and severity of symptoms, but should take into account the degree of functional impairment and/or disability. Therefore, rather than using ICD-10 to define severity of depression, NICE used DSM-IV criteria since its definition of severity is not solely based on symptom counting. Taken from DSM-IV, there are four levels of depression: (1) sub-threshold depressive symptoms - fewer than 5 symptoms of depression; (2) mild depression - few, if any, symptoms in excess of the 5 required to make the diagnosis, with symptoms resulting in only minor functional impairment; (3) moderate depression - symptoms or functional impairment are between 'mild' and 'severe'; and (4) severe depression - most symptoms present, and these markedly interfere with functioning. It can occur with or without psychotic symptoms (NICE, 2009).

In the academic literature, we found four main types of patient-related outcome measures used to assess severity of depression (although others do exist): (1) the Beck Depression Inventory II (BDI –II); (2) the Patient Health Questionnaire-9 (PHQ-9); (3) the Brief Psychiatric Rating Scale (BPRS) Expanded Version; and (4) the General Health Questionnaire (GHQ30).

- The BDI-II, which is a self-reported measure, has been shown to be a reliable and valid index of depressive symptoms in patients with musculoskeletal conditions (Sullivan *et al.*, 2006). The system consists of 21 items describing various symptoms of depression. Patients are classified as non-depressed (BDI-II<9), mildly depressed (BDI-II ranges from 9 to 16), or moderately-severely depressed (BDI-II>16).

- The PHQ-9 criterion, referring to the 9-item depression subscale of the PHQ, has also been widely used (Vlasveld *et al.*, 2013; Von Korff, *et al.*, 2005). The PHQ-9 ranges from 0 to 27, yielding both a major and minor depression diagnosis. A number of articles have justified the system as a reliable instrument for detecting depressive disorders and for monitoring treatment response (Kroenke *et al.*, 2001; Spitzer *et al.*, 1999; Whitty *et al.*, 1997). They have demonstrated that it is a well-designed, self-administered instrument which gives a more accurate assessment of symptoms than clinician-report structured interviews.
- The BPRS-Expanded Version, which is primarily interviewer rated, has been used to compliment the Brief Symptom Inventory system in diagnosing major depression. It is a 24-item survey of symptoms rated on a 7-point scale. The scale points represent the severity and frequency of symptoms and range from not present (1) to extremely severe (7).
- The GHQ30, which was the least covered in the literature, comprises 5 subscales; somatic complaints, depression, inability to cope, social dysfunction, and anxiety (Sun *et al.*, 2013). This system is also used in China to measure the severity of anxiety. In the US, the Beck Anxiety Inventory (BAI) is used as a general assessment tool for anxiety disorders and is applicable across diagnoses. This system dichotomises patients into minimal (0-7), mild (8-15), moderate (16-25), and severe (26-63) groups.

Whilst there appears to be less literature on the severity of bipolar disorder, US organisation NIMH indicates that a severe form of the disorder occurs when a person has four or more episodes of major depression, mania, hypomania, or mixed states, all within a year. This is known as rapid-cycling bipolar disorder.[23]

Severity of schizophrenia

The Work Foundation considers schizophrenia to be a severe form of mental illness (Bevan *et al.*, 2013). It is hard to define severity in this instance, given that there is no single symptom picture that is unique to schizophrenia. The diagnosis is thus based on the evidence of a variety of experiences and behaviours felt by an individual (Bevan *et al.*, 2013). Patients are grouped by "positive" or "negative" symptoms, with the progression of the condition occurring in three phases. The first phase is the prodromal phase, when people experience deterioration in function. This will only go on to be identified as schizophrenia when the next stage occurs (the acute phase) during which psychotic (positive) symptoms are experienced. The final stage is the residual phase, when psychotic symptoms are followed up with negative (and cognitive) symptoms. An individual who experiences more than one psychotic symptom, along with other symptoms, such as depression and problems with attention, energy, emotional/social withdrawal or self-neglect, can be diagnosed with schizophrenia (Bevan *et al.*, 2013).

The Positive and Negative Syndrome Scale (PANSS) is widely used to measure the symptom severity of schizophrenia worldwide, for example, in the US, Australia, Japan and across Europe (de Jong *et al.*, 2014; Rosenheck *et al.*, 2006; Sakai *et al.*, 2009; Waghorn *et al.*, 2005). It is a 30-item rating scale completed by clinicians, psychiatrists or researchers after chart review and a structured interview with participants. It yields a total average symptom

[23] http://www.nimh.nih.gov/health/publications/bipolar-disorder-in-adults/index.shtml?rf

score ranging from 1 to 7 (representing increasing levels of psychopathology: absent, minimal, mild, moderate, moderate severe, severe, and extreme) and offers three categories; positive, negative and general symptoms.

The PANSS system is also widely used in the UK for measuring symptoms of schizophrenia. Higher scores on the PANSS indicate more severe schizophrenia. The rating ranges from 1 to 7, with a higher rating corresponding to greater symptom severity. A rating of 3 or 4 represents mild or moderate severity, with symptoms having an occasional impact on daily life and only to a small/modest extent. The rating 6 (severe) out of 7 represents gross pathology that is present very frequently, proves highly disruptive to one's life, and often calls for direct supervision. A rating of 7 (extreme) indicates the most serious level of psychopathology, whereby the manifestations drastically interfere with most or all major life functions, typically necessitating close supervision and assistance. Additionally, in the US, the Beck Hopelessness Scale (BHS) [a 20-item questionnaire about participants' expectations of success or failure] and the Rosenberg Self-Esteem Schedule (RSES) [a 10-item questionnaire indicating participants' degree of self-esteem and self-deprecation] are used to diagnose the non-typical symptoms associated with schizophrenia.

Chapter summary

It is evident from this chapter that, for many conditions such as depression and asthma, there is no universally agreed method for diagnosing whether a person has a specific illness or even the severity of that condition. Rather, a number of tools and scales have been developed and exactly which one is relied upon may differ by, for example, country or the preferences of the researchers/clinicians. Indeed, when investigating the determinants of employment for those with long-term physical conditions and mental illness, we found that not all authors had used the same measures in the diagnosis of a condition. There were very few papers that categorised individuals in terms of severity of the illness, with the vast majority simply using the tools available to establish if an individual had a particular condition.

Prior to summarising the key determinants of employment for these groups, it is useful to understand how individuals may change their labour market behaviour in response to health changes or shocks, as well as the factors that may influence whether or not a person leaves the labour market following a deterioration in health. This can provide policymakers with an understanding of the determinants they must consider when seeking to help people with health conditions remain in employment. Furthermore, Domain 2 of the NHS Outcomes Framework aims to improve the quality of life for people with long-term physical conditions and mental illness, with employment viewed as essential in trying to achieve this. However, the extent to which employment may boost one's health and quality of life is uncertain. We therefore explored the conditions under which work can have a positive impact on health outcomes.

04. The two-way relationship between health and employment

Establishing the connection between health and employment is known to be complex and in this section we focus on some of the key studies trying to ascertain the direction of the relationship and the influence of external factors on the strength and nature of this link.

Theory has suggested that health may impact employment outcomes. Individuals with poor health may be restricted in their ability to work or may experience low levels of work productivity. Labour market changes can also influence the health of an individual. Long working hours, unfavourable job characteristics or insecure employment could lead to high levels of stress or anxiety, as could periods of unemployment. The two way relationship between these two variables makes it difficult to determine causality. Over recent years however, there has been an increasing amount of research published in the field of quantitative health economics which attempts to overcome this challenge. In the discussion below, we focus on those papers that have tried to determine a causal impact, beginning with the influence of health on employment.

The impact of health on employment

The direction of the relationship

In order to establish a causal finding, many researchers have relied upon the increasing availability of panel datasets. This allows for a health change or shock to be observed prior to an alteration in employment outcomes at the individual level. A recent example of this is the study of Garcia-Gomez (2011), which explored the relationship between health shocks (an unexpected change in one's health) and labour market outcomes in nine European countries by using the European Community Household Panel survey. The impacts of two specific health shocks were examined separately: changes to self-assessed health status and whether an individual has a chronic physical or mental illness. The second health shock to be explored is directly relevant to the groups of interest in this research. The empirical strategy essentially compares the outcomes of those individuals who have suffered a health shock (treatment group) to a similar group of individuals who have not suffered such a shock (control group). The author defined those who suffer a health shock by considering a period of three years for each individual observation. Those who reported good health in period 1, but suffered an adverse health shock in periods 2 and 3 were allocated to the treatment group. Meanwhile, those who did not report such worsening of their health were placed into the control group. The results of the empirical work indicate that those who suffer a health shock are significantly more likely to move into non-employment status (i.e. unemployment, inactive or retired) than those who do not experience a health shock.

Whilst this paper effectively utilised the longitudinal nature of the data to determine causality, one other problem faced by researchers when investigating these variables is the self-reported nature of the health variable which may be prone to measurement error, thus leading to biased estimates. For example, individuals who are experiencing negative labour market outcomes may exaggerate the poor quality of their health, as they look to defend their current circumstances. Papers by Zucchelli *et al.* (2010) and Garcia-Gomez *et al.* (2010) tried to address this by utilising a more objective measure of health. This was done by estimating ordered probit models of self-assessed health as a function of more detailed measures of physical health. The objective measure of health was then lagged within the econometric approach to ensure that the health change occurs before the consequential adjustment in labour market status. Both studies found that adverse health shocks have a negative impact on employment outcomes.

There is a small amount of literature focussing specifically on the impact of health shocks on retirement decisions. Using the first twelve waves of the British Household Panel Survey, Roberts *et al.* (2010) investigated this relationship through the development of discrete time hazard models, and by considering individuals aged 50 or over who are initially active in the labour market. They also created and relied upon a more objective measure of health in their model and utilised a lagged measure of health in an attempt to overcome the potential for endogeneity bias. Negative health shocks increase the risk of retirement, with this being true for both men and women. Similar conclusions were reached by Jones *et al.* (2008) and Hagan *et al.* (2009).

Whilst Zucchelli *et al.* (2010) and Garcia-Gomez *et al.* (2010) focussed on labour market entry and exit, Cai *et al.* (2008) adapted their research question slightly and focussed on hours worked alongside movements in and out of work. Setting subjects aside, all of these studies used a very similar approach, with their results illustrating that lower health status reduces working hours and that health shocks lead to further reductions in working hours (over and above the effect that lower health status has on hours worked). In this instance therefore, rather than leave employment entirely, it was found that those who experience adverse health changes may adjust their working hours (moving from full-time to part-time) to suit their new circumstances. Furthering the analysis by Cai *et al.* (2008), Harris *et al.* (2012) considered the impact of poor health and health shocks on transitions to different labour market states including part-time work, self-employment and inactivity. Using the first nine waves of the Household, Income and Labour Dynamics in Australia survey, the researchers developed dynamic multinomial logit models with random effects. The rationale for this is that the modelling approach would make it possible to account for state dependence (which is said to exist when there is a causal link between past and current labour market states) as well as unobserved heterogeneity. The results indicate that, for both men and women, experiencing a health shock increases the likelihood of moving from full-time employment to inactivity, with the probability of becoming self-employed or working part-time also increasing, but to a smaller degree.

The literature we have outlined so far considers health from a more generic perspective in many instances, rather than concentrating on particular health conditions. Indeed, the number of studies with a more specific focus are limited. Fletcher (2012) analysed the impact of adolescent depression on adult labour market outcomes using Add Health. This was a national longitudinal survey in the US which sought to explore the health behaviours of

adolescents and their outcomes during young adulthood. Through the econometric model developed, a statistically significant and inverse relationship between adolescent depression and adult employment was found.

With regards to a long-term physical condition, one of the earliest robust diabetes studies to have applied this methodology is that of Bastida *et al.* (2005). Prior to this research, previous papers looking at the relationship between diabetes and employment used quantitative methods that did not take into account the potential for diabetes to be an endogenous rather than an exogenous variable. That is, there are unobservable factors (e.g. ability and motivation) that could impact on people's lifestyle choices (and thus their chances of becoming diabetic) and could also influence employment outcomes. No attempt to account for this can lead to biased results being estimated. Using the Border Epidemiologic Study on Aging (a population based study amongst community dwelling Mexican Americans aged 45 or older in South Texas), the authors looked to address the limitation of previous research by developing an instrumental variable probit model. Variables relating to family history of diabetes were chosen as suitable instruments that impact on an individual's probability of having diabetes, but not on employment. The findings showed that diabetes has a substantial negative impact on employment outcomes for men, but not for women.

Since this time, there have been a number of further papers that have aimed to account for the potential endogeneity of the diabetes variable when exploring the relationship between this condition and employment. These studies utilised a very similar methodology with family history of diabetes being chosen as a suitable instrument. Seuring *et al.* (2014) relied upon the second wave of the Mexican Family Life Survey, a longitudinal dataset, to investigate the link between these variables in Mexico. Overall, they found no significant relationship between diabetes and employment for either males or females. However, when they concentrated on specific sub-groups, they concluded that diabetes has a significant and negative influence on employment for those aged between 45 and 64, with the effect being stronger for men. This mirrored the findings of Bastida *et al.* (2005), who only considered individuals over the age of 44. Furthermore, their results indicated that diabetes has a larger adverse impact on the labour market outcomes for less wealthy males, but not females. Lin (2011) explored the association in Taiwan, which also illustrated that diabetes has a negative and significant effect on employment, with the extent of the impact being larger for men. One paper that did contradict these studies is that put forth by Latif (2009), who focussed on the relationship in Canada. After correcting for the potential endogeneity bias, the author found that there is a significant and negative relationship between diabetes and employment for females, but not for males.

Factors influencing the strength and/or nature of the relationship

The strength of the impact of health on employment can be influenced by a range of other determinants. For instance, the paper by Garcia-Gomez (2011) also considered the reasons why the transition from employment to non-employment following a health shock varies across countries. Her analysis demonstrated the role of social security arrangements. Nations in Europe differ in terms of the characteristics of their benefit schemes (e.g. coverage, level of benefit etc.), as well as the employment and rehabilitation measures in place for those outside the labour market. Of particular note here are countries such as Italy, which has less generous unemployment benefits and quotas that require employers to have a

certain percentage of disabled people amongst their employees. Indeed, in such countries, it is more likely that those suffering health shocks will retain employment. Sheils et al. (2013) evaluated the Statement of Fitness for Work (fit note) which replaced the 'sick note' in 2010. The authors found evidence that the introduction of the 'fit note', which includes a category of 'may be fit for work' and the opportunity for GPs to provide return to work advice by ticking one or more of the structured options, such as reduced working hours, and/or providing written comments, is having a positive effect on reducing long-term sickness absence and supporting people to get back into work more quickly. At five of the seven GP practices where sick and fit note data were available, analysis revealed that that likelihood of a long-term certificate being issued is significantly reduced between 2002 and 2013 after controlling for patient and diagnostic factors. Moreover, in three of the practices, the use of the fit note is independently associated with a reduction in sickness absence episodes of longer than 12 weeks. However, it is important to note, in the context of this project, that people experiencing mild-to-moderate and severe mental health disorders (as well as men and those living in the most socially-deprived areas) are the most likely to receive a long - term 'fit note' of more than 4 weeks. This suggests that the impact of the fit note on the speed at which someone experiencing mental health problems will return to work may be lower. Indeed, in this case, additional support, beyond advice from the GP, may be required.

Gender can also be a factor impacting on the relationship. A paper by Zucchelli *et al.* (2010) concluded that the effect of an adverse health shock is bigger for men than for women. In the literature on diabetes, we generally find that this condition has a greater negative impact on male employment, although the paper by Latif (2009) contradicted this. The extent to which diabetes harms labour market outcomes can also vary according to age and socioeconomic status, as evidenced by Seuring *et al.* (2014).

More recently, Lundborg *et al.* (2015) examined the importance of socioeconomic status in the relationship. The authors investigated whether the effect of a health shock on labour outcomes differs according to an individual's level of education. To do so, they used a dataset formed by merging the population register in Sweden with the Swedish National Patient Register. The focus of the study was individuals who experienced their first acute (unanticipated) admission to hospital during the period 1992-2000, with the outcome of interest being annual labour income. One of the key benefits of this data is that there is no need to rely on self-reported health measures. Using difference-in-difference analysis, they found that those with lower levels of educational experience have less favourable employment outcomes following a health shock than those with higher levels of education. Those with less education are more likely to claim social security payments following the health shock, which indicates that their working environment may not be conducive to coping with the adverse change. Indeed, part of the reason for the discrepancy does appear to be the sector of employment in which these groups of individuals are generally found to be working. Those with low levels of education are often in blue-collar professions. Amongst younger individuals, the gap in outcomes between the two groups after the health shock decreased with time, although the gap actually increased amongst the older cohort.

The impact of employment/unemployment on health

The direction of the relationship

Investigating how employment/unemployment impacts on health engenders the same challenges of determining causality and/or attempting to deal with the self-reported nature of the key variables. One of the earliest papers in the period of this review that looks to address the causality issue is that conducted by Garcia-Gomez and Nicolas (2006). These authors explored the impact of a change in labour market status on health using a very similar methodology to that utilised by Garcia-Gomez (2011). Again, they used the European Community Household Panel and considered a period of three years for each individual. The analysis in this case concentrated solely on Spain. The treatment group were those who are employed in period 1, but unemployed in periods 2 and 3. Aside from the fact that those in the control group were employed during all three periods, the treatment and control groups had similar characteristics. Health changes were then observed during the period after the switch in labour market activity. The authors found a significant reduction in the probability of reporting good health in those who move out of employment compared to those who do not. What is less clear in this analysis is whether the transition in labour market status is voluntary or involuntary.

Schmitz (2011) however, did consider the specific impact of involuntary unemployment on health in Germany. Utilising data from the German Socio-Economic Panel between 1991 and 2008, the researcher developed a fixed-effects model to control for unobservable effects and used plant closures as an exogenous and involuntary reason for unemployment, thereby overcoming the potential for reverse causality. Three different outcome measures were considered. Satisfaction with health and the Mental Component Summary Scale assessing mental health were the subjective outcome indicators. In addition to this, information on whether an individual has stayed overnight in a hospital in the four years following the interview offered a more objective measure. However, the reasons for the hospital visits were unknown. The results indicated that unemployment as a result of plant closures does not have a significant effect on health. Robustness checks were undertaken, although this did not change the overarching conclusions. Indeed, this is not the only study that fails to find a relationship between loss of employment and health.

Browning *et al.* (2003) examined the impact of job loss as a result of displacement (defined as separating from a plant that lays off at least 30%of its workers) on an individual's health. In particular, the outcome of interest chosen was hospitalisation for diagnoses related to diseases of the circulatory and digestive system, given their association with stress and depression. To explore their research question, they relied upon a rich Danish panel dataset collected over the period spanning 1981-1999, which provides information on individual characteristics and detailed health records for each person. Furthermore, individuals were linked to firms, thus making it possible for the workers who were displaced to be identified. The researchers used propensity score matching to pair each displaced worker with a similar non-displaced worker in order to allow a causal relationship to be examined. Survival analysis was utilised to investigate whether there are any differences in the likelihood of being hospitalised between displaced workers and the corresponding control group. The results indicated that there is no significant impact of job displacement on hospitalisation for stress related illnesses. Salm (2009) also found no link between loss of employment and

health. Here, the author utilised data from the Health and Retirement Study, which is a longitudinal dataset of older Americans. The dataset provides individual reasons behind the early termination of employment contracts, as well as supplying demographic and health related information. A difference-in-differences approach was used to compare the health outcomes for those who lose their jobs compared to a control group who do not leave employment. A number of different dependent variables were adopted in the model to verify the robustness of the analysis, such as the change in longevity expectations of individuals between waves, as well variations over time in self-reported subjective and objective health measures. No evidence was found for an impact of job loss on health, irrespective of the measure of health used.

The findings from these papers were in contrast with those of Sullivan and Von Wachter (2009), who considered job displacement amongst workers based in Pennsylvania within the US and concluded that job loss increases the risk of mortality. In addition, these results were not due to selective displacement of less healthy workers or unstable industries providing unhealthy working environments. Moreover, and in contrast with the papers concluding that there is no relationship between unemployment and health, are the results obtained by Paul and Moser (2009). This paper looked to analyse the impact of unemployment on mental health through meta-analytic methods across 237 cross-sectional and 87 longitudinal studies. The method involved searching through a number of online literature databases and the library catalogues of several universities in Germany. A study was only included in the meta-analysis if it matched seven inclusion criteria. These criteria included, for instance, whether unemployed persons were compared to the employed or the unemployed were tracked longitudinally with regards to their mental health, and if the measure of health was taken using a standardised and objective procedure (e.g. questionnaire or structured interview). A total of six variables were considered as measures of mental health, including depression, anxiety and psychomatic symptoms amongst. Specifically, the meta-analysis of longitudinal studies highlighted that losing a job results in negative changes to mental health, whilst finding employment after a period of unemployment leads to a positive change in mental health. This causal finding was further backed up by the conclusions from various factory-closure studies (which can be regarded as natural experiments). Indeed, these studies concluded that unemployed people were far more distressed than those in employment, even in instances where the probability that personal characteristics caused the job loss was extremely low.

As with the influence of health on employment, there do not seem to be many studies that solely investigate how an employment change can impact on a particular type of condition. Probably the most robust study in the field of depression is the recent paper by Hyde *et al.* (2015), who explored the effect of involuntary unemployment on the future risk of depression. This paper utilised nationally representative longitudinal data from Sweden to analyse the effects of involuntary exit from employment on subsequent self-reported and physician diagnosed measures of depression. The sample was restricted to those over 50 years of age and who had not been prescribed anti-depressants prior to exiting employment. The measure of employment exit in this instance was subjective, although the authors noted the similarities in findings related to subjective and objective employment measures. Self-reported depression was measured using the Symptom Checklist Core Depression Scale, whilst objective assessment was taken from the National Prescribed Drug Register to identify

all those prescribed anti-depressant medications. Logistic regression was used to investigate the risk of reporting depression in the wave following employment exit, whilst Cox proportional hazard models were generated to estimate hazard ratios, thus highlighting the risk of being prescribed anti-depressants. The research found that involuntary exit from employment increases the risk of self-reported depression and being given anti-depressant medication.

There is also some research which considers the role/conditions of employment and its association with diabetes and asthma. For example, studies by Guo *et al.* (2013) and Pan *et al.* (2011) demonstrated a link between shift work and diabetes. Guo *et al.* (2013) carried out quantitative analysis of data collected from workers in a motor company within China, with information such as medical history and demographics having been obtained through questionnaires. Survey respondents were asked about their working hours, which were used to categorise individuals in terms of the extent to which they had worked shifts. Shift work in this instance included long-term night shifts. The results of their logistic regression models indicated that working shifts were associated with a greater probability of having diabetes. In order to conduct their analysis, Pan *et al.* (2011) utilised data from Nurses' Health Study I and II, two prospective cohort studies in the US. The questionnaire contained questions which asked nurses about the number of rotating night shifts they had worked, allowing the authors to categorise individuals in terms of the length of period (in years) they had spent working night shifts. In addition, the self-reporting of diabetes was verified through medical records to confirm the accuracy of this data. By developing Cox proportional hazard models, the researchers found that rotating night shift work is associated with increased risk of developing type 2 diabetes. Kivimaki *et al.* (2011) indicated some of the reasons as to why this relationship between shift working and diabetes exists. They noted evidence highlighting that shift work leads to reduced physical activity and weight gain, as well as resulting in circadian disruption, all of which increases the chances of becoming type 2 diabetic.

In the UK context, research conducted in Scotland (Young *et al.*, 2013) investigated the link between controlling diabetes and shift working. This was defined as work scheduled outside normal hours, including night work. Indeed, questionnaires were sent to those individuals aged 16 to 65 who had been diagnosed with type 1 diabetes for at least one year and were attending two city hospitals in Scotland. The questions examined, amongst other areas, their employment and demographic characteristics. Logistic regression analysis confirmed that shift working reduced individuals' ability to control their diabetes, although the authors noted that further studies are required to fully investigate this association.

With regards to asthma, Lim *et al.* (2014) utilised the Ontario Workplace Safety and Insurance Board database to analyse worker compensation claims relating to asthma over a five-year period. They found that the industry groups where asthma claims were most common included education, health and services. The reasons behind work-exacerbated asthma differed across the sectors, with dust being the main cause in education, smoke in the service industry and sensitisers in healthcare.

Other factors that can influence the strength or nature of the relationship

Certain literature that has investigated the relationship between employment and health more generally also indicated that the link can depend on personal, work and wider economic characteristics. For example, the meta-analyses conducted by Paul and Moser

(2009) illustrated that unemployment has a negative effect on mental health, with the impact being larger amongst men, blue-collar workers and long-term unemployed individuals. Furthermore, the negative effect of unemployment on mental health was stronger in countries with a weaker level of economic development, more unequal income distributions, or less generous unemployment protection systems compared to other countries. Meanwhile, a review by Waddell and Burton (2006) evaluated the scientific evidence pertaining to the relationship between work, health and well-being amongst adults of working age. Overall, it was found that work and paid employment have a positive effect on mental and physical well-being, although a lack of job security and poor quality employment can have an adverse effect. It was concluded that unemployment has a negative impact on health, although variations were found between age groups, with a weaker inverse relationship present among younger people and the most marked impact being on middle-aged men with dependent families.

Chapter summary

Within this chapter, we have explored the relationship between health and employment in greater detail. Literature regarding the impact of health on employment seems to reach a general consensus that negative health shocks or changes have an adverse impact on labour market outcomes. The extent of the link, however, can depend on a range of factors, such as the benefits system, rehabilitation measures, age, gender and socioeconomic status.

Although moving into employment is generally associated with an improvement in health, certain work conditions or characteristics, such as shift work and job insecurity, can have an adverse impact on health. Furthermore, the relationship between unemployment and health is less clear cut, with the evidence regarding whether there is any impact at all being mixed. In the case of unemployment, studies such as that by Schmitz (2011) have suggested that these varying conclusions could be down to country-specific factors. For example, Germany has a fairly generous unemployment protection scheme and individuals do not lose their health insurance following a job loss, which may protect said individuals from adverse health outcomes. In contrast, benefits and rehabilitation policies are very different in countries like the US, where a negative relationship was found by Sullivan and Von Wachter (2009). Further work may seek to determine the exact reasons why different conclusions are being reached. Similar to the impact of health on employment, variables such as age and gender can influence the strength of the relationship. In addition, working conditions and other major economic variables, such as levels of income inequality, may also alter the link between employment and health.

With regards to the groups of interest in this study, knowing that the relationship between employment and health can vary as a result of several external factors is important, as this can mean that more targeted and nuanced policies need to be adopted. For example, given the role of working conditions, policy could look to support both employers and their workers in creating an environment that can generate positive health outcomes.

05. The determinants of employment for people with long-term physical conditions and mental illness

This chapter focusses on the impact that health and social care interventions have on the employment outcomes of those with long-term physical conditions and mental illness, as well as the other drivers of employment for these groups.

The types of health and social care interventions that can be utilised to treat particular conditions and help individuals improve their employment outcomes can vary substantially. For instance, therapy, medication or a mixture of both may be used to tackle this issue. We begin this section by examining the impact of specific types of intervention which aim to influence the employment outcomes of those with mental illness and physical conditions. Employment amongst these groups (and the general population) can be determined by a range of factors, and thus efficient health and social care may not solely account for raising employment rates for those with long-term physical conditions and mental illness. The latter part of this chapter seeks to explore other factors that are vital in determining outcomes in the labour market for the population of interest.

The impact of health and social care systems and interventions

Through our literature search and review, we found a limited selection of papers that directly address the impact of health and social care systems/interventions on the employment of those with long-term physical conditions or mental illness in the UK. A possible reason for this is that employment is not included in the assessment of cost-effectiveness in NICE appraisals (NICE, 2013) and more generally there has been a focus on health outcomes for the patient. Studies that address this issue are often from overseas and normally consider a specific type of mental illness, such as depression or schizophrenia.

Mental illness

Studies incorporating different types of mental health conditions

Whilst the majority of literature sourced on this topic concerns a particular type of mental health condition, one particular, and more generic trial, was conducted by Ader *et al.* (2010). This study concentrates on exploring the impact of psychiatric consultation with a focus on helping individuals return to work within the occupational health setting in the Netherlands. The research utilised an RCT which involved working alongside two occupational health services linked to particular companies. In the control group, patients received care as usual from an occupational physician. In the treatment group, the patients initially consulted with a psychiatrist, who provided information on diagnosis and treatment plans with a view to getting the individual back into work given his/her particular mental health condition. The subsequent care was then administered by an appropriately trained occupational physician.

Patients with mental health conditions who had been absent from work for at least six weeks and were not expected to return in the next six weeks were included in this trial. Whilst the data on return to work was self-reported, this was checked against the date of the sickness report and period to return to work from the database of the occupational health service if needed. The time to return to work was defined as the period between the onset of sickness leave due to the mental disorder and full return to work. Full return was considered as a period of at least four weeks without a partial or full relapse. Survival analysis indicated that return to work was significantly faster among the intervention group than the control group.

Within the US, healthcare interventions have been tried along with employment interventions to help those with schizophrenia, bipolar disorder or depression return to work, as illustrated by Drake *et al.* (2013). Here, the Mental Health Treatment Study was launched by the Social Security Administration in 2005, with the aim of assessing the potential impact of a package of employment and health interventions. An RCT involving social security disability insurance beneficiaries was undertaken. These participants had schizophrenia or a mood disorder, but were interested in moving into work. The 2 year intervention consisted of three components; the individual placement and support programme (an employment intervention), systematic medication management and other behavioural health services (e.g. substance abuse treatment). The control group, meanwhile, received services as usual. This included those services covered by the Medicare scheme, such as physician visits. The primary outcomes of interest were movement into paid employment and competitive employment (defined as mainstream jobs in integrated work settings at usual wages with regular supervision). Univariate statistical tests (e.g. t-tests and chi-square tests) were used to test for differences between the two groups. It was found that from month 5 onwards, the intervention group had significantly higher employment rates.

Literature on mood disorders

Cognitive behavioural therapy

The effectiveness of cognitive behavioural therapy was investigated in a pilot paper by Kidd *et al.* (2008), who considered vocationally-focussed cognitive behavioural intervention for individuals with anxiety disorders. The methodology involved asking 16 participants who took part in the initiative to complete a survey on employment-related outcomes. Their conclusions show that for employed persons, this intervention improves sense of mastery in the completion of work tasks, whilst for unemployed participants, it improves expectancy for employment success. Furthermore, Noordik *et al.* (2010) conducted a systematic literature review exploring the impact of exposure-in-vivo on work-related outcomes for those with anxiety disorders. This is a behavioural component of cognitive behavioural therapy, which can assist individuals in directly dealing with work conditions that can cause anxiety. They carried out a search of databases such as Medline and Embase, assessing the quality of evidence using the GRADE approach, which considers factors such as the risk of bias in the research. Their findings suggest that exposure-in-vivo can be more effective at reducing work-related adverse outcomes in workers with Obsessive Compulsive Disorder and Post Traumatic Stress Disorder in comparison to other anxiety treatments, such as medication.

As mentioned in the methodology chapter, only one paper has considered how a determinant of employment for these groups depends on severity of the condition. This study focussed on the issue of depression and the role of cognitive behavioural therapy. In addition to this,

Sullivan *et al.* (2006) analysed how depression severity influences the recovery trajectories of injured workers following cognitive-behavioural intervention. The research was conducted in Canada and involved 168 injured individuals with different levels of depression enrolled in a 10-week community-based rehabilitation programme. The individuals were assessed prior to the intervention, as well as during and after the initiative. It was found that those participants who were moderately-severely depressed at baseline displayed a greater reduction in depression; however, a higher proportion of this group were still considered to be depressed post-intervention. Displaying more severe depression either pre- or post treatment was associated with a lower probability of returning to work.

Multiple interventions

One of the most recent papers in this area is by Fournier *et al.* (2014). This study explored the merits of cognitive behavioural therapy and anti-depressant medication in helping to improve employment status. The sample of individuals selected for trial consisted of 240 out-patients with major depressive disorder, as illustrated by a score of 20 or more on the 17-item Hamilton Rating Scale for Depression (Hamilton, 1960). At the beginning of the trial, individuals were randomly assigned to receive cognitive therapy, anti-depressant medication (paroxetine) or a pill-placebo. They then received four months of treatment and were followed up for a further 24 months. Following the initial four months of acute treatment, those receiving cognitive therapy experienced a reduction in treatment and were allowed three booster sessions in the next 12 months. Those in the anti-depressant group were randomised onto continuation medication or a pill-placebo after the four month period. During the final 12 months, all relapse-free patients were withdrawn from their respective study treatments. Differences in treatment conditions with respect to work status were analysed using ordinal logistic regression analysis at the 12 and 24 month follow-up periods. The results indicated that those who had taken part in cognitive therapy were more likely to be employed full-time after two years than those given anti-depressants. Amongst those in the anti-depressant group, the rate of full-time employment did not seem to be affected by whether they continued with medication or were withdrawn at the 12 month follow-up.

Rather than exploring the reasons why this was the case, the study highlighted it as an avenue for future research. With the data for this study collected at a particular time and in certain economic conditions, it was acknowledged by the authors that these results may not be found at other times. This point indicates that even the success of certain types of health and social care can depend on prevailing external conditions, such as the state of the economy.

Anti-depressants

It is important to note that when exploring the impact of anti-depressants, Fournier *et al.* (2014) considered only one type of anti-depressant and hence the results may differ for other types of medication. Indeed, whilst that study analysed the role of paroxetine, other papers have investigated the impact of alternative types of anti-depressant. Happich *et al.* (2012) used an observational study in Germany to investigate the impact of duloxetine in patients with major depressive disorder. Changes in ability to work of these patients were compared at baseline and after six months of treatment. The research was conducted at 693 office-based psychiatrists in Germany, with depressive symptoms assessed using the Kurz-Skala Stimmung/Aktivierung-Short Mood/Drive Scale and the physician rated Inventory for

Depressive Symptomatology. The working status of the patient and the proportion of patients unable to work were examined at baseline, 3 months and 6 months. The results indicated that the proportion of patients unable to work fell after 3 months and 6 months of newly started treatment. However, this research did not include a suitable control group and being an observational study, there is no potential to find causal effect, as with an RCT. The paper did, however, discuss the results from a study by Wade *et al.* (2008) which looked to compare the cost-effectiveness of escitalopram versus duloxetine in the treatment of major depressive disorder. This research involved a 24 week RCT in the UK and concluded that anti-depressant treatment reduced the inability of an individual to work.

Other relevant interventions

Besides the use of anti-depressant medication or cognitive therapy, literature has also been published on the influence of adjuvant occupational therapy. Hees *et al.* (2013) conducted a study in the Netherlands to assess the effectiveness of adjuvant occupational therapy in comparison to usual treatment on sick-listed employees. These employees had major depression, and had been diagnosed using DSM-IV criteria. Participants were eligible to take part if they had been absent from work for at least a quarter of their contract hours due to their illness. Individuals were referred by occupational physicians from a variety of occupational health services in Amsterdam and were randomised to a particular type of intervention prior to the trial beginning. Treatment as usual (the control group) involved care offered by psychiatric residents in an outpatient university clinic, which could include, for instance, psychoeducation or cognitive behavioural therapy. The treatment group received treatment as usual as well as additional occupational therapy consisting of 18 sessions supplied by experienced occupational therapists. No significant differences were found between the groups in terms of absenteeism or time to return to work; however the probability of returning to work in good health was significantly greater for those in the treatment group. A potential reason as to why significant differences were not found between the groups for absenteeism and time to return to work could be that the follow-up period of 18 months was too short. Indeed, there could well have been a lengthy lag with regards to impact. The small sample size could have also limited the power to detect differences.

Prior to these studies on the role of health and social care in helping those with depression return to work, a meta-analysis was conducted by Timbie *et al.* (2006) to analyse the effect of interventions when it comes to dealing with major depressive disorder and helping individuals move into the labour market. Medical literature was searched between 1980 and 2004 to identify all papers in English language journals that utilised RCTs to analyse the effect on relevant labour market outcomes for those with a major depressive disorder, with the control group consisting of usual care or no care (e.g. a placebo). There were only four trials that met all of the inclusion criteria. One of the studies looked at the impact of anti-depressants, whilst the others generally focussed on psychotherapy or a tactic to increase medication compliance alongside relevant education and improved access to specialists. Hence, the other trials were evaluating the influence of improving primary care strategies. The results indicated that the interventions had a substantial effect on reducing symptom severity, but the positive labour market impact was only a third of the influence on symptoms. The authors acknowledged that this could have been due to the relatively short periods of follow-up after the intervention, with the biggest labour market impacts being

observed in the study with the longest follow-up period (2 years). Alternatively, the results may be down to other drivers, such as the structure of the labour market.

Literature on schizophrenia

Literature on health and social care interventions looking to improve the employment outcomes of those with schizophrenia is rarer than papers on depression. In one US study conducted by Lysaker *et al.* (2005), the authors noted that those with schizophrenia can often have low self-belief, as a result of factors such as stigma. Appreciating that these individuals may require appropriate support to help them overcome the challenges they face, the researchers developed the Indianapolis Vocational Intervention Program, which offered individual and group-level cognitive behavioural therapy. A 26-week RCT was carried out to assess the effectiveness of this programme in improving hope, self-esteem and work outcomes. 50 males with a diagnosis of schizophrenia, as confirmed by a DSM-IV Axis I disorder, took part in the trial, with random assignment between this programme and standard support services. During the trial, all individuals were offered and accepted the chance of a work placement in entry-level medical centre roles. Participants were in a postacute phase of illness at the time of the trial. ANOVA was used to compare group means for total hours worked and weeks of work over the six month period. It was found that the treatment group worked significantly more weeks than the standard support group, although there were no significant differences in the total number of hours worked.

In slight contrast, a less robust study than that produced by Lysaker *et al.* (2005) was conducted by Davis and Lysaker (2007). The authors analysed the importance of therapeutic alliance in boosting the work performance of those with schizophrenia. Therapeutic alliance refers to the open and collaborative relationship that exists between client and therapist. This particular report focussed on exploring the link between the strength of the therapeutic alliance and work performance. All those who took part in the research were involved in a vocational rehabilitation programme. Midway through, they received cognitive-based counselling which was video-taped and subsequently assessed by trained observers. The 26 initial participants were then split into two groups – one with a high therapeutic alliance score and the other with a low score. Individuals took part in job placements during which their work behaviour was analysed. Using repeated measures to analyse variance, it was found that those with higher therapeutic alliance performed better in terms of work quality and personal presentation. Furthermore, this group also showed a steady improvement in work co-operativeness over time, which was not seen in those with lower therapeutic alliance. The research does have its limitations in that the relationship cannot be confirmed as being causal and could be driven by other factors.

Kaneda *et al.* (2010) explored the role of the atypical antipsychotic drug clozapine on cognitive function and subsequent work outcomes for those with schizophrenia. Clozapine has been previously shown to improve cognitive performance for patients with schizophrenia. The study covered 59 patients with treatment-resistant schizophrenia or schizoaffective disorder. Employment status and cognitive assessment data were collected before and a year after the intervention (clozapine treatment) was introduced. Cross-group comparisons of those in and out of work at baseline and after 12 months were conducted through t-tests and ANOVA. The results indicated that cognitive performance was the major determinant separating those who gained employment after 12 months from those who

remained unemployed. Indeed, treatments that look to boost cognitive function may lead to more positive employment outcomes for this group. Whilst this research illustrated why the intervention may be effective, it should be noted that reverse causality in this instance could not be ruled out, that is, work improving cognitive ability. Determining a causal relationship is therefore a future research requirement.

Physical conditions

Through the REA, we discovered that no study has yet been undertaken to identify the impact of health and social care on the employment outcomes of people with long-term physical conditions. The literature search identified a total of nine potentially relevant academic studies, of which only two focussed specifically on physical conditions.

Despite a lack of research linking health and social care interventions with employment outcomes for people with long-term conditions, a number of studies have investigated either the impact of health interventions on people with long-term conditions (with no reference to employment outcomes) or the impact of long-term conditions on employment. The evidence in these studies clearly indicates that a long-term condition has a significant negative impact on quality of life and on employment prospects. This is in line with our findings in the previous chapter, which explored the impact of adverse health shocks on employment. On this basis, it is reasonable to assume that the treatment of such conditions has the potential to reduce the negative impact of the illness, therefore indirectly having a positive impact on the employment outcomes for those people. It is difficult to establish this causal link and even harder to quantify it. Thus, in the absence of evidence that is able to address this research question directly, we may develop partial answers from the evidence available.

One useful source amongst the literature is a review by Singh and Ham (2006) of UK and international frameworks for people with long-term conditions, which was commissioned by the NHS Institute for Innovation and Improvement. In this review, a framework is defined as "an overarching approach that describes the different elements needed to care for people with long-term conditions most effectively" (Singh & Ham, 2006, p.2). Of the review's research questions, one of the most interesting is "What evidence is there about the impacts of these frameworks?" Whilst this is relevant to our research question, it does not address it directly. The report was based on feedback from professionals, a survey of all Strategic Health Authorities in England, and a rapid review of literature (not a systematic review). As it dates from 2006, it precedes the introduction of the NHS Outcomes Framework in 2010, and so the findings are already outdated. Nevertheless, the report is still useful as it examines frameworks for long-term conditions. The framework for long-term conditions known as the Chronic Care Model, "acknowledges that a substantial portion of chronic care takes place outside formal healthcare settings" (Singh & Ham, 2006, p.5). Accordingly, key features of this model are that it mobilises community resources and enables patient self-management.

A meta-analysis of evidence for the impact of the Chronic Care Model finds that interventions that use elements of this model are associated with improved outcomes for long-term conditions:

> Interventions that have incorporated one or more elements of the Chronic Care Model have had beneficial effects on clinical outcomes and processes of care for patients, and the results were consistent across a variety of chronic illnesses. (Tsai *et al.* 2005, p.7).

Based on a synthesis of evidence from 112 studies, Tsai *et al.* (2005) found that the Chronic Care Model is an effective framework for treating heart failure and depression in particular, with these groups seeing consistent improvements in quality of life. However, for asthma and diabetes, the model showed no benefit (Tsai *et al.*, 2005, p.484). Because this model comprises a "multi-dimensional solution to a complex problem" (Singh & Ham, 2006, p.7), it is difficult to evaluate the impact of the approach or to identify the contribution of individual elements. Indeed, Tsai *et al.* (2005) were unable to determine which elements of the model are responsible for the benefits it gives. Unfortunately, this meta-analysis focusses solely on health outcomes of people with long-term conditions and does not consider the impact on the employment outcomes of this group.

Other factors that influence employment outcomes

Aside from the impact of health and social care interventions, there are a number of other determinants of employment for those with long-term physical conditions or a mental illness. In this section, we address some of the key influences, again focussing on particular conditions where possible.

Mental illness

Literature encompassing various types of mental illness

One of the determinants of labour market success amongst those with mental illness is the implementation of employment support programmes. In particular, the literature has evaluated the appropriateness of Individual Placement and Support (IPS) across various countries. This is an employment intervention initiative whereby employment specialists working within mental health services help individuals with mental illnesses who want to move into work. The specialists provide continuous guidance and support through, for instance, interview training and building relationships with employers who may have jobs suiting their client's preferences.

Burns *et al.* (2007) investigated the effectiveness of IPS on the employment outcomes of those with severe mental illness across six areas of Europe, one of which included London. The research utilised an RCT, the aim of which was to evaluate the success of IPS in comparison with existing rehabilitation and vocational services for those with severe mental health problems when it comes to employment outcomes. Only those individuals who had not been in employment in the preceding year, but who were looking to move into work, were included in the trial. The researchers explored the impact of IPS in the context of different European labour markets and welfare systems. Social exclusion (as proxied by the long-term unemployment rate), the extent of a benefit trap, and the levels of indirect income redistribution were all used as measures of welfare provision. The local unemployment rate and percentage change in GDP were used as proxies for labour market conditions.

The results of the trial highlighted that those involved in the IPS were employed for more days, worked more hours and retained their jobs for longer periods than those assigned to

vocational services. Results revealed that local unemployment rate had an influence on the effectiveness of IPS, with IPS services more successful in areas exhibiting lower local unemployment rates. Regardless of the type of service an individual participated in, patients were more likely to obtain jobs in a growing economy and one with greater levels of social exclusion. Indeed, the authors suggested that this may be down to lower levels of welfare support. It was also concluded that the existence of a benefits trap inhibits the ability of those in the vocational services programme to find work, although its impact was not significant amongst the IPS group.

Whilst the above study considered the value of IPS across various macroeconomic and welfare conditions, Campbell *et al.* (2011) explored whether there are any differences between various sub-groups. They did this by conducting a meta-analysis using data from four independent RCTs. All of these trials involved comparing the IPS initiative to reputable vocational programmes run by an agency separate from the mental health programme that participants were part of and which also focussed on stepwise entry into competitive employment. Two of the groups investigated were based on work history (e.g. weeks in paid work in last five years), seven on socio-demographic characteristics (e.g. education level) and eight on clinical variables (e.g. hospitalisation during the year). The existence of a severe mental illness amongst participants across the trials was characterised by having a DSM-IV Axis I or II diagnosis in addition to severe and persistent impairment in psychosocial functioning. It was concluded that IPS leads to better competitive employment outcomes (e.g. job acquisition, job tenure and weeks worked) for those with severe mental illness than other vocational programmes, irrespective of demographic, clinic and work history characteristics.

Much of the research on IPS to date has taken place outside of the UK, with relatively few assessments having occurred within Britain, as noted by Heffernan *et al.* (2011). However, should models such as IPS be more widely introduced in this country, it is evident that prevailing macroeconomic factors and welfare structures can impact on its success, more so than individual or clinical differences.

The importance of the economic cycle has been further evidenced by Knapp *et al.* (2013). This paper aimed to examine the influence of the recession on unemployment rates of those with mental health problems across various countries in Europe using data collected from the Eurobarometer survey and Eurostat book before the economic crisis (2006), as well as after (2010). The existence of mental health problems was evaluated using the Mental Health Inventory (MHI-5). As no verified level had been established for identifying those with a mental health condition in MHI-5, the authors categorised those individuals who scored one standard deviation higher than the standardised mean score as having a mental illness. With the Eurobarometer survey consisting of questions measuring attitudes towards those with mental health conditions, the importance of stigmatising beliefs could also be explored in this study. Multivariable logistic regression models were created to investigate factors associated with unemployment of those with and without mental illnesses in 2006 and 2010. Interaction terms were also included to gauge whether unemployment levels differed by particular groups of interest (e.g. by gender and levels of education). Sensitivity analyses were also used, such as the application of an instrumental variable approach to examine the robustness of the relationships found. It was concluded that the economic crisis had a greater adverse impact on the employment outcomes of those with mental illness, as

opposed to those without such conditions. Amongst the group of individuals with a mental illness, males and people with low levels of education were disproportionately affected. Certain stigmatising attitudes, such as greater belief that individuals with mental health conditions are dangerous, were associated with higher levels of unemployment amongst those with mental illness following the recession.

Schizophrenia

Beginning by looking at studies associated with the UK, Marwaha *et al.* (2009) aimed to identify those factors associated with job loss and acquisition amongst individuals with schizophrenia. Initially, a representative sample of individuals with schizophrenia was recruited from mental health services across three European countries (UK, France and Germany) and was subsequently followed for a period of two years. To identify the determinants, two separate logistic regression models were generated. In the first model, the dependent variable was whether or not an individual had lost his/her job over the two year period; conversely, in the second model, the dependent variable was whether or not the person had obtained employment within the two-year period. In the first regression, it was found that previous vocational training decreased the odds of job loss, but that more positive psychotic symptoms at baseline increased the odds. For the second model, the results showed that higher regional employment rates increased the chances of people with schizophrenia getting jobs, whilst longer length of illness and more severe negative psychotic symptoms all reduced the chances of finding work.

Indeed, the role of macroeconomic conditions was also examined by Killian and Becker (2007), who undertook an exploratory study looking at the link between the employment rates of people with schizophrenia and key macroeconomic indicators across twelve countries, including the UK. The average GDP of a nation and the general employment rate within an economy were used as measures of economic wealth and labour market conditions respectively. Additionally, the average net replacement rate (the percentage of income that will be substituted by social benefits during unemployment) and the average effective tax rate (the proportion of additional income from employment deducted due to taxation and a fall in social benefits) were used as proxies for economic disincentives. The paper also considered welfare trap effects (as indicated by total expenditure on social benefits as a percentage of GDP) and labour market policy (the proportion of GDP spent on active labour market policy).

Only data from 1995 were utilised in the research and the relationship between a macroeconomic indicator and employment rates for those with schizophrenia was analysed through the use of scatter plots and fitted regression lines. For further robustness, models were estimated with and without outliers. The results highlighted that general labour market conditions had a positive link with the employment rates of those with schizophrenia, whilst economic disincentives and welfare trap effects were negatively related, as one may expect. Other macroeconomic indicators were not found to be related.

Qualitative research on the determinants of employment for those with schizophrenia has also been conducted in the UK. Bevan *et al.* (2013) aimed to examine the main barriers and facilitators to employment and staying in work for those with schizophrenia. To do so, a literature review was carried out. Alongside this, qualitative interviews were undertaken with groups such as healthcare professionals and occupational health specialists. Five interviews

were also completed with individuals who suffer from schizophrenia. The barriers identified through the research can be split into three categories, namely individual, attitudinal and structural. Those individuals with schizophrenia can sometimes suffer from low self-esteem and low expectations. Furthermore, one of the biggest attitudinal barriers was perceived to be stigma and discrimination from colleagues and managers. Families, healthcare professionals and employers were known to hold low expectations of those with schizophrenia, assuming they may only be able to complete lower level, less skilled tasks. This can often reinforce or reduce the self-esteem and confidence of individuals with schizophrenia to enter and remain in the labour market. The presence of stigma and discrimination can prevent individuals with schizophrenia from disclosing their condition to an employer, which can make it more difficult for them to be provided with the assistance needed to help them move into and retain work (e.g. flexible working hours or support with workload). Historically speaking, the functioning of the benefit system has also been a factor inhibiting this group of individuals from entering work, as those who take on a low-paid role lose their benefit entitlement, which can potentially leave them in a financially worse position. Having a poor work history, with breaks in education and employment, were additionally highlighted as factors restricting this group's ability to find and remain in work. Indeed, this issue is likely to be exacerbated during an economic recession.

The review highlights that cognitive behavioural therapy can be effective at helping those with schizophrenia remain in employment and become more productive, by boosting their confidence and self-esteem. Indeed, this is in line with earlier findings from Lysaker *et al.* (2005).

Mood disorders

While the mental illnesses discussed above have been addressed by numerous papers, a lower number of studies have examined the factors linked to the employment of those with mood disorders. Marwaha and Gilbert (2013) completed a systematic review of the determinants of employment for individuals with bipolar disorder. A set of predetermined criteria were utilised in the selection of literature, with a total of 67 papers identified for full text retrieval. A total of nine papers were included in the final review. These studies were sourced through searching five online databases (e.g. Medline, PsychInfo), as well as hand searching three journals (Journal of Affective Disorders, Bipolar Disorders and the American Journal of Psychiatry) that appeared to possess a large quantity of research relevant to the area. Depression was found to be a factor inversely related to employment prospects for this group, with higher levels of depression having a greater impact. Cognitive deficits (e.g. in verbal learning and memory) also reduced employment prospects, with a negative relationship found between employment and education. However, the writers highlighted the need for further research on the impact of work history, which is known to be a strong determinant of employment amongst those with schizophrenia. As well as this, there is a need for further high quality longitudinal studies that consider larger samples of bipolar disorder patients, particularly given the fact that the studies reviewed generally utilised small samples.

Working conditions and environment do appear to be important factors in enabling those with depression and anxiety disorders to make successful work transitions. The main paper in this area is by Bonde (2008). The author conducted a review of available literature,

examining the association between depression and psychosocial factors at work and assessing the quality of the current evidence with regards to finding a causal relationship. The methodology involved searching scientific literature in Medline, with the criteria for job-related psychosocial factors including validated scales of perceived strain (e.g. the job-demand-control-social support scales). Only follow-up studies were considered as part of the review, with a final sample of 13 papers identified. This was further supplemented by another three papers not retrieved from the systematic search. The findings indicated that adverse psychosocial factors in the workplace (e.g. high job demand and low job control) are associated with a subsequent elevated risk of depressive symptoms or a major depressive episode. However, it was noted that, at present, much of the evidence is based on self-reported measures of psychosocial work factors and/or mental health outcomes, leading to the possibility of biased estimates. Furthermore, no studies were found to adjust for confounders such as life events, domestic strain and personality. Such methodological challenges must be overcome in order to move towards finding causal inference.

More recently, Evans-Lacko and Knapp (2014) explored the role of factors such as education and flexible working practices when assessing the time taken off work (absenteeism) due to depression. Their research relied upon information collected from the Impact of Depression in the Workplace in Europe Audit survey. Both employees and managers from seven European countries were invited to participate in the study. The regression models they created highlighted that individuals with a university education (compared to those without) were less likely to take time off work as a result of depression. In those countries where managers offered help to the individual suffering with mental illness and provided flexible working hours, there was also a lower likelihood of the individual taking time off work. The impacts of job autonomy and flexible working have also been identified as influencing those with bipolar disorder – a finding demonstrated by Tremblay (2011).

Physical conditions

In this section, we examine the determinants associated with employment outcomes for people with long-term physical conditions, placing particular emphasis on diabetes and asthma.

Diabetes

Detaille *et al*. (2006) identified and compared patient and professional perspectives on the enabling factors for employees with diabetes to continue to work. This study was qualitative in nature, involving 23 employees with diabetes and 22 health professionals. The multidimensional scaling technique based on a binary matrix was used to categorise the responses from participants. The research emphasised that social and emotional factors, such as support and understanding from family, peer colleagues and managers at work, are important conditions that may enable diabetics to continue to work. Specifically, for employees with diabetes, there are 8 clusters that they perceived as necessary to enable them to keep on working: (1) acceptance of the disease and a patient's ability to cope with it; (2) ability to control diabetes at work (e.g. take own food to work and have lunch at the same time each day); (3) having colleagues and managers who are aware that the employee has diabetes and who are educated about the complications of diabetes so that they know how to respond in case of an emergency; (4) adaptations at the workplace (e.g. an appropriate

workload); (5) support and understanding from colleagues and management; (6) support from health specialists, especially competent professionals with communication skills; (7) information about technical devices and of ways to finance these; and (8) adequate benefits at work. However, for health professionals, including general practitioners, occupational physicians and specialists, the highest priority is given to the patients' competence to self-manage their diabetes. This is followed by the employees' ability to accept their illness, support from family/health professionals and work conditions that allow for appropriate disease management.

Asthma

With regards to asthma, a prospective cohort study conducted by Hakola *et al.* (2011) examined the association between asthma with chronic comorbidity and the risk of long-term work disability. The study used data from 2,332 asthmatic and 66,354 non-asthmatic public sector employees in Finland who responded to a survey between 1997 and 2004. The authors identified six main disease categories used in this study as comorbidity for asthma: depression, ischemic heart disease, diabetes, rheumatic disease, cancer, and hypertension. To calculate the risk of long-term work disability and compare participants with and without asthma, Cox proportional hazard models were developed. The results showed that having a greater number of conditions alongside asthma increases the risk of long-term work disability among asthmatic employees. In particular, the analysis showed that the risk is especially high when individuals have both asthma and depression.

Another paper relating to reduced work ability and asthma was offered by Lindström *et al.* (2011). The authors used Finnish Defence Force registers, spanning the period 1986-1990, to select three groups of interest: individuals who, from 1987-1990, were referred to the central military hospital because of a diagnosis of asthma, thus representing the mild or moderate asthma group; individuals exempt from military service representing a relatively severe asthma group; and a control group without asthma. The study identified five potential factors that relate to decreased work ability: education, smoking, alcohol consumption, physical activity, and asthma severity. Logistic regression analysis was used when examining the associations between potential risk factors and decreased work ability. The study showed that asthma itself leads to reduced work ability. Moreover, current smoking, having only a basic level of education, being a manual worker and current severe asthma are significantly associated with decreased work ability among asthmatics.

Chapter summary

This chapter began by exploring evidence pertaining to the types of health and social care interventions that have proved effective in helping those with mental illness experience positive work outcomes. Indeed, this is particularly necessary given that there is currently no literature considering physical conditions. At present, much of the literature stops short of examining why particular interventions are helpful and this is an area that requires future research. One problem that is evident from our review of interventions is the issue of time lag. Studies that look to determine a causal relationship will generally rely upon an RCT, but these often take place over a short period of time (e.g. a few months). However, some interventions may not begin to take full effect for over a year or more, as noted by Hees *et al.* (2013). This makes evaluating different types of interventions extremely difficult, as one

must choose between using a more rigorous methodology and collecting data for long enough to enable the potential for a time lag in impact to be taken into account.

However, what we can certainly establish from this review is the importance of other factors. Indeed, better labour market conditions were consistently associated with improved employment outcomes for those with a mental health problem. Furthermore, determinants such as employment interventions are potentially more effective during periods of higher economic performance in enabling those with mental illness back into work, whilst those with poorer education levels and experience are particularly likely to suffer during an economic downturn. In the case of employment interventions such as IPS, the structure and generosity of the welfare system could also determine their success at getting people with mental illnesses back into work. Whilst there is less evidence on other determinants of employment for those with physical conditions, we do find that for both mental and physical illnesses, reducing stigma and providing appropriate work conditions/support are essential to helping these groups obtain and remain in employment, although there will be some differences in the types of support required depending on the condition one has.

Whilst we have provided a qualitative summary of the main external factors influencing employment for these groups, it is not possible, through the literature, to quantify the relative scale of different drivers, especially given the varying nature of the methods used to illustrate the determinants of work for those with long-term physical conditions and mental illness. One option presented in the econometric modelling is to include potential confounding variables, such as general labour market conditions, in our model of the employment gap over time; this is discussed further in the econometric modelling paper.

06. Conclusion

Through this REA, we began by highlighting the different methods utilised to diagnose a particular health condition and/or the extent of an illness. For many conditions, there are a number of scales and tools that have been developed, leading to various measurement tools being utilised by researchers and clinicians when examining a specific health problem.

Following our exploration of the relationship between health and employment, we concluded that adverse health shocks will generally have a negative impact on work outcomes. Yet, in saying this, the extent of the link is known to be affected by factors such as the welfare system and employment/rehabilitation measures in place. From a policy perspective, these are the types of factors which the government may be able to have greater influence over. Whilst we know that negative health shocks harm labour market outcomes, there is the possibility that an effective welfare system and employment measures could reduce the impact of adverse health changes. There are, however, some gaps within this literature. Very few papers have looked at how a health shock may simply lead to a change in working pattern rather than an exit from the labour market. This merits further exploration, as establishing better working patterns may allow those with poorer health to remain in work. The effect of employment/unemployment on health is less certain, although there is again clearly a role for appropriate working conditions. There are specific employment types (e.g. shift working) that appear to have a detrimental impact on one's health, with less security and autonomy also contributing to deteriorating health.

Literature on health and social care interventions has often concluded that it can have a positive impact on employment. With this said however, at present there exists very little research which has focussed on understanding why this is and ascertaining which aspects of an intervention are of particular importance. For instance, whilst certain types of anti-depressant medication appear better at boosting employment than others, there is no evidence as to why this is. The effectiveness of health and social care may also vary depending on prevailing economic and labour market structures/conditions. Whilst these types of factors have been explored in the context of employment interventions (e.g. IPS), there is yet to be a study that examines the role of these factors with regards to health interventions, and this is an area for future research. A further limitation of all studies in this area at present is the time lag between intervention and impact. Some papers acknowledge that the level of influence on work may not have been adequately measured, as the trial only takes place for a short period.

There are a number of external drivers that will determine employment amongst these groups. IPS has been found to be especially effective abroad, yet there has been comparatively less research in the UK on its impact. However, the influence of such programmes will be influenced by economic circumstances and welfare provision. Whilst there are certain factors that a government may find more difficult to change, such as a person's level of education or work history, the research has illustrated the importance of work conditions and reducing levels of stigma in helping those with mental illness and long-term physical conditions retain employment. These are determinants that policymakers could influence in order to boost work levels amongst these groups. As mentioned earlier, there are few papers that have explored how the factors influencing employment amongst

those with mental illness and long-term physical conditions vary according to type of employment and severity of the condition. Indeed, these would be useful areas to examine in future papers, as such a study would offer further evidence to policymakers in terms of whether different policies and interventions are needed to help various groups of individuals.

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Appendix 1: List of bibliographic databases

Below, we provide a list of the databases we searched as part of the REA.

- AMED (EBSCO)
- American Association for the Advancement of Science (CrossRef)
- American Medical Association (CrossRef)
- Arts & Humanities Full Text
- BioMed Central Journals
- Blackwell Reference Online
- BMBS
- BMJ Journals Collection
- British Journal of Social Work
- Cambridge University Press Journals
- CINAHL Plus with Full Text (EBSCO)
- Clinical Evidence (BMJ)
- Cochrane Library (Wiley)
- EconLit
- EMBASE: Excerpta Medica (Ovid)
- Emerald
- ERIC
- ERIC (U.S. Dept. of Education)
- ESDS
- Health Reference Center Academic (Gale)
- Informa - Informa Healthcare
- Informa - Taylor & Francis
- JISC Journal Archives
- JISC MediaHub
- Journal Citation Reports (JCR)
- Medline (EBSCO)
- Medline (Ovid)
- MEDLINE/PubMed (NLM)
- OneFile (Gale)
- Oxford Journals
- Oxford Journals (Oxford University Press)
- PMC (PubMed Central)

- PsycArticles
- PsycARTICLES (American Psychological Association)
- Psychometric or psychological tests
- PsycINFO
- Public Library of Science
- PubMed
- Repec
- Royal College of Nursing Journal Package (RCN)
- SAGE journals online
- Sage Publications
- ScienceDirect
- SciVerse ScienceDirect (Elsevier)
- Social Care Online
- SocINDEX (EBSCO)
- SpringerLink
- Taylor & Francis Online
- UK PubMed Central
- Web of Science
- Wiley Online Library