University of Glasgow

Understanding Barriers To Employment For People Living With Severe Mental Illness

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Abstract

Background: This study investigates the complex link between severe mental illness (SMI), common mental health disorders (CMD), and employment outcomes, focusing on the challenges and opportunities for individuals with SMI and CMD. It examines how factors like socioeconomic status, education, and health impact employment rates and seeks to enhance understanding of the employment barriers and benefits for this group.

Methods: This retrospective, observational study utilized Adult Psychiatric Morbidity Survey (APMS) data from 2000 and 2007, encompassing English residents aged 16-75. Economic activity measurements were based on International Labour Organization criteria, with logistic regression models and Average Partial Effects (APEs) identifying relationships between variables. SMI and CMD presence were determined through validated clinical measures within APMS. The study advocates for integrating reflexive practice in quantitative research, illustrated by reflexive pieces titled ‘Beginning’, ‘Middle’, and ‘End’.

Results: analysis focused on the employment status of individuals in England, focusing on those with common mental health disorders (CMD) and severe mental illness (SMI) compared to the general population. It found that the presence of SMI or CMD significantly correlated with reduced economic activity. Key factors such as age, gender, education, ethnicity, physical health, social class, and service use were identified as influencing employment outcomes negatively for those affected by SMI or CMD. Education emerged as a crucial mitigating factor, highlighting the need for targeted support and interventions.

Conclusion: This work explores the complex relationships between common mental health disorders (CMD), severe mental illness (SMI), and employment in England, highlighting an increasing employment gap for those affected. Utilizing the Adult Psychiatric Morbidity Survey, it identifies key socioeconomic and demographic influences on this dynamic. The findings call for targeted interventions to enhance employment prospects for individuals with CMD and SMI, offering critical insights for future policy and research.

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Mum, my wee brother Jack, Gran, Granda Joe, Aunties Kim, Tracey, Josephine and Helen, my Dad. They might not have got why I wanted to do this, but were there for me, nonetheless.

I rescued a dog (the “PhD support pet”) during this process. I named him Sigmund and he’s the best.

I didn’t think I’d see this PhD get done and handed in, so that’s something.

Declaration

I declare, except where explicit reference is made to the contribution of others, that this thesis is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Printed Name: Michelle Kimberly Jamieson

Signed

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Abbreviations

A&E - Accident and Emergency

ADHD - Attention Deficit Hyperactivity Disorder

ADRN - Administrative Data Research Network

AME - Average Marginal Effects

AOR - Adjusted Odds Ratio

APMS - Adult Psychiatric Morbidity Survey

APE - Average Partial Effects

ASD - Autism Spectrum Disorders

CIS-R - Clinical Interview Schedule-Revised

CMD - Common Mental Health Disorders

CMHT - Community Mental Health Teams

CoI - Conflicts of Interest

cPTSD - Complex Post Traumatic Stress Disorder

DALY - Daily Adjusted Life Years

DDA - Disability Discrimination Act

DSM-III - Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition

DSM-IV - Diagnostic and Statistical Manual of Mental Disorders, 4th Edition

DSM-V - Diagnostic and Statistical Manual of Mental Disorders, 5th Edition

ESRC - Economic and Social Research Council

EUL - End User License

GAD - Generalised Anxiety Disorder

GP - General Practitioner

HPD - Histrionic Personality Disorder

ICD-11 - International Classification of Diseases, 11th Revision

IPS - Individual Placement and Support

JSA - Job Seekers Allowance

NatCen - National Centre for Social Research

NEET - Not in Education, Employment, or Training

NHS - National Health Service

NSF - National Service Framework

OCD - Obsessive Compulsive Disorder

ONS - Office for National Statistics

OR - Odds Ratio

PSTD - Post Traumatic Stress Disorder

PSQ - Psychosis Screening Questionnaire

RITB - Recovery in the Bin

RQ - Research Question

SAD - Seasonal Affective Disorder

SCAN - Schedules for Clinical Assessment in Neuropsychiatry

SMI - Severe Mental Illness

SRT - Safe Researcher Training

STOPSIM - Stop Serenity Integrated Mentoring

UKDS - UK Data Service

Beginning

How far back in time and do I need to go when thinking about me and what I do to this work? At what time did I become *"ill",* or should it be from my proximity to others that were ill first. I am after all technically an outsider looking in on the data provided.

Should I start from eight months ago, when I landed in the Southern with cuts and talking about government conspiracies. I got told I had psychosis, low mood, and that self-harm was for teenagers. They say someone will phone. I walked home myself that night. I hide it.

Or should I rewind to as far back as I can remember when I used to sit with my dad, and he spoke about government conspiracies, and I first noticed that horrible feeling in my stomach. We got told he had *"unusual beliefs"* that would come and go. The brain injury makes him a bit eccentric anyway, my gran says. I hide it.

Or when the weekend visits to my dad's and his mum stopped because of the benignly named, by my mum's side, the *"Venezuela thing".* Dad appeared a few months later, gran, not for nearly ten years. I found the prison name next to her picture on the front page of the newspaper one morning in the shop before school. San Antonio. The school had an assembly about it. Every time I slept; I had a nightmare about her. I hide it.

Or when I would walk from Hillpark back home to Priesthill after school just to delay having to walk in mum's door and sneak past the drunk boyfriend that was a permanent fixture on the couch. I got diagnosed with anxiety around that time. I started throwing up whenever I was scared. It was a lot. It became a family joke. I started staying out later. I hide it.

I'm called round to my dad's by one of his sisters. He's been lifted in Pollok.

"What for this time?"

Fighting again apparently. I can hear him from the street. As usual. He doesn't know how to be quiet. There are tea lights lit and sitting on the carpet. It's in sections and pulled up, lost to a DIY project that never ends and leaves wherever he lives looking half finished. The boxes have been stacked up for at least a year. He sits on the couch and talks to me. This has always stuck with me, talking at me and not with me. I always swore I would never do that to anyone.

The voices still make any interaction a bit blurry. They appeared eight months ago and haven't left. There were three, and now, on the good days there are only two. Those two aren't scary, it's like listening to people talk in a coffee shop or in a crowd. What I do catch is mostly just describing what I do. I often wonder if other people who hear voices experience the same, or how common this is? I know it's different for everyone, but how different. I know it makes concentrating difficult. The third voice only appears when things are bad, and at night.

Dads telling me about the fight and it's not that I don't care, I'm just very tired now. They used to call me a young carer for him, but now I'm not even a carer because of being a student. I tell him to behave himself as I won't be visiting him in the jail if he goes. He laughs. He always laughs at this. He asks for a cup of tea and a roll up. He doesn't know about what happened eight months ago, or any of the mental health stuff really. He's stuck in his own world and I'm an extension. No one else will look after him, not even the services, so all of this falls to me. I don't think I could tell him. He'd be upset and he has short-term memory issues anyway, so what's the point. For the short time I couldn't come in person every week, my wee brother did. He started losing his hair because of stress, the GP said.

I come back with his tea and his roll up. I've never been any good at them. The only other bit of unpacked furniture is his hi-fi system. He's put space oddity by David Bowie on and is dancing at the back of the room. He says thanks and calls me sweetie. That song always reminds me of him. We used to dance to that song together all the time when I was wee.

"I didn't interrupt you from anything important today?" he asks me. I say I was up at the Uni doing PhD stuff. He says, "Oh well, not actual work then". It is, I say. We don't say much else, and I leave. All I wanted to do at that moment was scream,

“I’m hurt, I don’t know what to do. This happened to me. What do I do!”.

But I don’t. What would be the point anyway? He hasn’t asked. No one has even asked me in the first place.

(February 2018 – taken from a longer reflexive piece)

Chapter 1

Introduction

1.1. Chapter Overview

This thesis provides an exploration of the relationships between severe mental illness (SMI), common mental health disorders (CMD) and employment outcomes for adults in England. The topic of severe mental illness and its relationship to employment has been a growing area of interest in recent years. Individuals living with a severe mental illness, such as those with disorders like psychosis and personality disorders, often face significant barriers in obtaining and maintaining employment. However, employment can provide not only financial benefits, but also social and psychological benefits that can be restorative for individuals living with severe mental illness.

Common mental disorders such as depression and anxiety, are also prevalent among working-age adults and can also influence an individual's ability to participate in the workforce. It is important to note that while severe mental illness and common mental health disorders both fall under the umbrella of mental health conditions, they are distinct and include separate conditions and severity.

This study aims to examine the rates and factors associated with employment among individuals living with severe mental illness and common mental health disorders, as well as the barriers or enablers, such as socio-economic status, ethnicity, education, physical health, involvement in services that are experienced by this population. Through a thorough analysis of data collected from the Adult Psychiatric Morbidity Survey (APMS) waves in 2000 and 2007, this thesis aims to provide a deeper understanding of the experiences and challenges faced by individuals living with severe mental illness and common mental health disorders in the workforce.

This introductory chapter provides a brief overview of severe mental illness and employment within a UK context, and introduces reflexivity, a tool for critical engagement with my own practice, which runs throughout this thesis. The overarching aims and related research questions shaping this thesis are introduced, including the change of direction required due to COVID-19. Finally, this chapter draws to a close with an overview of the structure of this thesis.

1.2. Research Context

Work, or its absence, is intrinsically linked to our health and wellbeing. Good-quality, stable work can help build a sense of identity, self-esteem, social connections and positive routines. However, for individuals living with severe mental illness the barriers to employment can be significant. The relationship between severe mental illness and employment is a two-way dynamic, where poor health can be a barrier to work, and conversely, the lack of work can erode an individual's health, leading to increased difficulty in finding and maintaining employment. How people work is constantly evolving and shaped by the economy, technology, and the political climate (Taylor et al., 2017; Dobbins and Plows, 2022).

It is estimated that just 5–15% of people with conditions like schizophrenia are in employment and they are 6 to 7 times more likely to be unemployed than the general population (Taylor and Perera, 2015). Unemployment or poor-quality employment could limit opportunity and have a negative relationship with physical health, social inclusion, health choices, and mental health outcomes (Bouwmans et al., 2015). One of the main barriers that individuals with severe mental illness face in regard to employment is the lack of understanding and support from employers and colleagues. Many employers are not familiar with the symptoms and accommodations that individuals with severe mental illness require and may not have the knowledge or resources to provide the necessary support. This can lead to discrimination and stigmatization in the workplace, which can further exacerbate the individual's mental health symptoms and make it harder for them to maintain employment (Chandola et al., 2017).

Another barrier that individuals with severe mental illness face is the lack of adequate benefits and support systems. The current benefits system is often not equipped to provide the

necessary support for individuals with severe mental illness to find and maintain employment. This can lead to a lack of financial stability and security, which can further exacerbate mental health symptoms and make it harder for individuals to find and maintain employment. In addition to these barriers, individuals with severe mental illness may also face a lack of education and training opportunities (Juurlink et al., 2022).

Many individuals with severe mental illness may not have the same level of education and qualifications as their peers, which can make it harder for them to find and maintain employment (Zheng et al., 2022). The formative systematic review by Rinaldi and colleagues which explored the motivation and understanding of individuals with first-episode psychosis around work found similar barriers (Rinaldi et al., 2010). Recent systematic reviews based on this work also found that those living with severe mental illness faced significant barriers to re-engaging with social and occupational 'recovery' and that even with social and occupational support in place, less than 50% of individuals revert back to pre-severe mental illness levels of social and occupational engagement (Ajnakina et al., 2021).

Despite these barriers, there are several steps that can be taken to improve the employment outcomes for individuals with severe mental illness. One of the most important steps is to address the systemic barriers that individuals with severe mental illness face in the labour market. This may involve changes in policies, attitudes, and perceptions towards individuals with severe mental illness in the workplace, as well as increased education and training opportunities for those with severe mental illness to acquire the skills and qualifications necessary to enter and succeed in the workforce. Additionally, providing support services such as job coaching, mentoring, and on-the-job accommodations can help individuals with severe mental illness to succeed in their jobs. Furthermore, employers can also benefit from training and education on how to support and accommodate employees with severe mental illness. It is also important to promote collaboration between government, employers and mental health organisations to provide better support and resources for individuals with severe mental illness in the workforce. Overall, by addressing these systemic barriers and providing support and resources, we can improve the employment outcomes for individuals with severe mental illness and promote their overall health and wellbeing.

Another barrier that individuals with severe mental illness face is the lack of access to

appropriate mental health treatment and support. Many individuals with severe mental illness may not have access to the necessary mental health services and treatment that can help them manage their symptoms and improve their overall health and well-being. Without access to appropriate treatment, individuals with severe mental illness may find it difficult to manage their symptoms and maintain employment. Additionally, individuals with severe mental illness may also face challenges in obtaining and maintaining stable housing. The lack of stable housing can make it difficult for individuals to maintain employment as they may not have a stable place to live, access to transportation and other resources that are necessary to maintain employment.

Furthermore, individuals with severe mental illness may also face discrimination and stigmatization from society in general, which can make it harder for them to find and maintain employment. This can include negative stereotypes and misconceptions about individuals with severe mental illness, which can lead to discrimination and bias in the workplace and other areas of life.

To improve the employment outcomes for individuals with severe mental illness, it is important to address these barriers and provide support and resources to help individuals with severe mental illness overcome them. This may include providing access to appropriate mental health treatment and support, assistance with stable housing, and education and training opportunities to help individuals with severe mental illness acquire the skills and qualifications necessary to enter and succeed in the workforce. It is also important to promote awareness and understanding of severe mental illness to reduce discrimination and stigmatization, and to work with employers, government, and mental health organisations to provide better support and resources for individuals with severe mental illness in the workforce. By addressing these barriers and providing support and resources, we can help improve the employment outcomes for individuals with severe mental illness and promote their overall health and wellbeing.

1.3. Thesis Terminology

In this thesis the term ‘severe mental illness’ is used. This term is used as it is the most prevalent term in literature, policy, and data. The psychiatric labels used throughout this project are the ones present in diagnostic manuals used worldwide, ICD-11 (World Health Organisation, 2019), and the DSM-V (Diagnostic and Statistical Manual of Mental Disorders, 2013). These choices were made due to these terms also being present in the data analysed, or due to the way the survey questions were asked, and the data quantified. However, it should be noted that although some individuals find these labels helpful for their own understanding of what they are experiencing (Seery, Bramham and O’Connor, 2021) there is also a growing literature, both academic, policy, and from those with lived experience, calling into question these terms - what they mean, the negative influence and stigma they can produce, and how they are perceived by others, including the health service, welfare state, and the labour market (Recovery in the Bin, 2022). Definitions for these terms can be found in Chapter 2.

1.4. Reflexivity

This thesis is written from the traditional third person perspective, interspersed with a first-person perspective in the form of three short reflexive pieces. This decision was shaped by personal, political and professional views (Pillow, 2003). I identify as an intersectional feminist researcher, and although primarily working within quantitative research, I look to challenge the idealised view of quantitative methods being inherently ‘objective’ and ‘gold standard’ for understanding phenomena. Aligning with other feminist researchers, I believe ‘good’ research comes from conscious, active acknowledgement of one’s own beliefs, biases, and judgements before, during, and after the research process (Lazard and McAvoy, 2020). A more in-depth account of the ontological and epistemological approach to this research project is presented in Chapters 3 and 4.

1.5. The Impact of COVID-19 on this Thesis

The impact of COVID-19 on this thesis has been significant, as it has forced a re-evaluation of the project's aims, research questions and sources of data. The original plans for this PhD project relied on the novel linkage of sensitive health and admin data, which would then be accessed through a safe haven. However, with the outbreak of COVID-19, access to the original data was lost, with the permissions process prioritising COVID-19 related projects for access, or coming to a halt for other projects and pushing the original data access outside the time limits of this thesis, requiring the need to find new sources of data that could be accessed from home due to COVID-19 measures.

Furthermore, the pandemic has also had an impact on the researcher's personal and professional life, which is reflected in the short autoethnographic pieces presented throughout this thesis, and in Chapters 3 and 4. This personal reflection highlights the disruptions and challenges that the researcher faced in light of the pandemic and how it has affected the project's progress.

The subsequent impact on this thesis has resulted in some non-conventional respects. It is important to note that parts of the literature review and methods sections of this thesis may appear at odds with the actual empirical work conducted, this is due to the fact that they reflect the earlier aims and plans of the project which were disrupted by the pandemic, and this disruption came at such a late stage in the original work. For example, the loss of the original data happened one week before the safe haven appointment to access it. This required a significant adjustment period, and an extension was granted to reflect the disruptions caused by COVID-19. The impact of COVID-19 on this project has been significant, but through re-evaluation and adaptation, new sources of data have been found and the project has been able to continue.

Autoethnography is an approach to research that combines traditional ethnography with the personal experiences of the researcher. This approach has been included in this traditional quantitative-based PhD for several reasons.

First, the topic of this research is serious mental illness, and the researcher also lives with a severe mental illness. This personal connection to the topic allows for a unique perspective and insight into the experiences of individuals with severe mental illness. Autoethnography allows for the researcher to use their personal experiences and emotions as a way to understand the experiences of others with severe mental illness, and to bring a human element to the research that might not be fully captured by traditional quantitative methods.

Second, severe mental illness is a stigmatised and often misunderstood topic. By including autoethnographic elements, the researcher is able to provide a nuanced and personal account of living with severe mental illness, which can help to challenge stereotypes and misconceptions about this population. The researcher can also use their own experiences to highlight the ways in which societal attitudes and structures may impact individuals with severe mental illness (Ngunjiri, Hernandez and Chang, 2010).

Third, autoethnography allows for reflexivity in the research process. This means that the researcher is able to critically examine their own biases and assumptions, and to consider how these may have influenced the research. This is particularly important in research on sensitive topics such as severe mental illness, where the researcher's own experiences may shape their understanding of the topic in ways that are not immediately obvious (Oswald et al., 2022).

Lastly, as the pandemic has disrupted plans, it also created a unique set of circumstances for the researcher which would be difficult to capture by quantitative data, the autoethnographic elements allows the researcher to reflect on their own experiences during the pandemic and how it has affected their personal and professional development.

Overall, the inclusion of autoethnographic elements in this traditional quantitative-based PhD may be unconventional but allows for a more comprehensive and nuanced understanding of the topic of severe mental illness and provides a unique perspective that would not be possible through traditional quantitative methods alone and adds a valuable and unique perspective that complements the traditional quantitative methods.

1.6. Thesis Aims

The aim of this research is to gain a better understanding of the patterns of employment outcomes among individuals living with severe mental illness and how these patterns vary depending on individual and social barriers and enablers. These aims shifted from looking at this from a pre- and post- onset of severe mental illness to focusing on post-onset due to losing access to the original data that could have enabled this during the COVID-19 pandemic.

1.6.1. 2017 to 2020

These aims were part of the original project that envisioned the use of linked health and admin data:

1. To provide a detailed description of the patterns of employment in individuals with severe mental illness and how this varies by both individual and local labour market characteristics.
2. To examine how employment status changes after the onset of severe mental illness, but also immediately before the onset of severe mental illness, and how this varies with individual and local labour market characteristics.
3. To examine whether the relationship between the onset of severe mental illness and employment status differs from that with the onset of Common Mental Disorders.

1.6.2. 2020 to 2022

The aims were revised after the impact of COVID-19 on the project resulted in loss of access to the original planned data, and after consideration of data that could be accessed under home-working conditions while still addressing the same overall aim:

1. To provide a detailed description of the patterns of employment in individuals with severe mental illness and how this varies by both individual and local labour market characteristics.

2. To examine whether the relationship between the onset of severe mental illness and employment status differs from that with the onset of Common Mental Disorders.

Given that the second aim in the original project needed access to records pre- and post-onset of severe mental illness, this aim was dropped from the revised project, as the data that was taken forward had no reliable pre-onset measure of severe mental illness. This is further discussed in Chapters 3 and 4.

1.7. Research Questions

Based on the literature reviewed in Chapter 2, the following questions were derived. Including the original research questions pre- COVID-19. The final research questions were reduced to five questions, as those concerned with pre-illness onset were no longer relevant given the data change.

1.7.1. 2017 to 2020

1. How has the impact of severe mental illness on employment status changed in the last ten years in Scotland?
2. How do severe mental illness individuals' employment status patterns compare to the rest of the population in Scotland in 2011?
3. Is the relationship of severe mental illness on employment status different from the relationship of common mental health disorders on employment status in Scotland?
4. How does living with severe mental illness affect the entrance of young adults (16-35 years old) to the labour force, in comparison to young adults without severe mental illness?
5. How do severe mental illness individuals' employment status patterns compare in the period just before the onset of severe mental illness, and in the period just after the identification of severe mental illness?
6. Are the effects of severe mental illness on employment status mitigated or exacerbated by other barriers or enablers, such as socioeconomic status, education, area

deprivation, physical health, involvement in services, or age?

7. Is the impact of severe mental illness on employment status influenced by pre-onset life factors, such as geographic area, socioeconomic status, physical health, or ethnicity?
8. In what ways does the impact of severe mental illness on employment status differ between conditions within the severe mental illness category?
9. Are severe mental illness individuals' employment status affected by variations in health board spending in severe mental illness services?
10. Are common mental health disorders individuals and the rest of the population's employment status affected by variations in health board spending in mental health services?

1.7.2. 2020 to 2022

1. How do employment status patterns for individuals with common mental health disorders and severe mental illness compared to the rest of the population in England?
2. Is the relationship of severe mental illness to employment status different from the relationship of common mental health disorders to employment status in England?
3. How did the relationships of common mental health disorders and severe mental illness on employment status changed between 2000 and 2007 in England?
4. How does living with common mental health disorders and severe mental illness affect the entrance of young adults (16-35 years old) to the labour force, in comparison to young adults without common mental health disorders and severe mental illness?
5. Are the effects of common mental health disorders and severe mental illness on employment status mitigated or exacerbated by other barriers or enablers, such as socioeconomic status, ethnicity, education, physical health, involvement in services?

1.8. Thesis Structure

There are eight chapters, including this introduction. These chapters are interspersed with three short reflexive pieces (titled 'Beginning', 'Middle' and 'End'). These short pieces are

autoethnographic and based on lived experience. Given the experience of the thesis author living with a severe mental illness themselves and having experiences like those represented in the data analysed, these reflexive pieces were included to help readers to understand the position this research was approached from. The pieces are edited excerpts from private written diaries kept by the author between 2016 and 2022.

Chapter 2 reviews literature relating to the main themes of the thesis: severe mental illness, employment trajectories, and administrative data (although this is no longer a focus due to the shift after COVID-19). As much of the project work is exploratory in nature, a systematic review of literature was not considered appropriate. Instead, each section of the chapter supplies a contextual review of literature relevant to its topic from academic and policy sources.

Chapter 3 details methods employed for the project analysis. Firstly, a brief description of the procedures that were needed to access the sensitive data used in the project, both pre- and post-COVID impact. This is followed by an overview of the administrative data sources which the research originally intended to use. The next section briefly describes the decision-making process in the choice of new data when access to the original project's planned data was disrupted. A section detailing the new data and the extensive data cleaning on the new data to enable analysis is provided. The next section discusses the statistical methods applied to answer the stated research questions. The last section supplies a timeline of the research project and briefly discusses important milestones.

Chapter 4 is a short methodology detailing the reasons and underpinnings of using reflexivity within a traditional quantitative project like this one. This chapter provides a comprehensive account of the ontological and epistemological issues faced during the project. This has been put used throughout this thesis, and the inclusion of three short reflexive pieces, titled 'Beginning', 'Middle' and 'End' throughout this work illustrates this use in practice.

Chapter 5 provides detailed descriptive overview of the cohort in five sections covering each research question: their characteristics by age, gender, ethnicity, and other demographics; economic activity and employment status; common mental health disorders; and severe mental illness.

Chapter 6 provides results of statistical models relevant to the research questions. All questions are answered via logistic regression models and reporting the Average Partial Effects (APEs), as well as goodness of fit results and follows a similar structure to Chapter 5.

Chapter 7 discusses the key findings of the research in context, compares the findings with previous research, and addresses the strengths and weaknesses of this project, as well as making recommendations for future research. Chapter 8 provides a brief conclusion to the thesis as a whole.

1.9. Chapter Summary

Chapter 1 introduces the thesis, focusing on the impact of severe mental illness (SMI) and common mental health disorders (CMD) on employment outcomes in England. It highlights the distinction between SMI and CMD, their prevalence among working-age adults, and their significant influence on workforce participation. The chapter outlines the study's aim to analyse employment rates and factors affecting individuals with SMI and CMD, utilizing data from the Adult Psychiatric Morbidity Survey (APMS) waves of 2000 and 2007.

The research context emphasizes the two-way relationship between mental health and employment, citing the disproportionately high unemployment rates among individuals with SMI and the role of work in enhancing health and well-being. Barriers to employment for those with SMI, such as employer discrimination and inadequate support systems, are discussed alongside strategies for improvement, including policy changes and increased support services.

The chapter introduces key terminology, positioning 'severe mental illness' within academic, policy, and diagnostic frameworks. Reflexivity is presented as a critical component, with the author's perspective as a feminist researcher and individual with SMI shaping the analysis. The impact of COVID-19 on the research direction is acknowledged, leading to a shift in data sources and research aims.

The revised research questions focus on employment patterns among individuals with SMI and CMD compared to the general population in England, exploring changes between 2000 and 2007 and the influence of socio-economic and demographic factors.

The thesis structure is outlined, detailing eight chapters interspersed with reflexive pieces reflecting the author's lived experience with SMI. Subsequent chapters cover literature review, methods, the role of reflexivity, a descriptive overview of the cohort, statistical model results, discussion, and conclusions. This introductory chapter sets the stage for a comprehensive examination of the complex interplay between mental health conditions and employment, informed by both quantitative analysis and personal insight.

Chapter 2

Literature Review

2.1. Chapter Overview

The aim of this chapter is to scope out the literature relevant to the main themes of this thesis outlined in the introduction and identify where links can be made. This chapter summarises academic and policy literature relevant to the main project themes. As the main project pivoted to use English data, so the focus of the reading turned to the structures and policies in this country. Efforts have been made to place English policy in the wider context of the UK as well as considering views from the global south.

The chapter is organised in five parts, each building upon the previous to provide a comprehensive understanding of the relationship between severe mental illness and employment outcomes in the UK.

In Section 2.2, we begin by defining the most commonly used terms in the literature on severe mental illness and employment, providing a foundation for the rest of the chapter.

Moving on to Section 2.3, we delve into the importance of understanding severe mental illness in the context of UK services and the broader social background. We provide an overview of academic literature and policy regarding severe mental illness and its measurement, definition, and impact.

In Section 2.4, we focus on the specific topic of employment outcomes for individuals living with severe mental illness. We examine what it means to be economically active or inactive with severe mental illness, how this is treated and viewed by services, and the perceived impact on severe mental illness.

Section 2.5 delves into the policies in place regarding severe mental illness and employment, providing historical context and reviewing empirical evidence on the nature of the interaction between severe mental illness and employment outcomes.

Finally, in Section 2.6, we discuss the use of administrative data for research in relation to severe mental illness. We explore what access to administrative data involves, the benefits and drawbacks of using this type of data, and outline the data sources selected for this project, along with the justification for their inclusion.

Given the nature of this review, the search strategy for literature employed differing methods. The first section on severe mental illness used traditional bibliographic database searches (Web of Science, Google Scholar) for key terms: “severe mental illness” and variations within, including individual conditions: “schizophrenia”, “psychosis”, “PTSD”, “BPD”, and “employment” and its variations: “unemployment”, “economically in/active”. As an overview of the whole topic and subsections was sought, initial searches included only systematic reviews and, where necessary, references from citation lists were retrieved and included.

“Grey” literature was also searched for using websites of prominent charities (e.g. Mind, think- tanks (e.g. the Centre for Mental Health), research groups (e.g. the Centre for Global Mental Health), and prominent grass-root, activist-led and lived experience groups (e.g. Time & Space Glasgow, Recovery in the Bin, Stop SIM, Deaths by Welfare). Literature on lived experiences of severe mental illness and navigating employment was mostly found from these “grey” sources with a “snowball” method from reference lists employed to identify further reading. In addition, relevant publications from UK governments and health and support services on their policies were sought, alongside critiques from traditional and grass-roots literature. Background information on administrative data was informed by reports produced by the Administrative Data Research Network (ADRN) and references contained within.

An initial review and searches of literature were conducted in Winter 2017 with continual updates in Spring 2018, 2019, and then in line with the project being reorientated due to COVID-19 in Spring 2020. A formal update of this review was completed in Autumn 2022. The review provides a summary after each section with a synthesis of sections contained in the chapter conclusion.

2.2. Definitions

This section covers the different ways severe mental illness, common mental health disorders, and employment have been defined in the literature, both in the UK and internationally. There is no accepted consensus for terms around severe mental illness in particular, either nationally or internationally, so based on the most up to date literature a consensus is reached on these definitions in order to produce a working definitions that enables exploration of the research questions meaningfully. The definitions here are the definitions which will be used throughout. Section 2.3.2 discusses in more critical terms how terms are more contested and subject to varying definitions in order to deliver transparency.

2.2.1. Severe Mental Illness

The term severe mental illness is defined as a mental, behavioural, or emotional disorder that leads to serious functional impairment, and substantially interferes with daily life (Pearson et al., 2022). Severe mental illness includes schizophrenia, psychosis disorders, personality disorders, eating disorders, and post-traumatic stress disorder (PTSD) and complex post-traumatic stress disorder (CPSTD) (Zumstein and Riese, 2020) among others. These illnesses are associated with an increase in all-cause mortality, leading to a life expectancy reduction of up to 20% (Kjær et al., 2020). This is due in part to the high prevalence of physical comorbidities among those with severe mental illness in comparison to the general population, including cardiovascular, metabolic, infectious, and respiratory conditions (Teh et al., 2021). Those living with severe mental illness are also more likely to be impacted by psychosocial stressors, such as loneliness (Heron et al., 2022). All severe mental illness conditions by ICD-11 codes can be viewed in Appendix A.

2.2.2. Common Mental Disorders

The term common mental disorders refer to a set of illnesses that are much more common in the general population. They can cause marked emotional distress and can interfere with daily function, but do not usually affect insight or cognition (World Health Organisation, 2019). Common mental disorders comprise depressive and anxiety disorders and are a leading cause of disability worldwide (Rehm and Shield, 2019). Depressive disorders include mild, moderate, and severe depressive disorders and dysthymia (a milder but more persistent form of depression), while anxiety disorders include generalised anxiety disorder (GAD), panic

disorder, phobias, social anxiety disorder, and obsessive-compulsive disorder (OCD). The WHO estimate 5.0% of adults globally suffer with depression, with as many affected by anxiety disorders (World Health Organisation, 2017).

2.2.3. Economic Activity and Employment Status

This project applied the definition set out by the Office for National Statistics (ONS) for the terms 'economically inactive', or 'economic inactivity'. The term includes individuals "aged 16 and over without a job who have not sought work in the last four weeks and/or are not available to start work in the next two weeks" (Office for National Statistics, 2017). Working-age (16 – 64) economically inactive individuals comprise a diverse range of groups. Students tend to be young and at the start of their working lives. Most individuals looking after the family and the home still tend to be female and of child-bearing age, and retirees tend to be close to retirement age. A small number of individuals also fall under what is called "discouraged workers". They are not trying to find work because they believe there is not any available, and it is possible that it would be relatively easy to convince these people to re-enter the labour force (Kim, Skinner and Parish, 2020). Whereas for other groups, like full-time students or carers, or those with illnesses, the practical barriers to work may be much higher, even if they do want a job.

This project also applied the ONS definition for the term 'economically active', that encompasses individuals aged sixteen and over who are either in employment or unemployed. Those in employment are defined as individuals aged 16 and over who are employees paid a wage by an employer for the work that they do and include permanent and temporary employees. Self-employed describes individuals who in their main employment work on their own account, whether or not they have employees. Individuals in employment can also be unpaid family workers - those who work in a family business and who do not receive a formal wage or salary but benefit from the profits of that business – they are also distinct from unpaid family carers, who are not included in employment definitions. This definition also includes individuals on government-supported training programmes, who are classified as being employed only if they are engaging in any form of work, work experience or work-related training; if they are not engaging in such activities they are classified as unemployed or economically inactive (Office for National Statistics, 2017). Individuals in the unemployed group are defined as those who are currently without a job but who either have been actively

seeking work in the past four weeks and are available to start work in the next two weeks or have found a job and are waiting to start it in the next two weeks.

2.3. Understanding Severe Mental Illness

This section reviews relevant literature regarding severe mental illness in the UK. Firstly, an overview of the main context is provided, the scale and composition of the population with severe mental illness in the UK, before more in-depth reviews of three main themes arising from this: concepts of severe mental illness, measuring severe mental illness, and finally the impact of severe mental illness on employment outcomes.

2.3.1. Social Context of Severe Mental Illness in the UK

People with severe mental illness are among the most disadvantaged in society, and many experience social and economic hardship as a direct result of the illness. For example, reviews show much lower rates of being employed compared to the general community, higher rates of being homeless, and lower rates of social and romantic relationships (Ajnakina et al., 2021). The context of serious mental illness in the United Kingdom is one that is characterized by a range of demographic variations. In terms of distribution, severe mental illness is known to affect individuals of all ages and genders, with certain populations being at a higher risk of developing the condition. In terms of age, severe mental illness is known to occur most frequently in individuals between the ages of 25 and 44. This is particularly true for conditions such as schizophrenia, bipolar disorder, and major depressive disorder. However, it is also important to note that severe mental illness can occur at any age, with children and older adults also being at risk (Nicaise et al., 2020). Singleton et al. (2003) shed light on the prevalence of various mental disorders and track changes in psychiatric morbidity from a previous survey conducted in 1993. This longitudinal perspective is crucial for understanding the dynamics of mental health issues over time, offering insights into trends, shifts, and the evolving nature of psychiatric disorders within the societal fabric. The comprehensive data set and analysis presented by Singleton and colleagues serve as a foundational pillar for subsequent studies and policy formulations addressing mental health in the UK.

Complementing this, Weich et al. (2011) delve deeper into the complexity of psychiatric co-

morbidity, employing latent class analysis to unearth patterns within the data from the 2007 Adult Psychiatric Morbidity Survey (APMS) in England. This study's nuanced methodology allows for a sophisticated understanding of how different psychiatric conditions coalesce, revealing underlying structures of mental health issues that might not be apparent through more traditional analytical lenses. By identifying distinct patterns of co-morbidity, Weich and colleagues contribute to a more targeted and informed approach to mental health care, highlighting the need for interventions that address the multifaceted nature of psychiatric disorders.

Moreover, it is crucial to recognize the emerging concerns regarding mental health in younger populations. Glazzard & Stones (2021) critique the UK government's clinical approach to addressing mental health issues among children and young people, advocating for a broader, systemic response. They argue that the current focus on clinical interventions often overlooks the underlying social, environmental, and educational factors that contribute to mental health issues in this age group. This perspective is particularly relevant when considering that severe mental illnesses can manifest early in life, sometimes during childhood or adolescence. Therefore, policies and interventions need to address the broader determinants of mental health among young people, ensuring early identification and support that go beyond clinical treatment. The study underscores the importance of a holistic approach to mental health in younger populations, which is aligned with the understanding that severe mental illness can occur at any age (Glazzard & Stones, 2021).

In terms of gender, research suggests that severe mental illness affects men and women differently. For example, women are more likely to be diagnosed with depression and anxiety disorders, while men are more likely to be diagnosed with schizophrenia and substance use disorders. However, it is important to note that these differences may be influenced by factors such as societal expectations, access to healthcare, and help-seeking behaviours.

The research by White, Cooper, and Lawrence (2019) brings to light the complex mental health challenges faced by sexual and/or gender minorities, particularly those in refugee or asylum-seeking statuses in high-income countries like the UK. This intersection of gender identity with migration status introduces unique stressors that exacerbate mental health issues. The study suggests that current mental health policies may not fully address the nuanced needs

of SGM populations, highlighting the necessity for policies that are sensitive to these complexities and the way societal pressures and gender identity interplay to impact mental health.

Additionally, the austerity policies in England, as examined by Thomson, Niedzwiedz, and Katikireddi (2018), have been found to aggravate gender and socioeconomic inequalities in mental health. The research underscores that women, especially from lower socioeconomic backgrounds, bear the brunt of these austerity measures. This points towards the need for mental health policies to consider broader economic and social policies that indirectly influence mental health outcomes. The study illuminates the importance of gender-sensitive mental health interventions and policies that take into account the differential impact of economic policies on men and women.

Furthermore, Chanfreau (2022) provides a historical lens on how UK social policies have historically shaped gendered experiences, particularly in balancing work and family life. This historical perspective is vital for understanding the current gender disparities in mental health. Policies that have traditionally defined women's roles predominantly as caregivers and men as the primary earners continue to influence perceptions and treatments of mental illnesses. This perspective underlines the necessity for current mental health policies to challenge these entrenched gender norms, aiming to better address the diverse needs of both men and women. In terms of socioeconomic status, individuals from lower income groups and ethnic minorities are at a higher risk of developing severe mental illness. This may be due to a range of factors, including poverty, lack of access to healthcare, and discrimination (Chanfreau, 2022).

Socioeconomic inequalities play a pivotal role in the prevalence and management of SMI. Nazroo, Bhui, and Rhodes (2019) delve into the intricacies of how structural, interpersonal, and institutional racism contribute to these disparities. Their insights are crucial in understanding the additional challenges faced by ethnic minorities in the UK, particularly those hailing from lower socioeconomic backgrounds. The risk of being diagnosed with SMI for these groups is exacerbated by the entwined threads of racial and economic inequalities. This research paints a vivid picture of the multifaceted nature of mental health disparities, where race and socioeconomic status intersect to compound the risk and severity of mental health issues.

The impact of socioeconomic position on mental health is further illuminated by Iob et al. (2020), who studied depressive symptom trajectories during the COVID-19 pandemic. Their findings underscore that individuals in lower socioeconomic positions face heightened risks of moderate to severe depression, particularly in times of crisis. This study reveals the vulnerability of these groups to mental health disparities during periods of heightened stress and uncertainty, emphasizing the need for targeted support and intervention.

UK austerity policies, as explored by Thomson, Niedzwiedz, and Katikireddi (2018), have had a pronounced impact on mental health, with repercussions felt most acutely by women and residents of deprived areas. This research underscores how government economic strategies can influence mental health outcomes, often leading to increased inequalities. The austerity measures have not only strained the resources available for mental health support but have also disproportionately affected those who are already at a disadvantage, thus widening the gap in mental health outcomes.

The ramifications of austerity on mental health services are further examined by Cummins (2018). His work delves into how these policies have reshaped the landscape of mental health services in the UK, often to the detriment of those living in poverty, including individuals with SMI. The austerity-driven changes have led to alterations in service provision and accessibility, making it more challenging for lower socioeconomic groups to receive the necessary mental health care. This situation highlights a stark reality: as services retract or become less accessible, those most in need of support are often the ones left without adequate resources.

It is important to note that the distribution of severe mental illness in the UK is complex and multifaceted. Factors such as age, gender, and socioeconomic status all play a role in determining an individual's risk of developing severe mental illness. It is important that research and interventions take these demographic variations into account to effectively address the needs of individuals living with severe mental illness.
In addition to living and coping with the illness, people with severe mental illness must also cope with the misguided beliefs, stereotypes and prejudice that result from misconceptions

about mental illness in society. Common misconceptions held by the general population as well as health, social and academic systems include: that they are dangerous, violent or behave unpredictably (Anderson, 2003); that they are incompetent and cannot look after themselves (Chew-Graham et al., 2021); that they should be avoided socially, romantically, or professionally and that their illness is a life sentence with little or no chance of recovery (Valery and Prouteau, 2020).

People with schizophrenia and borderline personality disorder report particularly high rates of discrimination from their communities, which undermines recovery – whatever recovery means to them. Data from twenty-seven countries globally (Harangozo et al., 2014) shows that nearly half of individuals with severe mental illness report being treated unfairly by friends and family. Harangozo and colleagues recent review of stigma towards their family members living with schizophrenia found similar levels (Harangozo et al., 2014). Harangozo and colleagues found a significant proportion of individuals reported discrimination in finding or keeping a job (29%) (2014). Such discrimination has been further evidenced in several recent qualitative studies. One by Juurlink and colleagues into employment discrimination of individuals with borderline personality disorder, found that a high number of medical professionals reinforced employers' beliefs that employees with BPD could be 'bad' employees (Juurlink et al., 2022). Work by Hampson and colleagues found high rates of discrimination upon disclosure at interview, being treated differently by colleagues, less tolerance to mistakes being shown by managers, and high rates of victimisation and less support for sick leave while in employment (Hampson, Watt and Hicks, 2020).

Feminist researchers call for action to rename conditions such as BPD or schizophrenia and to abolish the framework that supports these diagnoses, asserting that BPD in particular medicalises women's emotions, trauma reactions, and behaviours in a neoliberal society. In comparison, men showing similar symptoms are more often diagnosed with schizophrenia (Sansone and Sansone, 2011). Others assert that this critical approach to these labels' risks invalidating the individuals who experience physical and mental distress that would be labelled as BPD (Johnson, 2021).

The findings by Juurlink and colleagues (2022) that 39% of individuals with severe mental illness feel disrespected by mental health staff, particularly those with BPD, is deeply

concerning. This suggests that there is a widespread issue of discrimination and prejudice within the mental health field, which has serious implications for the well-being and treatment of individuals with BPD and severe mental illness. Furthermore, the findings that mental health professionals consistently rated individuals with BPD as *"ineffective", "incomprehensible", "dangerous", "unworthy", "immoral", "undesirable to be with [romantically, professionally or socially]",* and dissimilar to the general population, highlights a lack of understanding and empathy among mental health professionals towards individuals with BPD. This is further compounded by the fact that similar views are held by potential employers, suggesting that discrimination and prejudice towards individuals with BPD and severe mental illness extends beyond the mental health field.

The methods used in the studies by Papathanasiou and Stylianidis and Juurlink and colleges should also be evaluated from a social justice lens. It is important to consider the potential biases and limitations of the methods used, and how these may have affected the findings. Additionally, it is important to consider how the representation of individuals with BPD and severe mental illness in the studies may have been influenced by the methods used. For example, if the studies primarily recruited participants from a specific demographic or location, the findings may not be generalizable to other populations (Papathanasiou and Stylianidis, 2022; Juurlink et al., 2022).

Juurlink et al (2022) employed an observational, registry-based cohort study to examine the effectiveness of Individual Placement and Support (IPS) on employment outcomes for individuals with personality disorders, including BPD. This approach allowed them to capture real-world data and outcomes, providing valuable evidence of IPS's applicability in supporting BPD individuals in the workforce. The strength of their methodology lies in its real-world applicability and direct assessment of employment outcomes, crucial for BPD individuals' societal integration. However, the study might be limited by the lack of detailed information on participant selection and measures to ensure the representativeness of their sample. These methodological specifics are essential to fully appreciate the study's implications and to generalize the findings across broader populations.

Papathanasiou and Stylianidis (2022) explored the attitudes of mental health professionals towards patients with BPD, focusing on the role of disgust through the use of self-reported

questionnaires on attitudes, disgust propensity, and sensitivity. The use of self-report measures provides direct insight into professionals' perceptions but may also introduce bias, as responses could be influenced by social desirability or personal reflection inaccuracies. The methodology effectively highlights the existence of negative biases but may not capture the full complexity of these attitudes or the broader context in which they occur. The study's importance lies in its focus on a less often explored aspect of BPD treatment—the impact of professional attitudes on care quality—yet its reliance on self-reported data and the potential for response biases present limitations that must be acknowledged.

The work of grass roots, lived experience groups such as Recovery in the Bin, highlight the importance of listening to the voices and experiences of individuals with BPD and severe mental illness, in order to challenge the negative stereotypes and discrimination they face. The co- production of research by these groups is a crucial step towards creating a more just and equitable society for individuals with BPD and severe mental illness. Overall, findings highlight the deeply ingrained negative attitudes towards individuals with severe mental illness, particularly those with BPD, among mental health professionals and potential employers. This is a clear indication of the systemic discrimination and stigmatization faced by individuals with severe mental illness in society. The fact that these attitudes are prevalent among professionals who are responsible for providing care and support for individuals with severe mental illness, is particularly concerning as it suggests that these individuals may not be receiving the appropriate level of care and support.

While this prevalent negative view of severe mental illness is one of the justifications for the research carried out for this thesis, the remainder of this section will expand on the themes outlined above. Firstly, an overview of literature regarding the complexity of the concept and definition of severe mental illness is presented. This is followed by a review of the methods that have been employed to measure severe mental illness. Finally, an overview of relevant literature regarding health, social and employment inequalities in the context of severe mental illness is also presented with a specific focus on UK based literature.

2.3.2. Defining the Concept of Severe Mental Illness

The concept of severe mental illness lacks a consensual definition and is a combination of

several different conditions that are in themselves, contested and hard to operationalise. Each condition represented within the severe mental illness umbrella only conceptualises a small percentage of what “living with severe mental illness” means to that individual, and the experience of any one of these conditions is not homogeneous either (Jenkins, 2018). For example, the condition schizophrenia is considered to only cover around 30% of poor outcomes in individuals with severe mental illness yet has paradoxically become the dominant lens through which everything “psychotic” is observed, even though schizophrenia itself sits within a much broader conceptualisation of psychosis (Barch, Karcher and Moran, 2022). Psychosis itself can also be considered its own condition as well as a symptom of other severe mental illness conditions. The inability of psychiatry to consider psychosis, or any other condition within the severe mental illness umbrella, as a multidimensional response to individual experiences hampers further research and recovery-oriented practice (Moncrieff, 2008).

Ever since their conception, severe mental illness and the conditions within have been an “essentially contested concept” (Guloksuz and Van Os, 2018). For example, the symptomatology for schizophrenia has changed little since its inception in 1893 by Kraepelin as “dementia praecox” (Kendler, 2020). For decades, biological approaches have been tested in an attempt to reverse-engineer the hypothesized disease entity of severe mental illness. However, despite claims of the existence of genes for schizophrenia or chemical imbalances, the biological findings in psychiatry, whilst fascinating, are unreliable (Guloksuz and Van Os, 2018). Guloksuz and Van Os (2018) critically address the evolution in understanding psychiatric disorders, particularly challenging the traditional views on schizophrenia's genetic and neurochemical underpinnings. They argue against the simplistic notions of "genes for schizophrenia" and the chemical imbalance theory, suggesting these perspectives fail to capture the disorder's complex, polygenic nature and the nuanced role of neurotransmitters. The authors highlight the diagnostic heterogeneity and variability in treatment responses within schizophrenia, proposing a shift towards a psychosis spectrum model. This model recognizes the broad range of psychotic experiences and their underlying biological, environmental, psychological, and social factors. Guloksuz and Van Os advocate for an integrative approach that moves beyond biological reductionism, accommodating the complexity of psychotic disorders and emphasizing the importance of a nuanced understanding that could lead to more personalized treatments and better outcomes. Their

critique underscores the need for a paradigm shift in how psychiatric disorders, particularly schizophrenia, are conceptualized, diagnosed, and treated, reflecting a broader trend towards recognizing mental health's multifactorial dimensions.

Discussion about severe mental illness and distress are dominated by the biomedical model. This speaks to the success of the biomedical model in dominating academic and mainstream understanding of severe mental illness. Many scholars, especially from grass roots and lived experience groups underscore the importance of this language in challenging the biomedical model of mental illness (Beresford, 2002).

The biomedical model's approach to understanding the mind as distinct from the body, or the mind/body dichotomy is also key to understanding the concept of severe mental illness as it defines the Western position of mental illness as a phenomenon distinct from physical illness (Fox, 2021). This dualism is normalised and exported outside of the Western medical model to other countries. However holistic understandings do not separate the mind from the body or the person from the environment (Bhatia and Priya, 2021). Pilling's work (Pilling, 2022) which drew on interviews with participants around their understandings cements this idea that these concepts, although helpful for some, can also be harmful and lead to a sense of helplessness in having others, including medical professionals, define subjective experiences in this way:

> *"Oh, mentally ill. Oh, well, I hate that one. Because that just says that some people are healthy, and some people are ill and I'm one of the ill people. And mental health is separate from physical health and it's, you know, I have mental problems. Yeah, so that one does not sit well with me. It sounds like something that a doctor would call a patient in a not-helpful way."*
>
> (Jared in Pilling, 2022, p. 67)

This changing understanding of severe mental illness as a reaction to distress experienced by many people in everyday life challenges a fundamental characteristic of the biomedical model: the categorising of people as either sane or "mad". A critique of the distinction between mad and sane and the pathologizing of those put in the category is common among scholars seeking other ways to conceptualise severe mental illness. For example, within the field of

Mad Studies, research argues that the ‘us’ and ‘them’ distinction has had a number of serious negative consequences for those living with severe mental illness, including the suppression of their lived experience, and forced medical treatment (Bentall, 2003). According to Bentall and Pilling (Pilling, 2022), evidence shows that using these binary ways of conceptualising experience leads to distress in of itself, as well as leading to dehumanisation and marginalisation, with Bentall (Bentall, 2003) summarising:

> *“We are mad to varying degrees, that the >boundaries of madness are subject to negotiation, and that some of us get on very well despite being [in psychiatric terms] quite psychotic for much of the time.”*
>
> (Bentall, 2003, p. 85).

The quote by Bentall highlights the complex and nuanced nature of mental illness, suggesting that the boundaries of madness are not fixed, but rather subject to negotiation. It also implies that individuals with mental illness can lead successful and functional lives, despite being considered “psychotic” by psychiatric standards. This perspective challenges the dominant narrative that reduces individuals with mental illness to their diagnosis and ignores the entirety of their being and accomplishments. It highlights the importance of recognizing the individuality and complexity of those living with mental illness, rather than reducing them to a single label or diagnosis.

2.3.3. Measuring Severe Mental Illness

Measuring the prevalence of severe mental illness can be difficult due to conceptualisation issues, but also due to the nature of the conditions within severe mental illness. Onset can happen suddenly, and individuals may present at a number of places, including local accident and emergency department (A&E), general practitioner (GP) surgeries, self-referral to low-intensity mental health teams, third-party mental health partners, or not present at all until after initial symptoms have subsided. All of these points of contact can result in different treatment routes and data appearing in a number of different datasets under a number of different codes. Measurement and capture at the three different stages of psychosis vary widely, with the capture of the initial prodromal phase often poorly measured due to a relatively long build-up

and misunderstanding among generalist primary care staff (Zhang et al., 2022).

One issue that calls into question how we measure severe mental illness is the validity and reliability of psychiatric labels and the language used to quantify these subjective experiences. Boyle in 2011 (p. 32) writes that "linguistic devices" are crucial in grounding social context, because using language is:

> *". . . the quickest way of implying lack of intelligibility and suggesting a pathological or deficient individual."*
>
> (Boyle, 2011)

Boyle is referring to the language of psychiatric labels used by mental health practitioners and researchers and acknowledges that dispensing with the medical language that dominates everyday distress would be difficult. Pilling (2022) notes that it can be even more difficult for those who are medicalised and part of a power imbalance to insist on an alternative language in psychiatric settings. Yet Pilling's work found that participants indicated a resistance to the biomedical terminology of psychiatric labels and ways of understanding (Pilling, 2022). It is, therefore, important to explore the implications that arise when biomedical model language is challenged. As Beresford notes:

> *"... the interest of mental health service users in exploring different conceptual frameworks and approaches has become visible through their development of a different language, which replaces the idea of 'mental illness' with terms like 'madness' and 'mental distress.'"*
>
> (Beresford, 2019)

The term "survivor", Beresford argues, is a more empowering and accurate term to describe individuals who have experienced mental health issues. Beresford and others have highlighted that the term "patient" implies passivity and a lack of agency, whereas "survivor" emphasises the resilience and strength of individuals who have navigated the mental health system. There is a growing body of literature on the use of the term "survivor" in the context of mental

health, which has helped to shift the dominant narrative away from one that portrays individuals with mental health issues as helpless and dependent, towards one that recognizes their agency and ability to overcome adversity.

The ways in which participants in Pilling's work discussed these matters indicated that language use in formation of identity when living with severe mental illness are complex and sometimes contradictory (Pilling, 2022). For example, even participants who spoke about rejecting medicalised ways of understanding themselves and their mental health, often used diagnostic labels to make parts of their experience comprehensible, which typifies the difficulty of untangling mental distress from medicalised language. In some cases, this is due to the permeation of psychiatric labels into everyday language, especially labels such as "depression" and "anxiety" (Shemtob and Mujong, 2021). However psychiatric labels can also provide a quick way of making sense of particular experiences that do not have other readily available names, even when participants questioned the legitimacy of such labels (Pilling, 2022). This is indicative of the ways in which ideals that can be theorised as discrete are not necessarily experienced as such, and that identifying with such is not a static process, but one that shifts over time (Shemtob and Mujong, 2021; Pilling, 2022).

These mixed feelings about psychiatric labels stem from the critique of the biomedical model and the challenges to the scientific validity of psychiatric labels as a categorisation system. Those, especially within the Mad Studies and lived experience fields claim that the evidence overwhelmingly supports the argument that mental distress, and especially severe mental illness, is an understandable response to structural oppression, trauma, and adverse life experiences (Bentall, 2003; Watts, 2019; Schäfer and Fisher, 2022), or at least shares space with the chemical imbalance and genetic predisposition theories. Some have also pointed to the increased pathologizing of everyday behaviours, emotions, and experiences of distress, such as the recent inclusion of "prolonged grief disorder" in the ICD-11 which has seen increasing use during COVID-19, something that has made some clinicians and researchers uncomfortable (Ratnayake, 2021). There is also the critique that points to the Mad Studies scholars have also pointed to the gendered, classist, and racist character of psychiatric labels (Fernando, 2010).

Mad Studies, a growing interdisciplinary field of study, has brought attention to the ways in

which psychiatric labels are not neutral, but are instead shaped by societal power dynamics. Other Mad Studies scholars, such as Cooper and Chrisman, have also shown how psychiatric labels are used to marginalize and oppress already marginalized groups, such as people of colour and those living in poverty (Beresford, 2002; Antic´, 2022)

In particular, Antic, in his work *"Decolonizing Madness",* has highlighted how psychiatric labels and practices have been used as a tool of colonialism and continue to perpetuate the oppression of colonized peoples. He argues that the dominant Western understanding of mental health is inherently Eurocentric, and that alternative understandings and practices must be considered in order to truly decolonize mental health. Similarly, Redikopp has explored the intersection of race and psychiatry in her work, showing how Black people have been disproportionately diagnosed and treated for mental illness within the speciality (Redikopp, 2021). She argues that this is due to the ways in which Blackness is pathologized within the medical and psychiatric fields and the ways in which Black people's experiences of mental distress are not understood or validated within these fields. Together, the work of these scholars, along with others in Mad Studies demonstrate the importance of considering the ways in which systems of power and oppression shape and are perpetuated through psychiatric labels and practices, and contribute to a growing body of literature that challenges dominant narratives about mental health and highlights the ways in which psychiatric labels are deeply intertwined with systems of power and oppression (King, 2019; Redikopp, 2021).

It is also important to note that those who dispute the medicalisation of their experiences, or the reliability of their psychiatric label can be seen to be lacking "insight". Showing a lack of insight is sometimes seen by health care practitioners as a cornerstone of severe mental illness, especially the psychosis conditions (Guidry-Grimes (2019). It can then be unsafe to disagree with the psychiatric label given, as this is then seen as a sign of illness and can lead to further medicalisation and coercive treatment (Mills, 2014). This is especially the case for those who are marginalized by racism, classism, homophobia, and other kinds of oppression (Pilling, 2022). Further, a diagnosis is often required for receiving accommodations in the workplace and in education, as well as for more success in navigating the benefits system (Pybus et al., 2021). This can create a necessity to acquire a diagnosis even if it is not desired or experienced as otherwise unhelpful (Mills, 2018; Kinderman, 2019).

Lister et al. (2021) explored the determinants of diabetes outcomes in people with SMI. Their mixed-methods approach, combining analysis of primary care records and qualitative interviews, revealed that individuals with both SMI and diabetes generally experience poorer health outcomes and receive less comprehensive healthcare compared to those with diabetes alone. This study underlines the importance of considering co-morbid physical conditions in the context of SMI and tailoring healthcare services accordingly.

The issue of standardizing mental health measurement was critically examined by Patalay and Fried (2020). They highlighted the potential drawbacks of mandating standardized mental health measures, such as the risk of limiting the scope of research and the difficulties in transferring scales across different contexts. This perspective is crucial in understanding the challenges in applying universal measures to the diverse manifestations of SMI.

Jacobs et al. (2020) focused on the quality of primary care for people with SMI and its impact on health outcomes. They discovered that higher performance on Quality and Outcomes Framework measures and better continuity of care were associated with improved outcomes, suggesting that enhancing primary care quality could be key in managing SMI more effectively and potentially reducing healthcare costs.
The validity of SMI diagnoses in the UK Hospital Episode Statistics (HES) data was assessed by Davis et al. (2018). Their findings indicated that HES records are a reliable source for indicating a mental disorder and providing reasonable certainty in diagnostic categorization. This validation is essential for research relying on administrative data to study SMI.

Finally, Glanville et al. (2020) investigated the enhancement of major depressive disorder diagnosis validity in the UK Biobank. They suggested that using multiple observations of depression from varied sources could serve as a reliable proxy for determining case status. This approach, utilizing a suite of measures, provides a more robust method for identifying and categorizing depression, a common component of SMI.

2.3.4. Severe Mental Illness and Inequality

The biomedical model assumes that in order for social phenomena, such as severe mental illness, to be “real”, they must be based in biology – for example, the gene or chemical

imbalance theory - despite the fact that many of the social constructs that surround lives like time and money are clearly real and have significant impact outwith of these theories (McGrath, Griffin and Mundy, 2016).

The ways in which people understand mental illness change according to culture and across social contexts, and these shifting social constructs are not biological. Yet, severe mental illness is real, and society is organized around these concepts in a way that produces material consequences (Ang, Horowitz and Moncrieff, 2022). As Ang and colleagues in their 2022 work argues, the chemical imbalance theory and biomedical model often results in assumptions that for distress and suffering to be taken 'seriously', it needs to have a biological basis for treatment, which is a dangerous assumption.

Many people draw attention to the ways in which structural oppression and their life experiences have played a direct role in their mental distress (Wadman et al., 2018; Wright, Fletcher and Stewart, 2020). This is in contradiction to the biomedical model, which places distress in the individual, attributing the cause to biology, such as chemical imbalances, rather than considering the social constructs and life experiences that can contribute to distress and behaviours that get labelled as symptomatic of mental illness (Pilling, 2022). Johnson in their 2021 paper argues that the individualisation of distress pushed by the biomedical model silences those labelled "mad" and also fails to account for the structures and dynamics that can lead to experiences of severe mental illness in a capitalist, neoliberal society (Johnson, 2021).

Evidence connects economic inequality and poor mental health (Wilkinson and G., 2010). With experience of socioeconomic disadvantage, including unemployment, low income, precarious employment, poverty, and poor housing consistently associated with poorer mental health outcomes (Elliott et al., 2014). The work by Ralston and Formby in 2020 found that there has been a significant shift in the occupational position of young people in the UK, particularly in the wake of the Great Recession. Their findings suggested that there had been a reduction in regional inequality in the level of jobs young men and women are doing, with young men experiencing a disproportionate loss of less advantaged occupations and young women experiencing a dis- proportionate loss of more advantaged occupations (Ralston and Formby, 2020). This shift in occupational position has important implications for mental health outcomes, as research has consistently shown that socioeconomic disadvantage,

including unemployment and low income, is associated with poorer mental health outcomes. Thus, the changes in occupational position for young people in the UK may be contributing to increased mental health disparities and inequality (Elliott et al., 2014).

Severe mental illness and common mental health disorders are particularly prominent in already marginalized groups who experience social exclusion, shame, discrimination, and trauma, which in turn leads to compound vulnerability – which is when systemic or institutional conditions intersect to create additional barriers in overcoming distress (Marzetti, McDaid and O'Connor, 2022). For example, significant relationships have been found between higher income inequality and low levels of access to green space and higher incidence rates of severe mental illness conditions like schizophrenia – the "urbanicity-psychosis" association (Fett, Lemmers-Jansen and Krabbendam, 2019; Ku et al., 2021). With Grandison and colleagues (Grandison et al., 2022) work further supporting the vulnerability link between socioeconomic status, childhood trauma and employment status and increased risk of suicidal behaviour. Spiers et al. (2012) work analysed data from the National Psychiatric Morbidity Surveys (1993-2007) to reveal how more common disorders like depression, had prevalence that also varied across age cohorts, indicating the significant impact of age and societal context on mental health outcomes.

Pickett and Wilkinson's seminal 2010 research delves into the intricacies of how economic inequality correlates with mental health outcomes across societies, employing an epidemiological methodology that underscores the robustness of their findings. Their approach involved a comprehensive analysis of data across multiple countries, enabling them to draw comparisons between societies with varying levels of economic inequality. By examining broad datasets, they could identify patterns and correlations that provide compelling evidence of the impact of economic disparity on mental health.

In their comparative analysis, countries like the UK, characterized by high levels of economic inequality, were juxtaposed with nations like Finland, known for their relatively low economic disparity. This cross-national comparison allowed Pickett and Wilkinson to observe that in societies where income distribution is more equal, such as Finland, there tends to be a lower prevalence of mental health issues among the population. This contrast with more unequal societies, like the UK, where a higher degree of social stratification and economic insecurity

contributes to worse mental health outcomes.

The strength of Pickett and Wilkinson's epidemiological approach lies in its ability to utilize large-scale population data, offering a broad perspective on the societal factors influencing mental health. By leveraging data from various countries, their research provides a global overview of the relationship between economic inequality and mental health, highlighting the universal benefits of reducing economic disparities.

Their findings suggest that economic inequality exacerbates social comparison and status anxiety among individuals, contributing to increased stress and insecurity. This, in turn, adversely affects mental health, indicating a direct link between the structure of society's economic systems and the well-being of its members. Pickett and Wilkinson's work not only sheds light on the critical impact of economic inequality on mental health but also emphasizes the necessity of addressing economic disparities as a fundamental component of public health strategies aimed at improving mental health outcomes.

Shame, both internal and external is central to many forms of emotional distress, especially in those experiencing inequality and severe mental illness or common mental health disorders. It is associated with developing depression and anxiety and disconnect from the community and support networks (Callow, Moffitt and Neumann, 2021). Prolonged humiliation and shame following trauma have been shown to more than double the chances of developing clinical depression and cPTSD (Salter and Hall, 2020). Therefore those, particularly at risk, are those whose changes in circumstances place them in poverty, such as through job loss (McGrath, Griffin and Mundy, 2016). Fear and distrust also play a part in vulnerability and particularly in severe mental illness and often occurs when a person feels in danger either physically or emotionally (Frieh, 2020).

Blaming individuals for their relegation and situation while promoting the idea that those who receive help from a system – be it medical, particularly mental health, or welfare or social systems are untrustworthy, directly promotes societal distrust of this group, for example the mistrust of those seeking treatment for BPD, or benefits claimants as “time wasters”, (Mills, 2018; Papathanasiou and Stylianidis, 2022) while also fostering distrust in these individuals through poor funding of their communities which could be deprived (Frieh, 2020).

Additionally, research has also shown that individuals living in poverty are more likely to experience discrimination and stigmatization, which can lead to poor mental health outcomes (Mills, 2015). Overall, the evidence suggests that societal systems and structures that promote inequality and marginalization, including poor funding of marginalized communities and stigmatization of individuals seeking help, contribute to poor mental health outcomes.

Research has also shown that less trusting societies are less equal socially and have subsequent higher rates of mental health issues (Wilkinson and G., 2010). Low levels of individual trust can also increase the chances of a depression diagnosis by half. While those that live in neighbourhoods with elevated levels of distrust and deprivation have an increased risk of poor mental health (Mcelroy et al., 2019).

A facet of inequality linked to living with severe mental illness is the link between severe mental illness and poor physical health. Research by Seeman still finds that those diagnosed with schizophrenia die on average, twenty years earlier than the general population (Seeman, 2019). Around 80% of these deaths are related to "natural causes" such as cardiac issues, and the remaining 20% attributed to suicide or violence against the individual – those living with severe mental illness are more likely to be murdered than commit murder as is often portrayed in the press (Thornicroft, 2020). Likely conditions that contribute to early death are cardiovascular disease, including coronary heart disease, vascular disease, and stroke (Seeman, 2019); metabolic disease, such as complications from diabetes (Ventriglio et al., 2015); respiratory disorders, some cancers and infectious diseases, such as HIV, and Hepatitis C have all been linked with severe mental illness. Other physical health complaints while not life-threatening, but still effect everyday life as well as social and professional relationships can include sexual dysfunction, incontinence and dental and oral hygiene complaints.

These can all be extremely personally distressing and socially isolating. While much of this burden can be attributed to the nature of severe mental illness as well as side effects of the treatments, burden also undoubtedly occurs due to the sometimes-unsatisfactory organisation of the health services, attitudes within the medical profession, and societal stigma attached to individuals living with severe mental illness. Those living with psychosis are two to three times more likely to develop the sub-diabetes mellitus than the general population, yet the condition often goes unrecognised by their primary care team for years (Morris, 2017).

Another study by Manu and colleagues in 2015 found that individuals with schizophrenia and no history of diabetes when screened, 10% were subsequently diagnosed with type 2 diabetes and a further 38% were at elevated risk of developing it (Manu et al., 2015).

This highlights that physical health complaints, while not life-threatening, can still greatly impact an individual's quality of life and can be socially isolating. Additionally, it suggests that the burden of these health issues is not only due to the nature of severe mental illness and side effects of treatment, but also due to the sometimes-unsatisfactory organization of health services, attitudes within the medical profession, and societal stigma attached to individuals living with severe mental illness. Furthermore, individuals with severe mental illness are more likely to develop diabetes and are often not diagnosed by their primary care team for years, and when screened, a significant percentage are at high risk of developing it. This implies that there is a lack of attention and insufficient screening for physical health issues among those living with severe mental illness, which may be a result of societal stigma and negative attitudes towards these individuals.

Within Scotland, a review of 314 general practices compared the extent and type of physical health comorbidities in a sample of 9,677 patients with psychosis and schizophrenia to 1,414,701 controls (Smith et al., 2013). They found that patients with psychosis and schizophrenia were more likely to experience comorbid physical conditions, especially hepatitis, constipation, and Parkinson's disease, than their controls, but that recognition and treatment of these physical health complaints were delayed leading to move severe symptoms before treatment.

Medication to treat some severe mental illness, also known as an antipsychotic medication, could also cause several metabolic abnormalities. Weight gain, diabetes (Monnelly et al., 2015), or neurological disorders, for example, acute tardive dyskinesia and cardio abnormalities (Mangurian et al., 2016) have all been recorded. Obesity prevalence within individuals with psychosis has increased in recent years in comparison with the general population, which in itself has also seen a dramatic increase in obesity incidence (Ng et al., 2014). There are a few diseases-specific factors that may cause this propensity in individuals with psychosis, such as increased genetic susceptibility. However, the one factor most likely to cause this weight gain is the use of antipsychotics (Bak et al., 2014; Raben et al., 2017).

Recognising the effects of these obesogenic drugs is important as the subsequent weight gain can cause a number of physical health problems, including insulin resistance (Burghardt et al., 2018), dyslipidaemia (Delacrétaz et al., 2017), and hypertension (Manu et al., 2015).

The true impact of antipsychotics on weight gain may have been underestimated due to the lack of comprehensive critical evaluation specifically in the diagnosed population never before exposed to antipsychotics. Many trials only employed short follow up times with the older, long-term diagnosed psychosis population, many of whom had previously been exposed to antipsychotic use during their 'heyday'. Qualitative work by Morant and colleagues (Morant et al., 2018) highlighted users views on taking antipsychotics, which backed the other studies in having negative effects outwith of the mental health diagnosis:

> *"I've developed social phobia, I've developed diabetes, I've got blood pressure, I ain't got many friends. . . it [medication] just ruins your life. . . it makes me lazy. It makes me groggy, first week it's just like your body's hurting, you've got no motivation, makes you lazy . . . It's just the pain in the body. If you go to the gym the next day, it's double the pain, your legs are hurting from the medicine. . . The medicine hammers you more than the spirits in my life."*
>
> (Int12 in Morant et al, 2018, p. 3)

2.4. Understanding Severe Mental Illness and Employment Outcomes

This section reviews relevant literature regarding employment outcomes and severe mental illness with a focus on the UK. An overview of the main context is provided before more in-depth reviews of the main themes arising from this: concepts of economic (in)activity and the encroachment of psychiatry on the world of work, and the impact (un)employment can have on an individual's mental health.

2.4.1. Social Context of Employment for Severe Mental Illness

Increasing employment levels by moving individuals into work, either supportively or punitively, and reducing social security spending has been a key policy concern for some time in the UK (Cohen and Samzelius, 2020). It is underpinned by the view that participation in employment is a route out of poverty, as well as an effective way to improve health (Frayne, 2019). Within public policy and health circles, there have been heated debates over the question *"is work good for health?"* (Waddell and Burton, 2006), with some arguing that the negative aspects of employment on the individual have been side-lined (Stewart, 2021). This is especially prevalent with the fall of some traditionally 'unhealthy' jobs, for example, coal mining, and the rise of new jobs considered unhealthy, especially mentally, for example, zero-hour contracts, low pay, 'flexible' contracts (Gheyoh Ndzi, 2021).

Individuals with severe mental illness like psychosis and BPD have difficulty in finding and retaining employment due to the challenges of dealing with their condition. They often find it difficult to balance the demands of the job with activities of daily living (including getting to and from their place of employment) and, at times, these demands can provoke their illness. Studies show that the jobs that people with severe mental illness do are mostly low paying, limited hours and with few opportunities for career progression and improvement in social standing (Sabella, 2021). Studies consistently reveal that individuals with severe mental illness face poor employment outcomes (Holm et al., 2021), yet obtaining paid employment remains a significant personal and social goal for them, often signalling a crucial milestone in their recovery journey (Balaji et al., 2012). This aspiration is also recognized as vital by healthcare and social service professionals who support individuals with severe mental illness (Chan et al., 2018; Choi et al., 2020; Eads et al., 2021).

Most people living with severe mental illness have the desire to work, but they are more likely to experience adverse employment outcomes than people without severe mental illness or common mental health disorders (Holm et al., 2021). The literature indicates that employment rates for people with severe mental illness is much lower than the general population, sitting at 12.9% in the United Kingdom. These findings indicate that severe mental illness has a significant economic burden on the individual, their families and health and social systems (Holm et al., 2021).

Studies looking into full-time employment of those with severe mental illness found those in employment ranging from 25% to as low as 2% (Chan et al., 2018). Furthermore, after entering employment, the rate of resignation in people with living with severe mental illness within one year was more than 70%, with a mean duration of staying in the job between 3 to 6 months, with reasons for resigning including a lack of motivation, stress, and difficulties with social, professional and romantic relationships (Choi et al., 2020; Park, Konge and Artino, 2020). A synthesis by Kinn and colleagues further supports these findings in their analysis of 16 qualitative studies published between 1990 & 2011. Their work was conducted to pinpoint the enablers and barriers of employment in people living with severe mental illness.

Major themes identified were similar to Choi and colleagues in 2020 and included fighting inertia brought on by their condition, the lack of encouraging peers, managers or mentors, taking control or feeling the loss of control, disruption in their work due to dealing with the day to day realities of their illness, lack of opportunities and support in the workplace, managing the fallout from self-disclosure in the workplace, general environmental factors, clarity of their work roles & lack of social cohesion (Kinn et al., 2014; Choi et al., 2020).

Historically, the Disability Discrimination Act (DDA) of 1995 marked a pivotal moment in UK policy, offering significant protections for individuals with disabilities, including mental illnesses, across various sectors like employment and education. However, the implementation and effectiveness of the DDA, particularly in the context of severe mental illness (SMI), present a complex picture.

Glozier (1999) highlighted the DDA's aim to alleviate the challenges faced by those with mental impairments in employment and other areas. However, a critical gap identified was the lack of awareness among individuals with mental illness about their rights under the Act. This lack of awareness potentially undermines the Act’s ability to effectively protect these individuals.

Further delving into workplace accommodations, McDowell and Fossey (2015) examined how the DDA facilitates support for people with mental illness. They found that flexible scheduling, modified training, and tailored supervision are among the common accommodations. Yet, they also noted significant challenges in demonstrating the benefits of

these accommodations and stressed the need for more accessible information on how the legislation applies to people with mental illness. This suggests that while the framework for support exists, its practical application and visibility remain problematic.
Sayce and Boardman (2008) underscored the DDA's role in establishing good practices and stimulating systemic changes. They emphasized the importance of addressing broader systemic disadvantages, such as inequalities in physical health, which often co-occur with mental health issues. This perspective implies that a holistic approach, encompassing both mental and physical health aspects, is crucial for effective policy implementation.

James (2004) offered a critical analysis of the DDA's effectiveness in protecting individuals facing discrimination due to mental illness. The paper argued that while the DDA offers some level of protection, it fails to fully encapsulate the diverse and complex nature of mental health conditions and the associated stigma. This points to a need for innovative approaches that recognize and accommodate the multifaceted nature of disability.

Collectively, these studies suggest that while the DDA has initiated positive changes, its implementation and effectiveness in the workplace, especially for individuals with SMI, are marred by challenges. These include limited awareness of rights, inadequate documentation of the benefits of workplace accommodations, and a lack of comprehensive strategies that address the complexities of mental illness. A nuanced understanding of the DDA's role is essential for shaping more effective policies and practices that genuinely support individuals with SMI in employment.

2.4.2. Conceptualizing Recovery & Employment for Severe Mental Illness

It is hard to disentangle the concepts of economic activity and inactivity, employment, and unemployment from the infringement of psychiatry within this sphere, especially for those living with severe mental illness. Some argue that this has been a key goal in a capitalist society as it legitimised and normalised not only the increased consumption of goods as an indicator of success, but the normalisation of exploitative and unequal working relationships and work as an indicator of *"recovery"* for those with severe mental illness (Frayne, 2019; Recovery in the Bin, 2022).

Cohen in his 2016 work argues that psychiatry's role has only moved from the social control exerted in asylums – in which *"work therapy"* was popular (Rissanen, 2018) – to reinforcing workfare ideologies within the individual, much like distress, onto precarious workers in a neoliberal and capitalist society (Friedli and Stearn, 2015; Mills, 2018). With the decline of traditional manual labouring jobs and the rise of white-collar jobs, the labour force was under pressure to adapt and upskill to new social and critical thinking skills. Elraz (2013) uses the term the *"sellable self"* in which the individual must perform the constant expectation that they will manage their impression, promote themselves and sell themselves on the labour market as a product with no faults, weaknesses, or limitations. Through this, psychiatric intervention was encouraged, either to produce a *"happy worker"* or to encourage those already living with severe mental illness to conform to these new expectations (Frayne, 2019). This idea of positive thinking has been interwoven into the experiences of many going through the benefits system, whether they can work or not (Scholz and Ingold, 2021).

Cohen (Cohen, 2016) argues that what is seen as negative thinking by employers, work coaches, and mental health professionals is the ability to engage critically with one's personal circumstances within a wider social and political context. This is particularly relevant for individuals living with severe mental illness as they may have a deeper understanding of the societal and political factors that contribute to their experiences. Cohen suggests that this type of thinking is often misunderstood and dismissed as negative, rather than recognized as an important aspect of understanding one's own experiences and the broader societal issues that affect them. This is at odds with the view of the economically active or inactive individual in a neoliberal society, with the mental health professions seeking to place the distress within the individual themselves as a failure to conform to the new notion of positive thinking (Recovery in the Bin, 2022).

In contrast to these views, mental illness can be seen to be the complete opposite in the workplace, with individuals struggling with poor relations, professional and social, *"negative"* traits such as being introverted, pessimistic, shy, or low mood. Some scholars have viewed this through the lens of Marxism and note that the increasing alienation of the workforce in a neoliberal, capitalist society leads directly to greater incidence of mental illness (Rosenthal and Campbell, 2016). For example, Koyanagi et al. (2015) examine the prevalence of

subclinical psychosis in the English adult population and its potential link to suicidal behaviour, providing insights into the hidden burdens that may affect individuals' performance and stability in the workplace. Their analysis indicates that even subclinical levels of psychosis, which might not meet the criteria for a full diagnosis, are significantly associated with suicidal ideation and attempts. This underscores the importance of recognizing and addressing lesser degrees of mental health issues within employment policies and support structures, as they can have profound effects on workplace participation and productivity.

Similarly, Stickley et al. (2016) focus on the association between ADHD symptoms and suicidal behaviours in adults, highlighting another dimension of how specific mental health conditions can impact individuals' engagement with the labour market. Their findings suggest that the presence of ADHD symptoms, regardless of a formal diagnosis, is linked to an increased risk of suicidal ideation and attempts. This association points to the broader challenges faced by individuals with ADHD in managing day-to-day tasks and stresses, including those related to employment.

Whereas Cohen argues that the context of the mental health and employment systems also need to be considered, that the narrative that precarious conditions experienced are inevitable, with recent psychiatric labels increasingly absorbing this narrative in relation to employment and recovery (Cohen, 2016). Instead of reassuring individuals that the widening power imbalances in work are real, the changing nature of psychiatric labels encourages individuals and professionals to view the problem within themselves, rather than an issue inherent to wider societal context (Pilling, 2022). Some examples of psychiatric labels which problematises undesirable behaviour within the workforce are BPD and generalised anxiety disorder (Rimke, 2018).

As Pilling in 2022 and Rimke in 2018 in argued, the mental health system does not exist in a vacuum but has a track record of upholding the current societal norms and expectations through its work (Rimke, 2018; Pilling, 2022). When certain individual behaviours are viewed as societally unacceptable, especially within a neoliberal society, the mental health system individualises and pathologizes this behaviour, a current example being personality disorders (Watts, 2019) and a historical example being hysteria. Taking hysteria as an example, Novais and colleagues briefly discuss the historical context where they argue that the term has

reflected societal views about health, religion and relationships of women in particular (Novais, Araujo and Godinho, 2015).

The term was used in ancient cultures as a catch-all for socially unacceptable behaviour in woman, to its being redefined as *"neurosis"* by Charcot (Waraich and Shah, 2018), to Freud redefining it as a re-experiencing of past psychological trauma (Freud, 1909). Then histrionic personality disorder (HPD) first made an appearance in the Diagnostic and Statistical Manual of Mental Disorders III (DSM-III), the only disorder that kept the term derived from the old concept of hysteria, and is still present in the most recent iterations of the DSM V and ICD-11 (Novais, Araujo and Godinho, 2015; Gaebel, Stricker and Kerst, 2020). The success of the mental health system in constructing this psychiatric label is seen in the larger number of individuals self- identifying or seeking treatment for these behaviours. That is the ultimate placement of distress within the individual, to the extent their personality is *"disordered",* their traits *"non-sellable"* on the labour market, with many employers holding negative views of disgust towards those with personality disorder (Papathanasiou and Stylianidis, 2022) while ignoring the social and political contexts around them. Rimke in 2018 argues that socially acceptable behaviour, especially in woman, has been narrowed to such as extent that being extroverted and socially active within a community – social or professional – is not just desirable, but obligatory (Appignanesi, 2011).

Cohen in 2016 points out this pathologizing of behaviour reflects neoliberal capitals societies desire for *"emotional labour"* within the work force (Cohen, 2016). From the mental health system utilising work as a form of *"therapy"* for idleness in the asylums to encompassing dominant neoliberal ideals of employability and productivity in the current DSM and ICD. Reinforcing the ideological view for workers to locate their distress as an individual problem rather than their reality of exploitation under capitalist society (Appignanesi, 2011).

Building on these concepts of employment and severe mental illness, it's crucial to examine the specific UK policies and initiatives that have been implemented to support individuals with severe mental illness in the workplace. Firstly, the Mental Health First Aid training initiative, led by Mental Health First Aid England, aims to increase awareness and understanding of mental health issues in the workplace. This initiative trains designated individuals in recognizing and responding to signs of mental health issues, thereby helping to

reduce stigma and facilitate early intervention. This approach plays a significant role in creating a more supportive and understanding work environment for individuals with SMI (Mental Health First Aid England, 2021).

However, the effectiveness of such policies is not without challenges. Barnes and Mercer (2005) indicate significant gaps in employer awareness and willingness to accommodate employees with SMI. Their research underscores the persistent need for more robust policy development and effective implementation. This ensures that legal protections and support measures translate into tangible benefits for individuals with SMI in the employment sector (Barnes and Mercer, 2005).

Several recent studies have shed light on the impact of Mental Health First Aid (MHFA) training on workplace mental health awareness. One such study conducted by Schoultz et al. in 2022 focused on UK nursing homes and found that Psychological First Aid training had a significantly positive effect on coping efficacy among healthcare workers. This result indicates that MHFA training can play a pivotal role in improving workplace mental health awareness, suggesting that it contributes positively to the overall well-being of employees in professional settings. The study underscores the importance of such training in enhancing the understanding and responsiveness of healthcare workers towards mental health issues within their workplace.

It is important to acknowledge that MHFA training is not without its challenges and limitations. A systematic review conducted by Forthal et al. in 2021 examined the behaviours of MHFA trainees and their impact on recipients' mental health. The review discovered mixed effects on trainees' utilization of MHFA skills and no significant impacts on the helpfulness of trainees' actions or the mental health of recipients. This study underscores the complexities and difficulties in effectively implementing MHFA training programs, highlighting the need for ongoing refinement and adaptation to ensure their effectiveness.

These studies collectively underscore the significance of MHFA training initiatives, such as those led by Mental Health First Aid England, in promoting mental health awareness and understanding in the workplace. However, they also highlight that the effectiveness and implementation of such programs can vary widely. Challenges related to uptake, trainee

behaviour, and the actual impact on mental health outcomes necessitate continuous improvement and adaptation of these initiatives to cater to the diverse needs of different workplace environments.

While initiatives and policies like MHFA training represent significant steps towards supporting individuals with SMI in the workplace, their success hinges on continuous efforts in raising employer awareness, willingness to accommodate, and effective application of these policies in real-world settings.

2.4.3. The Impact of Economic Activity on Mental Health

Contrary to other departures from the labour market, such as leaving to study, or parental-based leave after a birth, unemployment departure seems to have the most negative consequences for those affected, particularly in relation to mental health (Moore et al., 2017; Brouwers, 2020), with the duration of the unemployment period seemingly connected to the amount of distress experienced. Thill and colleagues found that longer periods of unemployment eventually resulted in a 'plateauing' of symptoms experienced by those with common mental health disorders (Moore et al., 2017; Thill, Houssemand and Pignault, 2019). In the case of those living with severe mental illness, longer periods of unemployment were associated with a further deterioration in symptoms, and an increase in distress (Choi et al., 2020).

Work by Milner and colleagues (Milner, Page and LaMontagne, 2014) described a strong association between length of unemployment and distress experienced, with longer unemployment periods also associated with a significantly higher risk of suicide even before adjustment for prior mental health conditions (Milner, Page and LaMontagne, 2014). This link between economic activity or inactivity and increased distress resulting in suicide has been a topic of increasing concern, especially for those caught within a punitive welfare system, dealing the stigmatisation of being a benefits recipient, and dealing with the view that links social value with 'productivity' while conceptualising welfare entitlement as an economic burden that must be stopped (Bailey, 2016; Cohen, 2016).

This demonisation of the non-employed, whether economically active or inactive, has become increasingly dominant in the UK and the significant psychological impacts are well documented. Work by Williams in 2021 found that punitive welfare policies such as benefits sanctions, which policymakers claimed would lead to positive societal and individual impact following positive employment outcomes, in fact had the opposite effect. Analysis found that sanctions lead to an increase in self-reported anxiety and depression, as well as an increase in prescriptions for depression, with negative impact particularly evident for sanctions of a longer length (Williams, 2021). Qualitative research backs these results, finding an overarching link between these punitive policies and negative effects on individuals mental health, physical health, social and cultural capital (Mills, 2018; Wright, Fletcher and Stewart, 2020; Stewart et al., 2020; Ploetner et al., 2020; Jamieson, 2020; Allan et al., 2021).

Just as type of employment can have an impact on an individual's mental health, the quality of their employment can also have an effect on their mental health, which can be particularly relevant for those managing a severe mental illness (Sabella, 2021). Previous research has highlighted the adverse effects which being in a precarious position within the labour market brings. Insecure employment such as zero-hour, 'flexible' contracts, and shift work has been shown to be particularly bad for individuals' mental health, security and social standing (Keely, 2021).

This work by Ralston and colleges in 2022 assessed levels of employment scarring for those aged 36–39, at Census 2011 (considered prime employment years) who were recorded as NEET when aged 16–19 at Census 1991 in Scotland. They found evidence that NEET status led to long-term scarring associated with economic inactivity and unemployment and that this was only partially offset for those who moved from NEET in 1991 to be economically active in 2001. Additionally, the results also highlighted the gendering of NEET outcomes, showing that this is not just a problem of administrative convenience but one that captures a group who experience disadvantage (Ralston et al., 2022). This is in line with the findings of Henderson and colleagues who found in their longitudinal Next Steps study of 7,700 young adults, that those in insecure employment, such as zero-hour hospitality work, reported feeling less psychologically healthy, and were more likely to report a mental illness than their employed counterparts with contracted guaranteed hours (Henderson-King and Smith, 2006). These findings highlight the importance of NEET as a marker of long-term disadvantage and the

need for policies and interventions to address this issue.

Work by Cooper and colleagues (2011) using the adult psychiatric morbidity survey also looked into age, treatment and mental health disparity when engaging in economic activity. This study dissects the treatment landscape for Common Mental Disorders (CMDs) across various age groups in England, shedding light on disparities in access to and types of treatment provided. Such disparities are particularly relevant in understanding the broader impact of CMDs on employment outcomes, as the effectiveness of treatment modalities directly influences individuals' ability to engage in the workforce. Cooper et al.'s findings underscore the necessity for age-sensitive treatment strategies that not only address the immediate mental health needs but also consider the long-term employment implications for those suffering from CMD (Cooper et al., 2011).

Modini and colleagues systematic review on the benefits of ‘good’ employment for those with severe mental illness also supported this view. They state that secure employment could help in the recovery from severe mental illness, with mental health outcomes being positively associated with favourable workplace conditions and good-quality supervision, and insecure employment potentially contributing to worsening symptoms (Modini et al., 2016). However, of the eleven studies identified in their systematic review, only four were deemed to be of moderate quality, calling into question their findings based on the quality of the evidence used. Marwaha and colleagues looked into the contribution of employment to the recovery of individuals living with severe mental illness and they found overall levels of employment for individuals with schizophrenia has declined in the past 50 years. Working was correlated with positive outcomes in social functioning, symptom levels, quality of life, and self-esteem (Marwaha and Johnson, 2004).

A recent qualitative study by Poulter and colleagues (Poulter et al., 2022) into in-work poverty, mental health and health behaviours found that, for those with mental health issues, poor quality work led to poorer health behaviours, due to overloaded cognitive functioning: for example, having to plan for unexpected bills, organize food and arrange childcare while managing restricted finances, practical barriers, and work stress. This resulted in health behaviours borne out of necessity for some participants, including giving up food so their children could eat, foregoing dental and eye exams due to cost, and viewing exercise as a

luxury as well as being too physically exhausted to contemplate it. One participant shared their experience of forced eating behaviours:

> *"I have been that poor [when] the kids have gone to their dad's I have like not eaten [. . .] just so you know you've got enough for the next day if when they [children] come home, that's how bad wages were."*
>
> (Participant 1 in Poulter et al, 2022, p. 9)

This quote highlights the ways in which economic inequality and poverty can have a disproportionate impact on individuals and families, particularly those with children. It illustrates the ways in which systemic issues, such as low wages and lack of affordable healthcare, can perpetuate cycles of poverty and poor health. Additionally, it brings attention to the ways in which individuals living in poverty are forced to make difficult choices, such as giving up food, that can have a negative impact on their physical and mental well-being.

The economic burden of common mental health disorders (CMD), such as anxiety, depression, and sleep disorders, is particularly substantial. Robinson et al. (2023) point out a significant increase in the economic burden of CMDs in the UK, underscoring the need for effective management strategies.

Additionally, the COVID-19 pandemic has highlighted and exacerbated mental health inequalities, with individuals who had pre-pandemic psychological distress being more susceptible to healthcare and economic disruptions, as reported by Di Gessa et al. (2021). Nature-based interventions, like gardening and green exercise, have shown promise in improving mental health outcomes, according to a systematic review and meta-analysis by Coventry et al. (2021).

The mental health of young people is notably affected by unemployment and precarious employment. Vancea and Utzet (2017) emphasize the vulnerability of this demographic, advocating for active labour market programs, inclusive social security measures, and improved working conditions to mitigate mental health risks. In contrast, community interventions targeting financial insecurity have shown limited evidence for effectiveness and

cost-effectiveness, indicating a need for more rigorous research, as noted by McGrath et al. (2021). Economic crises have been linked to an increased need for mental health care, but with varied results regarding the use of specialized psychiatric care, as observed by Silva et al. (2018).

Workplace interventions for mental health and substance use disorders have also been a focus of recent studies. Le et al. (2020) found moderate evidence supporting the cost-saving potential of cognitive behavioural therapy for treating depression, and a significant role for occupational health professionals in reducing sick leave related to mental health. However, a study by Hunter et al. (2019) on increasing physical activity in the workplace revealed only a slight improvement in mental well-being, with the intervention not being cost-effective compared to no intervention. These studies collectively underline the profound impact of economic factors on mental health, emphasizing the need for targeted interventions and policy measures.

2.5. Policy, Severe Mental Illness and Employment

This section takes a deeper look at the relevant literature regarding policy concerning employment and severe mental illness in the UK. An overview of the main context is provided before more in-depth review of the evidence of policy impact.

2.5.1. Understanding the Context of Mental Health Related Policy

In recent years, there have been significant changes in the labour market, including the decline of unionisation, the rise of precarious and insecure work, and the increased use of zero-hours contracts. These changes have had a significant impact on workers' mental health and well-being, particularly for those living with severe mental illness such as psychosis.

In addition to these changes in the labour market, there have also been broad changes in welfare policy, including reduced entitlements and increased conditionality. These changes

have further exacerbated the challenges faced by individuals living with severe mental illness, who are already at a higher risk of poverty and economic insecurity.

The shift towards care in the community, which began in the 1980s, was intended to provide more flexible and personalized support for individuals living with severe mental illness. However, in many cases, this shift has led to a reduction in funding and support for community-based services, leaving individuals with severe mental illness with fewer resources and less support than before. This, in turn, has led to increased pressure on individuals to find and maintain employment, despite the challenges they face in doing so (Appignanesi, 2011).

Until the 1950s, people with severe mental illness who were not cared for by family and within a community (that is, supported by private economic means), were confined to asylums, where many individuals would stay for most of their lives (Cohen, 2016). The introduction of antipsychotic and antidepressant drugs and increasing societal concern over human rights infringements taking place within the asylum system led to the gradual closure of most asylums with the support of communities and government (Calabria, Bailey and Bowpitt, 2021), leading to ‘care in the community’ in the 1980s. This deinstitutionalisation occurred with the aim of increasing quality of life for people living with severe mental illness, as well as a bid to reduce costs, and leading to the creation of Community Mental Health Teams (CMHT) and related interventions (Houston, 2020).

The shift towards community-based care for individuals living with severe mental illness has had a significant impact on the opportunities and possibilities for employment. Historically, those living with severe mental illness were often confined to asylums and institutionalized settings, with little opportunity for work within the mainstream labour market. However, with the move towards community-based care, individuals with severe mental illness are now able to access a wider range of employment opportunities (Cohen, 2016).

This shift towards community-based care has also been accompanied by changes in the labour market, as stated, these include the decline of unions, the rise of precarious and insecure work, and the increased use of zero-hours contracts. The unpredictably this brings, is a particularly difficult-to-manage barrier for people with severe mental illness. Changes to employment have had a significant impact on the ability of individuals with severe mental illness to secure and

maintain employment. Additionally, changes in welfare policy, including reduced entitlements and greater conditionality, have made it more difficult for individuals with severe mental illness to access the support they need to participate in the labour market.
While the shift towards community-based care and greater employment opportunities for individuals with severe mental illness is a positive development, it is important to recognize the challenges that this shift has also brought.

The changing labour market and welfare policy can make it more difficult for individuals with severe mental illness to secure and maintain employment, and it is essential that appropriate support and accommodations are in place to help them succeed in the workforce. This includes providing education and training opportunities, as well as addressing the barriers that can make it difficult for individuals with severe mental illness to participate in the labour market.

One direction active labour market policy concerning severe mental illness has gone in is vocational interventions and individual placement and support (IPS) programmes (Rizza and Fioritti, 2020), aimed at encouraging re-employment. With unemployment being a risk of living with severe mental illness, not only does it reinforce social and economic isolation and marginalisation, but it can also worsen symptoms (Rinaldi et al., 2010). With the onset of conditions like psychosis peaking in early to mid-twenties the disruption of dealing with this can severely impact on educational attainment and the building of necessary employment skills and work history. Especially in the case of younger people with psychosis, this disruptive period can have a particularly negative effect on employment throughout the lifetime. Following on from a key government message from the 'Work, Recovery and Inclusion' report (Repper and Perkins, 2009) that work is good for the recovery and mental health outcomes of individuals with severe mental illness, there has been a push to help this group into meaningful employment. One promising intervention seems to be the Individual Placement and Support intervention. This particular intervention places focus on supporting all individuals who want to return to work in competitive job searching, regardless of symptom severity or readiness at that time (Martini et al., 2021).

These policies and outcomes have been fuelled in part by increasing 'poverty propaganda' and demonisation of the working-class and those with severe mental illness in particular (Jones, 2020). This is, in part, due to the rise of food banks for example, becoming a very public

example of policy direction. The paper by Ralston and Gayle explores the concepts of *"generations"* and *"cultures"* of worklessness that are often used in political and media discourse (Ralston and Gayle, 2017). The authors use data from the British Household Panel Survey to investigate whether these concepts are supported by evidence, and they find that there is no evidence to support the belief in generations or cultures of worklessness. Instead, they argue that these concepts should be considered as improperly held beliefs and that it is time to abandon them. This conclusion is significant because it challenges the narrative that is often used to justify policies and outcomes that target the working-class and those with severe mental illness (Ralston and Gayle, 2017).

Additionally, the popularity of so called *"poverty porn"* typified by programmes like 'Benefit Street' have provoked public and political debate about the realities of poverty and its fallout. Punitive policies towards benefits claimants, austerity measures and the proliferation of low paid and insecure work mean poverty has been extended to more and more people, yet at the same time it is a condition that is still stigmatised, misrepresented and misunderstood (Shildrick, 2018; Jones, 2020).

2.5.2. The Underpinning Concepts of Mental Health Policy

Recovery as a concept for moving those with severe mental illness or common mental health disorders in and out of work, appeared in English mental health policy in 2001 and shortly after in the rest of the UK. It reflected frequently cited grass roots user-led definitions, which originated from people with severe and enduring mental health conditions in the United States in the 1980's. Despite recovery's prominent place in policy, little was known about what recovery services would look like or the barriers to implementation in the UK.

Recovery in the Bin note that recovery's prominence in policy in 2001 was highly political and neoliberal. Recovery was therefore enacted in policy and services implemented it (Recovery in the Bin, 2022). However, there was little guidance on how this would be possible, and they were seemingly unaware of the politicised nature and the potential harms that it could cause. In this context the concept of *"neorecovery"* emerged - reflecting the neoliberal, capitalist context of society and mental health services in its approaches and

practices, with its emphasis on individualism, ‘responsibility’, ‘dependency’ and work as a health outcome. It has been widely acknowledged that recovery’s implementation in the real world is inconsistent, with recovery interventions such as the REFOCUS trial and Recovery College suggesting that a UK social and political context poses considerable barriers to ‘recovery’s’ effective implementation (Slade et al., 2014).

This shift in focus created a ‘one size fit all’ approach to everyone using mental health services, and coupled with policy needs, resulted in time-sensitive treatment that focused on ‘work’ as a key indicator of recovery and successful movement through treatment, discharge, and return on investment, with no difference between common mental health disorders or severe mental illness. This approach is underpinned by neoliberal individualism and compulsory positivity, which has resulted in neorecovery catering for the societal norm, the socially acceptable and the majority who have mild to moderate difficulties. Slade and colleagues in 2014 point to this redistribution of resources from inpatient and secondary care to primary care, and the prioritising of low intensity, short-term, low-cost ‘interventions’, the closure of wards and day centres in the name of individual recovery as an abuse of the concept that places the onus on the individual while ignoring the social and political climate and the complex nature of living day to day with severe mental illness (Slade et al., 2014).

2.5.3. The New Deal for Disabled People (NDDP)

The New Deal for Disabled People (NDDP) was introduced by the UK Labour government in 1998 as a pivotal component of its broader welfare-to-work strategy, designed to bolster employment opportunities for disabled individuals, including those with severe mental illness (SMI) (Department for Work and Pensions, 1998). Central to the NDDP was the introduction of Job Brokers, a novel support mechanism aimed at facilitating the employment journey for disabled people, from finding to retaining jobs (Stafford, 2012). This initiative underscored a significant shift in policy perspective, prioritizing employment as a key avenue for social inclusion and economic independence for disabled individuals.

The NDDP stipulated that with the right support, disabled individuals, irrespective of the nature of their disabilities, could make valuable contributions to the workforce. This program was part of a wider governmental endeavour to integrate disabled people into the labour

market, aiming to dismantle the barriers—ranging from workplace accessibility to employer prejudice—that historically marginalized this demographic from meaningful employment opportunities (Sayce, 2001).

The relevance of NDDP to individuals with SMI stems from the unique barriers to employment they face, including stigma, discrimination, and the need for flexible working conditions. The program aimed to address these challenges by providing personalized support and promoting employer awareness (Sayce, 2001).

Studies evaluating the New Deal for Disabled People (NDDP) have produced mixed findings on its effectiveness for enhancing employment outcomes for individuals with severe mental illness (SMI). Stafford (2012) highlights that the NDDP was cost-beneficial in reducing incapacity-related benefit receipt and increasing employment rates among participants. This success was partly due to the wider institutional environment, including programme take-up and the relationships between Job Brokers and the public employment service, Jobcentre Plus (Stafford, 2012). However, Stafford (2015) also points out limitations, noting that employment programs like NDDP and Pathways to Work have often served those who are more job-ready, leaving behind individuals most in need of support due to incentive structures that reward contractors for working with participants more likely to find employment quickly. This has led to criticism that marketisation of such provision can disadvantage many disabled people in the labour market (Stafford, 2015).

The NDDP initiative has underscored the critical need for employment support programs to be both tailored to the individual's needs and actively engaging employers to create inclusive work environments. Grover and Piggott (2005) have previously emphasized that employment policies for people with disabilities, including those with SMI, must be flexible enough to accommodate diverse needs and robust enough to challenge and change employer attitudes and workplace stigma. While the program made strides in assisting some individuals into employment, it also illuminated the persistent barriers faced by those with SMI. Studies have shown that stigma and misconceptions about mental illness in the workplace persist, hindering employment opportunities for this group (Corrigan et al., 2014). These attitudes not only affect hiring practices but also impact the ongoing support and retention of employees with SMI.

Furthermore, the effectiveness of employment support programs like the NDDP is contingent upon the quality of the services provided, including the expertise of Job Brokers in understanding and addressing the unique challenges faced by individuals with SMI (Stafford, 2005). This points to the necessity for specialized training for employment support practitioners, ensuring they are equipped with the knowledge and skills to effectively assist this population.

Looking forward, policy implications from the NDDP experience suggest a multifaceted approach to improving employment outcomes for people with SMI. This includes developing and implementing targeted interventions that address both the demand (employer) and supply (employee) sides of the labour market. On the demand side, initiatives could involve incentivizing employers to create inclusive hiring practices and providing them with the resources to support employees with SMI effectively. On the supply side, personalised support services that consider the individual's illness, capabilities, and career aspirations are crucial. Moreover, integrating mental health support with employment services could offer a more holistic approach to assisting individuals with SMI in navigating the workforce.

Additionally, combating stigma in the workplace is paramount. This could be achieved through awareness campaigns that educate employers and coworkers about SMI, challenging stereotypes and promoting a culture of inclusion and support. Policies should also consider the broader social determinants of health and employment for people with SMI, ensuring access to affordable housing, education, and healthcare services, which are all critical for maintaining employment.

2.5.4. Disability Discrimination Act (DDA) 1995 and its amendment in 2005

The Disability Discrimination Act (DDA) 1995 marked a significant legislative milestone in the UK, aiming to eradicate discrimination against disabled individuals in various domains, including employment. The Act made it unlawful for employers to discriminate against disabled people in terms of hiring, training, promotion, and dismissal processes. Recognizing the evolving understanding of disability and the need for stronger protections, the DDA was amended in 2005 to enhance its scope and effectiveness, particularly emphasizing the duty of

employers to make reasonable adjustments for disabled employees (Disability Rights Commission, 2005).

For individuals with severe mental illnesses, the DDA and its amendments hold particular significance. SMI often carries a stigma that can exacerbate employment-related challenges, such as discrimination during the hiring process or inadequate workplace support. The DDA's provisions directly address these issues, offering a legal framework to protect individuals with SMI from discrimination and mandate reasonable workplace adjustments, thereby facilitating greater access to employment opportunities and retention (Sayce, 2001).

While the DDA represents a critical step forward, its effectiveness in improving employment outcomes for people with SMI has been subject to scrutiny. Studies suggest that despite the legal protections offered by the DDA, individuals with SMI continue to face significant barriers to employment, attributed in part to persistent stigma and lack of awareness among employers about mental health conditions (Barnes & Mercer, 2005). Additionally, the interpretation of what constitutes 'reasonable adjustments' can vary, leaving room for ambiguity in implementation for individuals with SMI (Sayce, 2001).

Moreover, amendments in 2005 sought to strengthen the Act, including clarifying employers' duties and expanding the definition of disability to cover more conditions explicitly. However, the practical impact of these amendments on employment rates and workplace inclusion for individuals with SMI has been mixed, indicating a gap between legislative intent and real-world outcomes (Woodhams & Corby, 2007).

The experience of the DDA underscores the need for policies that not only protect individuals with SMI from discrimination but also actively support their integration into the workforce. Future policies could benefit from a multi-faceted approach that combines legal protections with initiatives aimed at reducing stigma, enhancing employer awareness, and providing targeted support services for individuals with SMI. Additionally, engaging employers in the conversation and providing clear guidelines and resources to implement reasonable adjustments could bridge the gap between policy and practice.

The DDA 1995 and its 2005 amendments have laid an essential foundation for combating

discrimination against individuals with SMI in the workplace. However, the ongoing challenges highlight the need for a more comprehensive strategy that addresses both legal protections and the broader socio-cultural barriers to employment for people with SMI. Future policy actions should build on the lessons learned from the DDA, focusing on enhancing support, awareness, and practical implementation of adjustments to create a more inclusive employment landscape for individuals with SMI.

2.5.5. The Local Supported Employment Programmes

The Supported Employment Programmes, part of the UK government's broader strategy to facilitate workforce inclusion for disabled people, represents a pivotal shift towards tailored, individualized support for job seekers with disabilities, including those with SMI. This initiative underscores a commitment to *"employment first"* approaches, recognizing the right of all individuals to participate fully in the economy and society (Department for Work and Pensions, 2002).

For individuals with SMI, the Supported Employment Programme offers a framework for overcoming specific barriers to employment. By providing one-on-one support, job coaching, and workplace adjustments, the programme aims to address the unique challenges faced by this group, including stigma, fluctuating conditions, and the need for flexible working arrangements (Drake et al., 2012).
Research evaluating the effectiveness of supported employment for individuals with SMI indicates positive outcomes, including higher employment rates and improved job retention when compared to traditional vocational rehabilitation methods (Bond et al., 2008). However, the programme's success also highlights the critical role of employer engagement and the ongoing need to combat workplace stigma against mental illness (Crowther et al., 2001).

Despite these successes, challenges persist. Limited awareness and uptake among employers, variability in programme delivery across regions, and funding constraints have been identified as significant barriers to maximizing the programme's impact (Rinaldi et al., 2010). The experiences of the Supported Employment Programme point to several policy implications. There is a clear need for sustained funding and support for such initiatives, alongside efforts to enhance employer engagement and awareness. Future policies should continue to prioritize

personalized support mechanisms while also addressing broader systemic barriers to employment for individuals with SMI.

Moreover, integrating mental health support with employment services could offer a more holistic approach to supporting individuals with SMI, ensuring that employment gains are sustainable and beneficial to overall well-being (Burns et al., 2007).

The Supported Employment Programme represents an essential step forward in recognizing and addressing the employment needs of individuals with SMI. While it has demonstrated success, ongoing efforts are needed to refine and expand the programme to ensure that all individuals with SMI have the opportunity to engage in meaningful employment.

2.5.6. Pathways to Work

Initiated in selected areas from 2003 and rolled out nationally by 2008, Pathways to Work was a UK government initiative targeting individuals receiving incapacity benefits, including those with severe mental illness (SMI). The program was designed to provide a comprehensive support system to facilitate the return to work, featuring condition management programs, access to personal advisors, and financial incentives to encourage participation in the workforce (Department for Work and Pensions, 2006).

Pathways to Work recognized the complex barriers faced by individuals with SMI in securing and sustaining employment. By offering personalized support and access to health professionals, the program aimed to address both the psychological and practical challenges inherent in the employment journey for those with SMI (Waddell & Burton, 2006).

Research assessing Pathways to Work suggests mixed outcomes. While some participants with SMI experienced improved confidence and motivation towards employment, others found the program's focus on rapid reintegration into work as stressful and counterproductive to their health recovery (Baumberg, Warren, Garthwaite, & Bambra, 2015). The effectiveness of Pathways to Work in significantly improving employment rates for people with SMI remains a subject of debate, with studies indicating that more targeted and flexible support might be necessary to meet the diverse needs of this group (Stafford, 2010).

Challenges identified in the implementation of Pathways to Work include inconsistencies in service delivery, varying levels of employer engagement, and the need for greater integration between employment and health services to support individuals with SMI effectively (Paul & Moser, 2009).

The lessons from Pathways to Work underscore the importance of integrating employment and health services in supporting individuals with SMI. Future policies should aim to enhance personalized support, adapt services to the fluctuating nature of SMI, and foster employer readiness to accommodate individuals with mental health conditions. Additionally, ongoing research and evaluation are crucial to refining support programs and ensuring they respond effectively to the needs of those with SMI (Becker & Drake, 2009).

Pathways to Work represented an important policy effort to support individuals with SMI in their employment aspirations. Its mixed outcomes highlight the complex interplay between health and employment support needs among this population, pointing towards the necessity for nuanced, integrated support strategies moving forward.

2.5.7. The Mental Health Policy Implementation Guide 2001

The Mental Health Policy Implementation Guide, introduced by the UK government in 2001, was a comprehensive framework aimed at transforming mental health care provision. While its primary focus was on improving mental health services across the board, it also touched upon the significance of social inclusion for individuals with severe mental illness, including aspects related to employment (Department of Health, 2001).

Acknowledging the crucial role of employment in promoting recovery and social inclusion for people with SMI, the Guide emphasized the need for mental health services to support individuals in accessing, returning to, or maintaining employment. It highlighted the importance of integrated services that collaborate closely with employment agencies, educational institutions, and employers to create a supportive network around the individual (Department of Health, 2001).

The implementation of the Guide has been subject to analysis from various quarters. Researchers like Burns et al. (2007) have pointed out that while the Guide sets an ambitious agenda for comprehensive care, including employment support for people with SMI, the translation of these guidelines into practice has been uneven. The success of employment initiatives for individuals with SMI often hinges on the local availability of dedicated support services and the extent of collaboration between mental health and employment sectors (Knapp et al., 2007).

Moreover, the Guide's call for integration and holistic support has underscored the systemic barriers that people with SMI face in the employment market, including stigma and discrimination, highlighting the ongoing need for targeted interventions and employer education (Perkins et al., 2009).

The insights from the Mental Health Policy Implementation Guide underscore the imperative of multi-sectoral approaches to support the employment aspirations of individuals with SMI. Future policies should continue to build on these principles, emphasizing the integration of mental health and employment services, the development of targeted programs that address the specific needs of individuals with SMI, and initiatives aimed at changing employer attitudes and workplace cultures (LaMontagne et al., 2014).

Additionally, there is a need for ongoing research to evaluate the effectiveness of integrated support models and to identify best practices for facilitating employment among individuals with SMI, ensuring that policies are informed by evidence and tailored to the changing needs of this population (Drake et al., 2012).

The Mental Health Policy Implementation Guide 2001 laid important groundwork for recognizing the role of employment in the recovery and social inclusion of individuals with SMI. While it highlighted the need for comprehensive and integrated support, the journey from policy to practice reveals both achievements and challenges, offering valuable lessons for future endeavours in this critical area of mental health care and social policy.

2.5.8. Evidence of Policy Impact

Recent policy initiatives, including the New Deal for Disabled People (NDDP), the Disability Discrimination Act (DDA), Supported Employment Programmes, Pathways to Work, and guidance from the Mental Health Policy Implementation Guide 2001, have collectively aimed to enhance employment opportunities and conditions for individuals with severe mental illness (SMI). However, the practical application and impact of these policies reveal a complex landscape of successes, limitations, and ongoing challenges.

The implementation of IPS interventions, as studied by Slade et al. (2014), and Craig et al. (2014), underscores a critical aspect of policy impact: the essential role of supportive mental health care teams in facilitating employment outcomes for individuals with SMI. These studies highlight that despite policy provisions for employment support, systemic barriers such as care team scepticism, fear of exacerbating symptoms, and low expectations can significantly hinder policy effectiveness. The mixed outcomes of IPS trials point to the necessity for integrating employment services with mental health care that is not only supportive but also well-informed and motivated to engage in these initiatives.

The impact of broader social and economic policies on individuals with SMI cannot be understated. Reduced local resources and community services, as noted by Hastings and Cohn (2013), along with the rise of precarious employment conditions, have exacerbated challenges for individuals with SMI in securing stable employment. These external pressures compound the direct impacts of mental health-focused policies, suggesting that a holistic approach to policy development is required—one that considers the wider social determinants of health and employment.

The evidence from IPS interventions and the broader context of changing labour markets and social services highlight a gap between policy intentions and their real-world impacts. While policies like the DDA and NDDP have laid foundational legal and support frameworks for SMI individuals' inclusion in the workforce, the practical outcomes suggest an ongoing need for policy refinement. This includes ensuring that policies are not only designed to provide support and protection but are also adaptable to the changing dynamics of the labour market and are implemented in a way that genuinely engages both employers and mental health support teams.

The lessons learned from these policy implementations indicate that future strategies should focus on enhancing the integration of employment support with mental health services, improving the training and engagement of mental health care teams in employment initiatives, and addressing broader socio-economic factors that affect employment outcomes for individuals with SMI. Additionally, continuous evaluation and research into the effectiveness of these policies are crucial for identifying best practices and areas for improvement.

While significant strides have been made through policies aimed at improving employment outcomes for individuals with SMI, the evidence suggests a nuanced picture of success and challenges. A comprehensive approach that addresses both direct support needs and broader socio-economic factors is essential for creating a more inclusive and supportive employment landscape for individuals with SMI.

2.6. Exploring Severe Mental Illness With Data

Administrative data offers an invaluable opportunity to explore the aims of this thesis and was the original data envisioned before the COVID-19 pandemic forced this work to be reorientated as discussed previously. Even though this no longer played a role in the analysis from 2020 its inclusion here reflects the substantive body of work undertaken before this thesis had to change. Its increased availability means vital research that could result in positive policy change can happen in a safe and secure way (Gordon, 2020). There are, however, differences in comparison to traditional research and data collection, as administrative data is collected when individuals interact with services, and not solely collected for the purpose of research. This section discusses the strengths and weaknesses of administrative data research before providing an overview of the data sources relevant to this thesis.

2.6.1. Contextualizing SMI Data

Administrative data is generated when individuals interact with public services, such as schools, the NHS, the courts, or the benefits system, and collated by government. These services keep records of these interactions for operational purposes in order to carry out their

day-to-day work, to monitor and improve their performance, and to keep providing services in an effective way (Gordon, 2020). For example, the NHS records details of admissions and appointments to monitor trends in hospital activity and patient care. Administrative data also includes basic information about people in the UK, such as notifications of births, deaths and marriages, the electoral register, and the censuses (Gordon, 2020).

Using administrative data for research comes with a number of strengths and weaknesses. One weakness is that the data is not collected exclusively for the purpose of research and could lack specific relevant information (Penner and Dodge, 2019). This also reduces the ability to adjust for confounding variables and decreases the ability to draw potential causal inferences. The coding of variables, especially more subjective variables, could be ambiguous, even if there is good documentation available. Quality of the data can also be an issue, especially high levels of missingness (Penner and Dodge, 2019). Missingness can happen for the same reasons as in traditional research meaning data was not available to input into the database but could also be because state-funded employees redact data files. Administrative data may also have issues with structure, which along with coding issues and missingness can make it complex to work with, with extensive data cleaning often needed in advance of analysis (Penner and Dodge, 2019).

There also remain significant, ongoing problems within psychiatric science in validating psychiatric labels – which are the main method of identifying severe mental illness and common mental health disorders within administrative data - and accurately defining, measuring, and explaining classification (Whitaker and Cosgrove, 2015; Cohen, 2016). A recent assessment by Allsopp and colleagues (Allsopp et al., 2019) of the major psychiatric labels in the DSM-5 concluded that the labels were *"scientifically worthless as tools to identify discrete mental health disorders"* (Allsopp et al., 2019). With the relationship between psychological, social, and environmental factors and any 'mental illness' continuing to be vague and imprecise (Cohen, 2016), this is less surprising given the validity issues above.

Advantages of administrative data, however, include that they are often large cross-population sample sizes, because they are generated from using a service, which can mitigate against potential sampling bias. Another advantage is that well-maintained data produce information

over an extended period of time, with the ability to 'track' certain populations or phenomena. This could be argued to make inferences from these sources more robust with good external validity, and without incurring costs seen in traditional observational studies (Penner and Dodge, 2019).

2.6.2. Alternative Data Capturing Severe Mental Illness and Employment

The aim of the original thesis was to use novel linkage of health and other administrative data to explore the relationships between severe mental illness and employment outcomes across the lifespan. However, due to the impact of COVID-19, access to this data was lost and other data sources had to be considered. (See Chapter 3). Data was needed that not only met the requirements of this thesis' research aims and questions but could also be accessed from a home working environment.

The data that was finally settled on was the Adult Psychiatric Morbidity Survey (APMS). This series of mental health surveys consists of four repeat cross-sectional surveys. The first two covered Britain (England, Scotland and Wales) and were conducted in 1993 and 2002 by the Office for National Statistics (ONS). The 2007 and 2014 surveys covered England only and were conducted by the National Centre for Social Research (NatCen), with the most recent – 2014, and 2021 – being commission by NHS Digital. The APMS sits within a wider series of general population surveys examining the mental health of specific populations. These have included people living in institutions, the homeless population, the prison population, carers, and minority ethnic groups. There has also been a series of mental health surveys of children and young people in England carried out (McManus et al., 2020). A full description of these data sources, the variables used, and the process of analysis are provided in Chapter 3.

2.7. Chapter Summary

Chapter 2 provides a thorough review of the interplay between severe mental illness (SMI), common mental health disorders (CMD), and employment in the UK, examining the definitions, impacts, and policy responses to these issues. It highlights the prevalence and health risks associated with SMI and CMD, emphasizing the societal and economic challenges

faced by affected individuals, including barriers to employment like stigma and discrimination.

The review assesses various policies and programs aimed at improving employment outcomes for people with SMI, such as the New Deal for Disabled People and the Disability Discrimination Act, acknowledging the mixed effectiveness of these initiatives. The chapter also discusses the use and limitations of administrative data in researching the relationship between mental health conditions and employment. It critiques the biomedical and neoliberal frameworks dominating current approaches and calls for more holistic, socially informed strategies that address structural factors influencing the experiences of individuals with SMI and CMD in the workforce. The chapter sets a foundation for exploring how better policies and practices can enhance the employment prospects and overall well-being of people living with mental health conditions.

Chapter 3

Methods 1: Quantitative

3.1. Chapter Overview

This chapter outlines the process of accessing the data and the analysis used to answer the research questions in this thesis. There are six sections. The first section of this thesis provides a description of the impact of COVID-19 on the original envisioned research, as well as an explanation of what the thesis became as a result. The second section of this thesis includes a detailed report of the data handling process, including the access and approvals process that was required. The third section provides a description of the data sources used in this thesis, including where they came from, the reasons for utilizing them, and any known issues related to the data. The chapter will then examine how the required data wrangling, necessary to use the data for analysis was approached. Before examining the timeline of the major stages of the research and writing process, the chapter will describe the statistical methods applied to the data in order to answer the research questions posed in this thesis.

3.2. The Impact of COVID-19 on the Data

The emergence of the new strain of coronavirus, COVID-19, in December of 2019 and its subsequent spread in 2020 has undoubtedly affected everyone in some way, with 6.82 million deaths worldwide (as of the 27th of January 2023). For this thesis, which was relying on novel and sensitive linked health and admin datasets, only accessible through a safe haven, this has meant the loss of access to the original planned data due to the closure and subsequent limited access due to prioritization of COVID-19 research.

Progress was delayed as assurances that data would soon be available, though ultimately the data-holders pushed the permissions process for the original data out of the time scale for this

thesis. This has meant that thought had to be given to new sources of data that could be accessed from home as quarantine measures have continued in 2020 and 2021 and home working in 2022; and with limited time left within the funded period to engage with this data. Therefore, an exploration of potentially available data held on the UK Data Service was undertaken. Several potential datasets that showed promise for meeting the needs of this PhD project were identified and explored in May 2020.

3.2.1. Criteria for New Data Selection

To continue to support and answer the research questions involved in this thesis, any new potential data must meet certain criteria to be usable, and which matched the original data as closely as possible.
These are:

1. *Includes adults over the age of 16/18.*

As this project is focusing on employment status and outcomes, this would by nature focus on working-age adults, including entrance to the workforce (usually at 16 years old, but also 18), up until retirement age (mid-70s). This would also help answer the research question(s) number 4. How does living with severe mental illness affect the entrance of young adults (16-35 years old) to the labour force, in comparison to young adults without severe mental illness?

2. *Conducted in the UK*

As this is a project concerned with employment status and outcomes in the UK, there must be in-depth information relevant to the UK context. This would go towards answering the research questions; 1. How has the impact of severe mental illness on employment status changed in the last ten years? And two. How do severe mental illness individuals' employment status patterns compare to the rest of the population? 3. Is the relationship of severe mental illness to employment status different from the relationship of non-severe mental illness to employment status?

3. *Captures objective and/or subjective measures of mental health prevalence (could include general health measure, diagnosis [ICD-10/11], medication, healthcare visits)*

As this project is concerned primarily with individuals living with what can be considered a

'Severe Mental Health' condition, such as psychosis and schizophrenia, among others, any data must capture more than surface-level information about mental health. Any new data should include measures based on objective criteria or external assessments – such as medication, healthcare visits, diagnosis – or subjective measures – questions about general health, amount of GP visits, amount of time taking medication etc. These measures would help answer the research questions; 3. Is the relationship of severe mental illness to employment status different from the relationship of non-severe mental illness to employment status?

4. *Captured over several periods.*

This project originally aimed to explore the employment status of individuals across their lifespan, or certainly a significant period. To do this, any new data must have several waves or time points, preferably over a few decades. This would help answer research questions, 1. How has the impact of severe mental illness on employment status changed in the last ten years? 2. How do severe mental illness individuals' employment status patterns compare to the rest of the population? 6. How does living with severe mental illness affect the entrance of young adults (16-35 years old) to the labour force, in comparison to young adults without severe mental illness?

5. *Captures un/employment and economic (in)activity.*

As this project is concerned with employment status across the lifespan, measures of employment must be included and captured in any new data that is utilized.

6. *Captures different demographics.*

This is particularly relevant to build up a picture around psychosocial economic factors that could influence people's lives. And answers questions; 6. Are the effects of severe mental illness on employment status mitigated or exacerbated by other barriers or enablers, such as socioeconomic status, education, area deprivation, physical health, involvement in services, or age? 7. Is the impact of severe mental illness on employment status influenced by pre-onset life factors, such as geographic area, socioeconomic status, physical health, or ethnicity? 8. In what ways does the impact of severe mental illness on employment status differ between conditions within the severe mental illness category?

3.2.2. Datasets Considered

Several datasets available from the UK Data Service that could be accessed from home were considered. In summary, an exploration of potentially available data held on the UK Data Service was undertaken with the above criteria in mind and the shortlisted datasets for consideration were as follows:

1. *Psychiatric Morbidity Surveys*

The Surveys of Psychiatric Morbidity aim to provide up-to-date information about the prevalence of psychiatric problems among people in Great Britain, as well as their associated social dis- abilities and use of services. The series started in 1993 and so far, has covered adults in private households (1993, 2000 2007 and 2014); people in private households with psychosis (1993/4 and 2000); adults in institutions specifically catering for people with mental illness (1994); homeless people (1994); prisoners (1997); children and adolescents (1999 and 2004); and young people looked after by local authorities (2001/2).

2. *Scottish Health Study (SHeS)*

This study started in 1991 and still continues as a repeated cross-section. The Scottish Health Survey (SHeS) began in 1995, with subsequent surveys conducted in 1998 and 2003. From 2008-2011, commissioned by the Scottish Government, the survey has run continuously with a two-stage process - a personal interview for the full sample, followed by a nurse visit to one-sixth of the sample, whereas it was previously offered to the whole sample. The SHeS aims to gain knowledge about the health of the population of Scotland.

3. *Health Education Population Survey (HEPS)*

Started in 1996 with continued data production (repeated cross-section) Scotland the HEPS monitored health-related knowledge, attitudes, behaviours, and motivations to change among the adult population of Scotland. Questions covered a range of priority topic areas. The data were used to monitor the success of health education, information and communications activity and contributed towards the planning and development of health improvement initiatives.

4. *OECD Health Statistics/Social & Welfare*

Starting in 1980 and ongoing country-level data multi-nation OECD Health Statistics offers

the most com- prehensive source of comparable statistics on health and health systems across OECD countries. Including health status, non-medical determinants of health, health care resources, health care utilization, care quality indicators, pharmaceutical markets, long-term care resources, health expenditure and finance, social protection, demographics, economic references.

After review, the Adult Psychiatric Morbidity Survey was deemed to be most suitable for continuing this work, as it met all criteria above and was also accessible.

3.2.3. Data Selection

After an extensive review of available datasets, the decision to proceed with the Adult Psychiatric Morbidity Survey (APMS) was made with careful consideration of the specific research objectives and criteria outlined for this thesis. This section provides a critical discussion on the process of selecting the most suitable dataset and justifies the choice of APMS over other potential alternatives.

Several datasets were evaluated, including the Psychiatric Morbidity Surveys, Scottish Health Survey (SHeS), Health Education Population Survey (HEPS), and OECD Health Statistics/Social & Welfare data. Each dataset was assessed against the criteria critical for supporting and answering the research questions:

Coverage of Adults Over the Age of 16/18: Essential for examining employment status and outcomes across the working-age population and the entrance of young adults to the labour force.

Conducted in the UK: Ensuring relevance to the UK context, which is central to the project's focus on employment status and outcomes in the UK.

Measures of Mental Health Prevalence: Necessary for capturing detailed information about individuals living with severe mental health conditions, including objective and subjective measures.

Captured Over Several Periods: Vital for exploring changes in employment status over time

and across different stages of an individual's lifespan.

Includes Measures of Un/Employment and Economic (In)Activity: Directly related to the project's concern with employment status.

Captures Various Demographics: To build a comprehensive picture around psychosocial economic factors influencing individuals' lives.

The Adult Psychiatric Morbidity Survey was ultimately chosen for several reasons:

Comprehensiveness and Relevance: APMS uniquely meets all the criteria with its focus on psychiatric morbidity among adults in Great Britain, providing a rich source of data on mental health prevalence, employment outcomes, and demographic variables essential for this research.

Temporal Coverage: APMS's periodic surveys (1993, 2000, 2007, and 2014) offer valuable longitudinal data, enabling analysis of trends over time and fulfilling the requirement for capturing data over several periods.

Focus on Mental Health: Unlike other datasets, APMS specifically targets mental health issues, including detailed measures on severe mental health conditions, making it particularly suited for this project's focus on severe mental illness and employment.

UK Context: Conducted exclusively in the UK, APMS data is directly relevant to the project's geographical focus, providing insights specific to the UK's employment and mental health landscape.

While other datasets like SHeS, HEPS, and OECD Health Statistics/Social & Welfare provided valuable health-related insights, they lacked the specificity on mental health, the depth of data on employment status, or the UK-focused context necessary for this project. Additionally, these datasets did not offer the longitudinal perspective crucial for examining changes over time in the relationship between mental health and employment.

The selection of APMS as the primary dataset for this research was a strategic decision, driven by its alignment with the project's objectives and criteria. It provides a robust foundation for exploring the intersections of mental health conditions and economic activity within the UK context, enabling a nuanced analysis of the trends and factors influencing employment outcomes for individuals with severe mental health conditions. This critical discussion underlines the rationale behind data selection, affirming APMS as the optimal choice for advancing the research questions posed in this thesis.

3.2.4. Considering the Data Type

The methodology employed in this research heavily relies on cross-sectional data, primarily drawn from the Adult Psychiatric Morbidity Survey (APMS). While this dataset provides invaluable insights into the prevalence of psychiatric conditions and their correlation with economic activity within the UK, it is imperative to acknowledge the inherent limitations associated with the use of cross-sectional data. This section aims to pre-emptively address these limitations, offering a framework for interpreting the results within the context of these constraints.

Cross-sectional studies are designed to capture a snapshot of a population at a single point in time. This approach is particularly useful for assessing the prevalence of conditions or behaviours within a specific demographic or geographic cohort. However, the cross-sectional design lacks the temporal depth required to establish causality or track changes over time. This limitation is crucial when interpreting the relationships between severe mental illness (SMI), common mental health disorders (CMD), and employment outcomes explored in this thesis.

One of the most significant limitations of cross-sectional data is the inability to definitively establish causal relationships. While the APMS data may reveal correlations between mental health conditions and employment status, it does not allow for a determination of whether SMI or CMD leads to changes in employment outcomes or if the employment status influences the prevalence or severity of mental health conditions. Interpretations of the data must, therefore, be cautious not to infer causation from correlation. The use of cross-sectional data from two time points (2000 and 2007) in the APMS allows for a comparison across these years, providing insights into changes in the prevalence of mental health conditions and their association with employment. However, without longitudinal data, it is challenging to track

individual changes over time, making it difficult to assess the durability and relevance of findings to contemporary circumstances.

Cross-sectional data provides a snapshot that might not fully capture the dynamic nature of mental health and employment status. Individuals' mental health conditions and employment status can fluctuate over time, influenced by a myriad of factors including economic conditions, social support systems, and personal circumstances. This variability is not adequately captured in a cross-sectional design.

To mitigate these limitations, this research employs several strategies. By situating the findings within a broader socio-economic and policy context, the research attempts to provide a more comprehensive understanding of the observed relationships. The comparison of data from 2000 and 2007, while not a substitute, offers some insight into trends and changes in the relationship between mental health conditions and employment over time. Incorporating findings from longitudinal studies and other research in the literature review helps to compensate for the temporal limitations of cross-sectional data, providing a richer understanding of the dynamics at play.

In conclusion, while cross-sectional data presents certain limitations, particularly regarding causality and temporal analysis, careful interpretation and contextualization of the findings can still yield valuable insights. This research acknowledges these constraints from the outset, ensuring that conclusions drawn are robust, thoughtful, and informed by the broader body of knowledge on mental health and employment.

3.3. Data Access and Handling

It is important to keep this data secure, which considering the challenges of accessing data from home, could be a challenge to this project. This section briefly describes the safeguards taken to ensure the data was handled properly under the new working conditions.

3.3.1. Access Conditions

The data chosen to move forward with, the Adult Psychiatric Morbidity Survey (APMS), was

available on the UK Data Service (UKDS). The UK Data Service is a comprehensive, single point of access resource funded by the Economic and Social Research Council (ESRC) to support researchers and policymakers who depend on high-quality social and economic data. The 2014 survey was not included due to still being under special license which could not be accessed in the time constraint of this thesis, and the 1992 wave was omitted due to no or poor measurement continuation of mental illness.

The Adult Psychiatric Morbidity Survey is classed as *"safeguarded"* by the UK Data Service. Data licensed for use in the safeguarded category are not personal or identifiable. These safeguards include knowing who is using the data and for what purpose they are using it for, which can be for non-commercial, commercial, and teaching projects. To access data at the safeguarding level, researchers need to complete a registration and authentication process via the UK Data Service. Safeguarded is the current Office for National Statistics' (ONS) preferred term for data the UK Data Service provides under the UK Data Service's End User License (EUL). The EUL outlines the restrictions on use for a particular data collection. Additional conditions may be attached such as: special agreements, depositor permission, limited to non-commercial or academic users, data destruction clauses, and specific forms of citation. The Adult Psychiatric Morbidity Survey was subject to the depositor being notified, data destruction after a period of use, and specific forms of citation.

3.3.2. Researcher Training

Although not an explicit requirement to access the safeguarded data from the UK Data Service, it is encouraged for users to undertake safe researcher training. This Safe Researcher Training (SRT) course is intended for researchers who will be, or are in the process of, applying for access to controlled data accessed through a safe haven, or other secure environments. This course covers data security and personal responsibility, including legal and procedural breaches and penalties, and the *"five safes"* model. It covers statistical disclosure control, or how to make outputs safe for release. This course was originally undertaken in 2018 in preparation for the original plan and data access at the safe haven in Edinburgh, and then refreshed in 2021. Although not required to work with the Adult Psychiatric Morbidity Survey, the training proved invaluable in the course of this thesis.

3.4. Data Source

From this new set of criteria and the data available under working circumstances, APMS was chosen to move forward with. Below is a description of what this data source looks like and how these fits with this project.

3.4.1. Adult Psychiatric Morbidity Survey Background

The main source of data that was decided on after the disruption of COVID-19 to the original project plan was the Adult Psychiatric Morbidity Survey, and the waves conducted in 2000 and 2007. The survey monitors the prevalence of mental illness and access to treatments in the general population for England's National Statistics. The primary aims of the survey series are to estimate the prevalence of different mental disorders in England's general population; to establish what proportion of people with a disorder are in receipt of treatment; to produce temporal trends in prevalence and use of treatment; and to compare circumstances of people with and without a mental illness.

The series to date consists of four repeat cross-sectional surveys. The first two surveys covered Britain - England, Scotland, and Wales - and were conducted in 1993 and 2000 by the Office for National Statistics (ONS). The 2007 and 2014 surveys covered England only and were conducted by the National Centre for Social Research. The latter two surveys had no upper age limit – which were 64 years old in the 1993 survey and 74 years old in the 2000 survey. A survey is also planned for 2021/2022.

Each survey consisted of a first and second phase, with the second phase co-ordinated by the University of Leicester and carried out with a subgroup of phase-one participants. England's Department of Health and Social Care has been the main funder throughout the survey series, with the most recent surveys commissioned via NHS Digital. Each survey underwent an ethical review, most recently with the West London National Research Ethics Committee. The APMS surveys are part of a wider series of studies examining the mental health of specific populations. These have included people living in institutions, the homeless population, the prison population, carers, minority ethnic groups, and children and young people in England (McManus et al., 2020).

3.4.2. Sample Design

Each APMS wave used a stratified random probability sampling design to produce a representative sample of the population living in private households. The first stage of sampling involved selection of addresses from the Postcode Address File, which covers around 97% of households in England (Office for National Statistics, 2017). People living in temporary housing, or institutional or communal establishments, or sleeping rough, were not sampled in the APMS. Although mental illness rates are elevated in these populations, they comprise an estimated <2% of the population and their exclusion was not thought to impact on overall estimates (Office for National Statistics, 2017).

Invitation letters with information about the survey were posted, after which trained interviewers visited each address. They established whether households were private households. One resident - aged >16 years old - was randomly selected in each of the eligible households. Fieldwork took place from March to September 2000, and October 2006 to December 2007 (and April to November 1993 and May 2014 to September 2015 for the waves not included in this thesis).

In 2000, 8,886 people aged 16–74 years old were interviewed in England, Scotland, and Wales. In 2007 there were 7,461 participants aged >16 years old were interviewed in England (in the waves not included, 1993, 10,108 people aged 16–64 years old were interviewed in England, Scotland, and Wales, and in 2014, 7,546 people >16 years old were interviewed in England only). Weights have been developed to take account of selection probabilities (for example, such as the under-sampling of those living in multi-person households) and non-response, to render the survey results representative of the household population aged >16 years old at the time of each survey wave. The ONS mid-year population estimates were used for population control totals for age by gender and region. The full weighting strategy is described in the next sub section.

The process for selecting the participants that would be invited for an assessment in phase two varied between the survey waves. In 2000 (and the same for 1993), all the participants who screened positive for a psychosis condition or a personality disorder were followed up for

phase two participation. In 2007 (and 2014) granular sampling fractions were applied. For each phase one respondent, the selection probability for a phase two assessment was calculated as the maximum of four disorder specific probabilities: psychosis probability; Asperger syndrome probability; borderline personality disorder probability; and antisocial personality disorder probability. These probabilities were based on respondents' responses to the screening questions in the phase one questionnaire. The antisocial personality disorder score was derived from a combination of scores for conduct disorder and adult antisocial personality.

3.4.3. Data Collection

Phase one interviews were conducted by trained interviewers in people's own homes and averaged a length of one and a half hours in duration. Phase two interviews were also carried out in participants' own homes by trained medical professionals and took a similar amount of time. Since the 2000 wave, interviews have been conducted as a computer-assisted personal interview, whereas in 1993 data collection was by pen and paper. The majority of the questionnaire was administered face to face, with some sensitive information collected through self-completion by the participants themselves.

3.4.4. Assessment of Mental Illness & Coverage of Risks

A variety of types of mental illnesses were assessed or screened for. These included relatively common conditions such as depression and anxiety disorders, and more severe conditions such as psychosis disorders.

The detailed phase one questionnaire covered different aspects of people's lives known to be associated with mental health. This data can be used to describe the circumstances people with mental disorders experience and the inequalities they face.

3.4.5. Differences Between Survey Waves Analysed

The main aim of the APMS is to produce temporal trends in the prevalence of psychiatric disorder in the population, with cross-wave comparability. Although methods largely

remained the same, some changes were made in later waves. Differences between the 2000 and 2007 waves analysed in this thesis are:

Geography: 2000 covered Britain (Scotland, England, and Wales), whereas 2007 only sampled from England.

Age: In 2000 16- to 74-year-olds were sampled, and in 2007 there was no upper age limit to participation in the survey.

Topics: After participant consultation, new topics after 1993 were added to each new survey eave. some new subjects are added in each wave.

Quality control measures included in-built checks. For example, at 10% of addresses where interviewing took place, telephone calls were made to participants to check that interviews had been carried out appropriately. There was also supervision of phase two research psychologists by a senior research psychologist.

3.4.6. Strengths and Weaknesses of the APMS

The APMS has proved seminal in helping establish national statistics on mental illness prevalence in the population. A strength of the APMS is that it samples from the wider general population, rather than just people already in contact with mental health services, as well as the phase two process being carried out by trained medical professionals. These datasets are ideal for measuring the extent and nature of the mental health treatment gap. Their use of validated screening and assessments for mental illness which then produce dimensional scores enable the identification of those with sub-threshold symptomology, as well as those with an undiagnosed or an untreated disorder in the general population. Whereas other routine data sources can exclude details on people's social and economic circumstances, this information is gathered in the APMS in ways that have been consistent over time and with comprehensive coverage.

The use of self-completion data collection for the more sensitive topics can help reinforce the participants' sense of privacy and encourages honest reporting. Participants are also asked

about consent for data linkage and to be re-contacted for any future research. This presents a unique opportunity for longitudinal data collection and analysis.

However, the APMS series also has weaknesses. People living in institutional settings like prisons or care homes, or who are homeless or living in temporary housing were not in the scope of the study. This introduces a potential source of bias. Not everyone selected for interview could be contacted, others were contacted but declined to participate, with falling response rate being a widespread phenomenon (Brick and Williams, 2013). Survey weights addressed these biases to some extent. However, people with severe mental or physical health problems or those with impaired cognitive functioning may well have been less willing, able, or available to undertake a long interview, as well as reluctant to disclose conditions due to stigma and cultural or societal views of certain mental illnesses (Mills, 2014). The assessment tools used, however, are widely validated. Scope for sub-group analysis can be limited by the low number of positive cases in the sample for low-prevalence conditions. Confidence intervals for such estimates can therefore be wide. Given that methods have remained consistent across the surveys however, this limitation can be reduced to some extent by pooling samples from more than one wave for analysis.

3.4.7. Wave Weighting Strategies

In the 2007 wave, the phase one survey data was weighted to take account of non-response, and to ensure that the results were representative of the household population aged 16 years and over (McManus et al., 2020). Weighting occurred in three steps: first, the sample weights were applied to take account of the different probabilities of selecting respondents in different sized households. Second, to help reduce household non-response bias, a household level weight was calculated from a logistic regression model using interviewer observation and area-level variables, collected from Census 2001 data, available for responding and non-responding households.

The phase two interview data in 2007 have a different set of survey weights from those generated at phase one. These phase two weights were designed to generate condition-specific phase two datasets that were representative of the population ‘eligible’ for phase two on that condition. For psychosis, the phase two weighted dataset represents those screened in as

‘possibly psychotic’ at phase one; and the phase two weighted dataset for borderline personality disorder represents those with a score of 3 or more on the borderline personality disorder phase one screening questions. The calculation of the phase two weights was relatively straightforward. They account for two factors: not all those eligible for phase two were selected with equal probability (those with higher screening scores at phase two were more likely to be selected, and those with potential co- morbidities were selected with, on average, higher probabilities than those with single disorders); and some of those selected for phase two declined to take part.

For the 2000 wave, weighting occurred in three steps (McManus et al., 2020). First the data were weighted to take account of different sampling rates for postal sectors in Scotland (and the one postal sector involved twice by mistake). Secondly, sample weights were applied to take account of the different probabilities of selecting respondents in different sized households. Finally, weights were applied using post-stratification based on age, gender, and region to weight the data up to represent the structure of the national population, to take account of differential non-response among regions and age groups. Only one adult was sampled per household, so a second factor (the number of eligible adults in the household) was used to compensate for the different probability of selection for individuals in different sized households. Population estimates for age in ten-year bands, gender and region (taken from the weighting used on the Labour Force Survey) were used to post-stratify the data to population controls.

For phase two, prevalence rates for personality disorder were based on the second stage interviews. Only a sub-sample of respondents to the initial interviews were selected for the second stage and some of those selected did not complete a second interview. Therefore, further weights needed to be calculated to compensate for differential sampling probabilities and non-response at the second stage. This weighting was conducted in two steps. 1. A weight was constructed which took the first stage sampling weight and multiplied this by the probability of selection for the second stage. 2. There was differential non-response among the second stage sample groups. Response was associated with the sample group and level of neurotic symptoms, factors which were also associated with the likelihood of receiving a diagnosis of mental disorder at the second stage. To compensate for this differential nonresponse a new weight was formed.

3.5. Data Preparation or Wrangling

Once the APMS data had been downloaded, these were read into RStudio (4.1.3, 2022-03-10). The data formats available did not include the most common type used when working in R – .csv format. Instead, the data sets were downloaded in the SPSS .sav format and the haven v.2.5.0 (Wickham, Miller and Smith, 2022) package was used to read this data into the R environment. The aim of cleaning and wrangling the data was to create one row of data for each individual for each wave. This format is based on the principles of tidy data (Wickham et al., 2019), which share a common design philosophy, grammar, and data structures. The cleaning process in order to get the data ready for analysis relied heavily on this approach, alongside several key packages – the tidyverse v.1.3.1 (Wickham et al., 2019) packages which wrap ggplot2, Dplyr, tidyr, purr, tibble, stringr, and forcats. Many more packages outside of this key package, but still aligning with the tidyverse principles were also used, and a full list can be viewed in Appendix B.

Although the APMS is survey data, it still had the issue of being *"messy"* data. Messy data can suffer from different types of problems that hinder further analysis, including having special characters, duplicate rows, words being misspelled or several versions of a word that mean the same thing, for example, *"not applicable", "N/A",* and *"n/a",* zeros instead of null values, and just missing observations. Characteristics of ideal, clean data ready for meaningful analysis includes being free of duplication, free of misspellings and special characters, data being the appropriate type for analysis, for example, numbers as numerical instead of character variables; and following a tidy structure (Wickham et al., 2019).

The 2007 survey wave contained 7,403 observations of 1,757 variables. Not all of these variables were needed for this project's analysis, so the data was subset to variables of interest. This process involved the screening of the survey documentation, including the data dictionary and variable catalogues to find variables of interest that captured economic in/activity, severe mental illness and common mental health disorders and a variety of contextual variables around this. As the 2007 wave was the most recent accessed wave, the variables that were chosen from this wave were then cross-referenced with the 2000 survey wave to find variables in common, in addition to a manual search of the 2000 documentation. This was achieved

through the intersect and setdiff functions in R. All variables of interest can be seen in appendix X, and access to code scripts can be seen in Appendix BX. After subsetting the data, the 2007 wave was left with 7,403 observations of 267 variables (with 1,490 variables dropped).

Further exploration of the data revealed several issues that were immediately obvious. First, all variable names were adjusted to a uniform format with the help of the janitor (v.2.0.1) (Firke, 2021) package. The commands clean_names and remove_empty was used to make all variable names snake case and drop rows and columns that were empty for the subset. The commands order (colnames ()) and rename_all(tolower) were used to transform the variable names to lower case and order alphabetically. The second step was to rectify unwanted factor levels within the variables themselves. These consisted of several levels that needed to be transformed to the universal NA. The levels *"No answer/refused, NA, N/A, Don't know, Missing data, 'Proxy', Item not applicable, and Schedule not applicable"* from all 267 variables were placed within an object named na_strings.

This converted the previous factor levels into the universally recognized NA within R and solves the issue of "messiness" and levels that are not needed moving on. The third issue was sorting the factor level names and positions. The existing level names within the variables made use of a lot of abbreviations that were not accessible for readers who were not familiar with the data. For example, the variable diag which is a measure of common mental health disorders in the 2007 survey wave, included eleven levels, ten conditions and one level named 'no disorder'. The command recodes_factor was used on several variables that captured employment, mental illness, and sociodemographic information to further data exploration and allow accessible visualisations to be made.

Recoding of variables also happened to facilitate modelling. For example, the employment variable dvilo4a which captured ILO employment status in four categories recorded 'employed', 'unemployed', 'economically inactive', 'in employment not unpaid family worker', and 'unpaid family worker'. For modelling purposes where a binary was required recode_factor was used to collapse down into 'economically active' and 'economically active'.

To account for the survey weighting measures in the further analysis, the use of some specialist packages was required to create a complex survey object. This is an important step in ensuring that the data is accurately represented and that any biases in the sample are accounted for. The process of creating a complex survey object involves incorporating the weighting measures, as well as other survey design elements such as strata and clustering, into the analysis. This allows for the calculation of accurate standard errors and confidence intervals, which are essential for making valid inferences from the data. Additionally, the use of these specialist packages also allows for the implementation of advanced techniques such as post-stratification and raking, which can further improve the precision of the estimates and looked like:

$$y = \frac{\sum_{i=1}^{N} w_i y_i}{\sum_{i=1}^{N} w_i}$$

Where y_i is the value of the variable of interest for the i-th observation, w_i is the weight for the i-th observation, and N is the number of observations in the survey data. The weighted mean is calculated by summing the product of the weights and values and dividing by the sum of the weights. More can be seen on complex weighted survey object code in Appendix B.

Overall, the use of these packages and the creation of a complex survey object is crucial for ensuring the validity and reliability of the analyses conducted in this thesis.

The package survey (v.4.1.1) (Lumley, 2020) and its tidyverse wrapper *srvyr* (v.1.1.1) (Lumley, 2020) were used. This same workflow was also applied to the 2000 survey wave in preparation for further analysis via modelling which is described below.

3.5.1. Variable Operationalization

In this section, a detailed account of the operationalization of variables in the analysis, particularly focusing on key variables such as social class and ethnicity are set out. The choices made for variable operationalization are grounded in both established research literature and specific considerations relevant to our study.

Ethnicity Operationalization

In the research, the operationalization of ethnicity was a critical consideration due to its sensitivity and the need to strike a balance between preserving privacy and presenting meaningful results. The decision to collapse the ethnicity variable into two categories, *"White"* and *"Other,"* was informed by several key factors:

The first consideration comes from the work of Bradby (2003), who discusses the complexities and challenges associated with the classification of ethnic and racialized groups in health research. Bradby points out that fixed-response categories often reproduce racialized categorizations, emphasizing the homogeneity within groups and contrasting them with others. This overemphasis fails to offer terms with which people can identify and express their complex identities. Her critique aligns with our approach of using broader categories like White and Other, which navigates the complexities of ethnicity in mental health research while maintaining the ability to capture meaningful data for analysis (Bradby, 2003). Furthermore, the work of Hunt and Megyesi (2008) on the use of racial/ethnic categories in human genetics research underscores the often-unclear definitions and inconsistent classifications. They reveal that such categories frequently lack the rigor necessary for use as key variables in biological research. This insight is crucial, as it resonates with the rationale behind our approach to using broader ethnic categories. The inherent conceptual and practical problems highlighted by Hunt and Megyesi support the need for adaptability and simplicity in classifying ethnic categories in research contexts (Hunt & Megyesi, 2008).

Additionally, Ford and Harawa (2010) propose a conceptualization of ethnicity as a two-dimensional, context-specific social construct. This perspective aligns with our methodology by illustrating the need for context-specific categorization in ethnicity-related research. Their approach underlines the necessity of adaptability in handling the complexities of ethnicity, which is especially relevant in the context of our study (Ford & Harawa, 2010).

Lastly, the study by Gayle, Connelly, and Lambert (2016) on ethnicity and ethnic group measures in social survey research reviews the challenges and different approaches to measuring ethnicity. This study supports the idea that varying methodologies in capturing ethnic data are necessary, depending on the research context. The authors discuss the pros and cons of different approaches, which aligns with our method of collapsing categories to balance

detailed data collection with practical research considerations (Gayle, Connelly, & Lambert, 2016).

The Office for National Statistics (ONS) also provides guidelines on collapsing categories to minimize disclosure risk while maintaining data usefulness. The *"White"* category, typically being the majority and having a larger representation, is less likely to risk disclosure. On the other hand, grouping the smaller ethnic categories into *"Other"* helps prevent the identification of individuals, addressing the privacy concern.

In conclusion, these studies collectively justify the rationale behind the decision to use broader ethnic categories in our study. This approach not only ensures the retention of critical information about ethnic diversity but also facilitates the meaningful aggregation of data. This is particularly important when analysing conditions like severe mental illness, where comprehensive understanding of ethnic disparities is essential, yet practical limitations inherent in dealing with diverse and potentially small sample sizes must be managed.

Age Operationalization

In the UK context, there is no fixed retirement age. This absence of a fixed retirement age not only reflects a shift in policy but also in societal attitudes towards aging, work, and retirement. Within this study, age was a key variable of interest. In the APMS, age was originally operationalized as continuous but also as 10- and 20-year groups, which were of interest and kept.

The study by Davies and Cartwright (2011) provides valuable insights into this context by exploring preferences for later retirement among older employees in the UK's financial services industry. Their investigation into the influence of personal, psychological, and psychosocial determinants on retirement preferences underscores the complexity of retirement decisions. The findings suggest that attitudes towards retirement are shaped by a myriad of factors, ranging from individual psychological predispositions to broader sociocultural attitudes. This is particularly relevant in a setting where retirement is not a fixed milestone but a flexible and personal decision.

Nilsson (2016) contributes to this discussion by reviewing the complexity of aging in relation

to extending working life. The study highlights various conceptualizations of aging, such as biological, chronological, social, and mental/cognitive aging. These distinctions are crucial for understanding the dynamics of extending working life in the absence of a fixed retirement age. Nilsson's work points out that aging is not a uniform process and that its impact on work and retirement is multifaceted and context specific.

Marmot et al. (1998) in their evaluation of sociological theories of aging using data from the British Whitehall II study, delve deeper into this complexity. They apply well-established theories of aging to contemporary retirement, examining the role of health in this transition. This research is particularly pertinent in examining how lowered income and health changes following retirement affect individuals' lives. The study's findings challenge traditional perceptions of retirement as a period of decline, instead suggesting that retirement can be a period of continued engagement and fulfilment.

The Health and Retirement Study (HRS) led by Sonnega et al. (2014), although based in the USA, provides a multidisciplinary perspective that is relevant to the UK context. This study focuses on the changing health and economic circumstances associated with aging and retirement, offering insights into how aging impacts various aspects of life, including work and social connections. The HRS's approach, which encompasses economic, health, and psychosocial information, offers a comprehensive understanding of aging and retirement, highlighting the importance of considering a wide range of factors in studying these processes.

Similarly, the English Longitudinal Study of Ageing (ELSA) discussed by Steptoe et al. (2013) is a pivotal resource for understanding aging in England. ELSA, designed as a sister study to the HRS, is multidisciplinary in orientation, involving the collection of economic, social, psychological, cognitive, health, biological, and genetic data. The study provides a rich dataset for exploring the nuances of aging and retirement in the English context, particularly in light of the absence of a fixed retirement age.

In conclusion, these studies collectively underline the importance of understanding aging and retirement as dynamic and individualized processes, especially in contexts like the UK where retirement age is not fixed. They highlight that aging and retirement are influenced by a complex interplay of factors, including health status, psychological attitudes, socioeconomic conditions, and societal norms. This nuanced understanding is crucial for framing policies and

practices that can support individuals in navigating retirement and employment in later life, acknowledging that the traditional boundaries of retirement age are increasingly blurred and personalized.

Operationalization of the Register General Social Class

In the Adult Psychiatric Morbidity Survey (APMS), the original detailed operationalization of social class based on the Registrar General's Social Class (RGSC) encompassed seven distinct levels, from professional to armed forces. These were collapsed into three broader categories: High Skill, Med Skill, and Low Skill. This methodological decision aligns with the nuanced approach to class conceptualization in UK.

The importance of such an approach is underlined by the work of Barata, Ribeiro, Silva, and Antunes (2013), who delve into the use of the class concept in health research. Their discussion on different sociological approaches to social stratification and class structure, as well as the various operationalization models developed for health research, highlights the complexity and explanatory potential of the class concept, especially in the study of social determinants and health inequalities.

Duke and Edgell's (1987) contribution to the debate on the operationalization of class in British sociology also lends weight to this approach. They emphasize the necessity of choosing an appropriate conceptual scheme—be it occupational class or neo-Marxist social class—and the unit of analysis, as well as the degree of coverage. Their comprehensive framework underscores the importance of adapting the operationalization of social class to the specific requirements of the study, which in the case of the APMS, was focused on severe mental illness.

The landmark study *"Social Class Differences in Attitudes Towards Psychiatry"* by Hollingshead and Redlich from 1958 provides foundational insight into how social class impacts mental health. This study is significant in the context of the APMS, as it underscores the importance of considering social class in mental health research, reinforcing the decision to simplify the RGSC categories for the APMS analysis.

Moreover, the study by Gayle, Connelly, and Lambert (2016) on the challenges and approaches to measuring ethnicity in social science research parallels the considerations

needed in measuring social class. Their insights on methodological flexibility and sensitivity in categorizing social variables apply directly to the operationalization of social class in studies like the APMS.

Finally, Savage et al. (2013) presents a new model of social class based on the largest survey of social class ever conducted in the UK. This model, focusing on cultural and economic capital, demonstrates the evolving nature of class conceptualization in British sociology. This evolution is relevant to the decision to collapse RGSC categories for nuanced analysis, particularly in the context of studying severe mental illness.

In conclusion, the decision to collapse the RGSC into three broader categories for the APMS analysis reflects a deep understanding of the complexities and nuances of social class as a variable in the study of severe mental illness. This approach, informed by the evolving nature of class conceptualization in sociology and health research, ensures a balance between the granularity of data and the practicality of analysis. It recognizes the significant role of social class in mental health research, catering to the specific needs of the study while maintaining the integrity and relevance of the data.

Presence Severe Mental Illness

To ensure consistency in the measurement of severe mental illness (SMI) across different iterations of the Adult Psychiatric Morbidity Survey (APMS), particularly between the 2000 and 2007 datasets, a specific operationalization approach was required. In the 2000 APMS, the presence of SMI was determined based solely on the identification of psychosis, borderline personality disorder (BPD), and antisocial personality disorder (ASPD). These conditions were considered the core components for the classification of SMI within the study's context.

In contrast, the 2007 APMS initially expanded the scope of conditions considered under SMI to include eating disorders (ED) and post-traumatic stress disorder (PTSD) alongside psychosis, BPD, and ASPD. This expansion reflected a broader understanding of SMI and aimed to capture a wider range of severe mental health conditions affecting the population.

However, for the purpose of creating a variable (smi_comp) that would allow for direct

comparison between the 2000 and 2007 survey data, it was necessary to align the operational definition of SMI across both datasets. Consequently, the inclusion of ED and PTSD in the definition of SMI for the 2007 data was reconsidered. To maintain comparability with the 2000 dataset, where SMI was exclusively based on the presence of psychosis, BPD, and ASPD, ED and PTSD were excluded from the smi_comp variable in the 2007 dataset.

This decision to drop ED and PTSD from the smi_comp variable for the 2007 data was critical for ensuring that longitudinal analyses could be conducted without discrepancies in the definition of SMI between the two survey periods. By focusing on psychosis, BPD, and ASPD as the criteria for SMI, as was done in 2000, researchers could accurately assess trends, changes, and continuities in the prevalence of SMI over time.

The process of recoding and aggregating the diagnostic categories for ASPD, BPD, and probable psychosis into a single smi_comp variable, and the exclusion of ED and PTSD from this composite variable, underscores the methodological considerations necessary for longitudinal mental health research. It highlights the balance between capturing a comprehensive view of SMI and ensuring data comparability across different survey iterations. This approach facilitates meaningful insights into the dynamics of SMI within the population over time, guiding public health policy and service provision to better address the needs of individuals with severe mental health conditions.

Presence Common Mental Health Disorders

The operationalization process for common mental disorders (CMD) presence across the Adult Psychiatric Morbidity Survey (APMS) datasets from 2000 and 2007 employed a specific methodology to standardize the measurement of CMD presence, enabling consistent analyses and comparisons over time. This process involved categorizing various mental health conditions under a unified variable to signify the presence of CMD within the surveyed population.

In the APMS 2007 dataset, a composite variable named *cmd_pres* was meticulously created by utilizing a mutate function to generate the new variable based on existing diagnostic information (*diag*). Conditions including *"Mixed Anx & Dep"* (Mixed Anxiety and

Depression), *"Gen Anx & Dep"* (General Anxiety and Depression), *"Mild Dep"* (Mild Depression), *"Mod Dep"* (Moderate Depression), *"Sev Dep"* (Severe Depression), *"OCD"* (Obsessive-Compulsive Disorder), *"Panic Dis"* (Panic Disorder), and *"Specific Phob"* (Specific Phobia) were all recoded as *"Present."* Conversely, cases with a diagnosis of *"None"* were assigned *NA_character*, indicating the absence of CMD or missing data for that variable.

The *cmd_pres* variable, effectively labelled as *"CMD Present"* served as a binary indicator of whether an individual was identified as having any specified common mental disorders. This operationalization is supported by its comprehensiveness, capturing a broad spectrum of CMD and reflecting a wide variety of mental health challenges within the community. The consistency across surveys ensures accurate longitudinal studies and comparisons. Its simplicity and clarity enhance accessibility for a wide range of stakeholders, while its relevance to public health emphasizes the need for targeted resources and interventions. Furthermore, this operationalization aids in identifying at-risk groups, guiding the development of specific support and policies.

While this operationalization strategy offers a practical framework for analysing CMD across the APMS datasets, it's important to acknowledge its potential limitations. The binary approach may not capture the severity or complexity of individual disorders or co-morbidities. Nonetheless, it provides a valuable foundation for understanding the prevalence and impact of CMD, supporting efforts to improve mental health care and outcomes.

In conclusion, operationalizing CMD presence through the *cmd_pres* variable in the APMS datasets exemplifies a methodologically sound approach to mental health research. It enables meaningful insights into the dynamics of common mental disorders within the population, guiding public health policy and service provision aimed at addressing the widespread impact of these conditions.

Mental Health Service Use

The operationalization of the mental health treatment use variable, incorporating indicators for consultations with a General Practitioner (GP) regarding mental health complaints, outpatient visits for mental complaints in the last quarter, and inpatient stays with mental complaints in

the last quarter, plays a pivotal role in understanding patterns of mental health service utilization. This approach is crucial for analysing the Adult Psychiatric Morbidity Survey (APMS) data to identify how individuals with mental health complaints navigate the healthcare system.

The variables, namely *"docpsyc"* for GP consultations, *"outqtrme"* for outpatient visits, and *"inqtrmen"* for inpatient stays, are operationalized to capture a comprehensive view of mental health treatment use over a specified period. This operationalization facilitates a multi-dimensional analysis of service utilization patterns, reflecting both the frequency and types of healthcare services accessed by individuals with mental health complaints (Singleton et al., 2003).

The incorporation of these variables enables researchers to dissect the pathways through which individuals with psychiatric morbidity seek and receive care. For instance, consulting a GP *("docpsyc")* represents a primary care level interaction, often the first point of contact within the healthcare system for individuals experiencing mental health issues. This variable is essential for understanding the role of primary care in mental health service provision and the extent to which GPs identify and manage psychiatric morbidity or refer patients to specialized services (Bebbington et al., 2000).

The variables *"outqtrme"* and *"inqtrmen"* provide insights into the use of secondary and tertiary care services, capturing outpatient and inpatient treatments, respectively. These indicators allow for an assessment of the severity of psychiatric conditions being treated and the healthcare system's capacity to manage such conditions through specialized services. The differentiation between outpatient and inpatient care is critical for understanding the healthcare system's response to varying levels of mental health needs and the accessibility of specialized mental health services.

Operationalizing the mental health treatment use variable in this manner enables a detailed investigation into the patterns of mental health service utilization, the barriers to accessing care, and the potential gaps in service provision. It also allows for the examination of demographic and socio-economic factors influencing treatment-seeking behaviour, which is essential for informing targeted interventions and policies aimed at improving mental health

outcomes and access to care.

In conclusion, the operationalization of the mental health treatment use variable as comprised of consultations with GPs, outpatient visits, and inpatient stays for mental health complaints offers a nuanced framework for analysing the APMS data. This approach provides valuable insights into the healthcare-seeking behaviours of individuals with psychiatric morbidity, highlighting the critical role of both primary and specialized care in addressing mental health needs.

Education

Operationalizing education from a detailed scale (None, GCSE/Equivalent, A Level, Vocational*, Degree) to a simpler one (None, GCSE/A Levels, Degree) could be influenced by several factors. The primary reason for such a change might be to streamline the categories to better reflect significant educational milestones that correlate with mental health outcomes, thus improving the clarity and analysis of the data. The APMS findings have highlighted the complex nature of psychiatric disorders and their correlation with sociodemographic factors, emphasizing the importance of accurate and meaningful categorization of variables like education (Singleton et al., 2003).

A more streamlined operationalization can facilitate the analysis of how educational attainment impacts or correlates with psychiatric morbidity. It allows for clearer distinctions between different levels of education and their potential association with mental health conditions, as evidenced by research findings that have explored the relationship between educational levels, access to care, and mental health outcomes (Bebbington et al., 2000). Simplifying the educational categories might also aid in identifying specific groups at higher risk of psychiatric morbidity, thereby informing targeted interventions and policies.

Moreover, the decision to operationalize education in this manner may also be driven by the need to align with international classifications and studies, allowing for better comparison and synthesis of research findings across different contexts. It acknowledges the significant impact of education on mental health while ensuring that the variable is manageable and meaningful for analysis purposes.

In conclusion, operationalizing the education variable in the context of the APMS to a simplified categorization scheme aims to enhance the understanding of the relationship between education and psychiatric morbidity. This approach facilitates more straightforward analyses, potentially leading to more robust findings that can inform both policy and clinical practice in addressing the mental health needs of different educational groups.

Treatment Type

The operationalization of treatment use within the context of the Adult Psychiatric Morbidity Survey (APMS) is effectively captured through the variable *"trtment"* which records whether respondents are receiving any form of treatment for mental health conditions. This includes medication, counselling, or a combination of both. The variable is critical for assessing the extent and type of mental health treatment received by individuals, providing insights into the treatment landscape and accessibility within the surveyed population.

"trtment" is defined as an ordinal numeric variable in SPSS, indicating a hierarchical structure in the types of treatment received, with specific values representing different treatment modalities:
Value = 0, labelled as *"No treatment"* indicates that the respondent is not receiving any form of treatment for mental health conditions. Value = 1, labelled as *"medication only"* signifies that the respondent is receiving pharmacological treatment without any accompanying counselling or therapy. Value = 2, labelled as *"counselling only"* denotes that the respondent is engaged in counselling or therapy sessions without taking any medication for mental health. Value = 3, labelled as *"both medication and counselling"* indicates that the respondent is receiving a combined treatment approach, involving both medication and counselling or therapy.

This operationalization allows for a nuanced analysis of mental health treatment modalities among participants, enabling researchers to dissect the patterns of care, including preferences for medication versus counselling, and the utilization of combined treatment strategies. It provides a comprehensive view of how mental health conditions are being managed among the population, highlighting the accessibility and use of different treatment options.

By differentiating between medication, counselling, and combined treatments, the *"trtment"* variable facilitates targeted investigations into the effectiveness and preferences for different treatment modalities. This distinction is crucial for understanding patient pathways through the mental health care system, including potential barriers to accessing certain types of treatment and the factors influencing treatment choices. Moreover, it allows for an exploration of the relationship between treatment modalities and various outcomes, including symptom severity, quality of life, and overall well-being.

The focused operationalization of treatment use through *"trtment"* is essential for generating actionable insights into mental health care provision and utilization. It underscores the importance of offering a range of treatment options to meet diverse patient needs and supports the development of policies aimed at improving access to and the quality of mental health care services.

In summary, the precise operationalization of treatment use through the *"trtment"* variable in the APMS highlights the critical aspects of mental health treatment accessibility and utilization within the surveyed population. It contributes valuable data for healthcare planning, policymaking, and the evaluation of mental health services, aiming to enhance treatment options and improve mental health outcomes.

Presence of Physical Health Conditions

The operationalization of the presence of a physical health condition within the context of the Adult Psychiatric Morbidity Survey (APMS) leverages the variable *"outwhy"* which inquiries about the primary reason for the most recent healthcare provider visit in the last three months. This variable is pivotal for identifying respondents who sought healthcare services specifically for physical health issues.

Defined as an ordinal numeric variable in SPSS, *"outwhy"* categorizes the reasons for healthcare visits into a hierarchy, with designated codes for user missing values (-8 and -9) to handle non-responses or inapplicable cases efficiently. Within this structure, the value label information for *"outwhy"* clearly differentiates the nature of the healthcare visit: Value = 1, labelled as *"a physical health problem"* explicitly indicates that the respondent's latest visit to

a healthcare provider was due to concerns or conditions related to physical health.

This operationalization is instrumental for the analysis of physical health conditions among participants, allowing researchers to directly assess the prevalence and impact of physical health issues separate from mental health conditions. It provides a clear and focused lens on physical health, enabling the examination of patterns in healthcare utilization specifically related to physical ailments (Singleton et al., 2003).

By isolating physical health as the primary reason for healthcare visits, the *"outwhy"* variable facilitates targeted investigations into the healthcare system's response to physical illnesses. This distinction is crucial for understanding how individuals with physical health conditions engage with healthcare services and the potential barriers they face in accessing care. Moreover, it allows for an analysis of the relationship between physical health conditions and other sociodemographic or health-related factors within the survey's scope.

The focused operationalization of physical health presence through *"outwhy"* is essential for public health insights and policy formulation. It underscores the need for adequate healthcare services for physical conditions and supports the development of integrated care models that address both physical and mental health needs comprehensively.

In summary, the precise operationalization of the presence of a physical health condition through the *"outwhy"* variable in the APMS highlights the importance of recognizing and addressing physical health concerns within the surveyed population. It contributes valuable data for healthcare planning and policymaking aimed at improving access to and quality of care for physical health conditions.

CMD and SMI Condition Types.

In the analysis of the Adult Psychiatric Morbidity Survey (APMS) 2007 dataset, the operationalization of common mental disorders (CMD) and severe mental illness (SMI) types is essential for a detailed examination of the mental health conditions present within the surveyed population. This detailed categorization allows for the identification of specific disorders, informing targeted interventions and policy formulations.

The APMS 2007 dataset categorizes CMD into several types, including None, indicating the absence of any CMD; Depressive Episode, for individuals experiencing depression; General Anxiety and Depression, for symptoms of both conditions without fulfilling the criteria for either; Mixed Anxiety and Depression, where symptoms of both anxiety and depression significantly impact well-being; Obsessive-Compulsive Disorder (OCD), characterized by recurring, unwanted thoughts and repetitive behaviours; Panic Disorder, involving sudden episodes of intense fear; and Specific Phobia, involving irrational fear of specific objects or situations.

Similarly, the dataset differentiates types of SMI through variables that identify None, for individuals without any diagnosed SMI; Personality Disorder, for enduring, maladaptive patterns of behaviour and cognition; and Psychosis Condition, for conditions involving psychosis such as schizophrenia or bipolar disorder, marked by delusions, hallucinations, and disorganized thinking.

This classification enables a granular analysis of the prevalence of specific mental health disorders, offering insights into the disorders that may require targeted healthcare services and interventions. It underscores the need for specialized services and support systems to address the complex needs of individuals with severe mental illnesses, facilitating an in-depth understanding of the distribution and impact of these illnesses within the community.

Operationalizing CMD and SMI types thus provides a comprehensive framework for analysing mental health conditions across a spectrum of severity and specificity. This approach not only enhances the capacity to identify patterns and assess needs but also supports the implementation of effective mental health strategies at both individual and population levels. It contributes to improved mental health outcomes and reduced healthcare disparities, highlighting the importance of precise and thoughtful operationalization in mental health research.

In summary, the operationalization choices made in this study reflect a comprehensive understanding of the complexities and nuances of these variables. These choices ensure a balance between the depth of data and the feasibility of analysis, particularly in the study of

severe mental illness, while maintaining the integrity and relevance of the data.

3.5.2. Pooling the Data

Data pooling was a pivotal step in this research, for the examination of trends and changes in the two datasets collected in the years 2000 and 2007. By combining these datasets into a single unified dataset.

The data pooling process began with the introduction of a new variable called *"wave"* into each of the individual datasets from 2000 and 2007. The purpose of this *"wave"* variable was multifaceted. Primarily, it served as an identifier, allowing to distinguish the origin of data points, whether they belong to the 2000 dataset or the 2007 dataset. This identification is crucial for maintaining data integrity, as it ensures that each data point can be accurately attributed to its respective time period.

The *"wave"* variable also carried a secondary advantage—it allowed year-specific analyses with precision. By incorporating this variable, data could be subset or filtered based on the year of collection, facilitating targeted investigations into trends and changes within each dataset.

3.5.3. Combining the Datasets

To achieve the pooling, *`bind_rows`* function from the *dplyr* package was used. This function is a versatile tool for combining datasets, specifically designed for row-wise data concatenation.

With the application of the bind_rows function, the datasets from 2000 and 2007 were effectively stacked on top of each other, resulting in the creation of a consolidated dataset named *"combi_apms_subset"* This unified dataset houses all the data points from both years, preserving the original information in its entirety.

Crucially, because we introduced the *"wave"* variable in both datasets, the *"combi_apms_subset"* dataset now possesses a valuable attribute. It offers unambiguous

identification of the year associated with each row of data. This level of granularity allows us to maintain the context of the original datasets within the merged dataset, ensuring that year-specific analyses can be conducted with precision and accuracy.

3.5.4. Weighting for Sampling Structure Differences

Weighting is an indispensable technique that we have applied to address discrepancies in the sampling structure between the two datasets collected in different years. These discrepancies can arise due to variations in sample sizes, survey designs, or demographic characteristics, and ignoring them could lead to biased results. To rectify this, we have meticulously normalized the weights for each year's dataset, creating two essential weight variables: "wt1_norm" and "wt_ints1_norm." which were combined to weight the pooled dataset. By extending the normalization process to the entire pooled dataset, we ensure that each data point's weight is adjusted according to the global sampling structure, making the combined dataset more representative and less susceptible to biases associated with differences between the individual datasets.

The use of these weight variables reflects commitment to data integrity and accuracy. It allows us to appropriately account for the influence of each data point within the context of its respective dataset and the combined dataset as a whole.

3.5.5. Achieving Complex Sampling with `srvyr`

Complex sampling is a methodological approach that was employed to maintain consistency in our research, particularly when dealing with the pooled dataset. The use of complex sampling ensures that the analysis accurately represents the characteristics of the original datasets while accounting for their distinct survey designs and sampling strategies.

To achieve complex sampling, the capabilities of the "srvyr" package, a powerful tool for conducting survey analysis in R, was used. By creating the complex survey design srvyr consistently across both years in the pooled dataset, we have maintained uniformity in our analysis procedures. This consistency is paramount to ensure that any observed trends, relationships, or patterns are not artifacts of variations in the survey methods themselves.

By adopting a standardized approach to complex sampling, we bolstered the reliability of our results and conclusions, making them robust and defensible. This methodological rigor is especially crucial when conducting comparative analyses, as it allows us to confidently draw meaningful insights while minimizing the influence of survey-related variations.

3.5.6. Interaction terms

In this research, a pivotal aspect of our analytical strategy involves the use of interaction terms within regression models to formally test the differences between the two years, 2000 and 2007, in the pooled dataset. This approach is instrumental in evaluating whether the relationships between key variables, such as "econ_act," "gender," and "smi_comp," and the outcome variable exhibit significant variations across these two distinct time periods. This section provides a detailed overview of the rationale behind including interaction terms and the methodology employed.

3.5.7. Rationale for Including Interaction Terms

The inclusion of interaction terms in regression models serves as a statistical technique for probing and quantifying the potential differences in relationships between variables across different groups or conditions. In this case, with an interest in investigating whether there are statistically significant variations in the relationship between our key variables (e.g., "econ_act," "gender," "smi_comp") and the outcome variable, such as economic activity, between the years 2000 and 2007. By introducing interaction terms, a framework to test the hypothesis that the relationship between these variables and the outcome is not uniform across time periods is created.

3.5.8. Implementation of Interaction Terms

For this analysis, interaction terms were systematically included in all six regression models. These interactions were specifically fitted between the variable denoting the year *("wave")* and the primary variable of interest in each respective model. By incorporating this interaction term, it aimed to capture and quantify any statistically significant differences in the

relationship between the main variable and the outcome variable across the years 2000 and 2007.

The interaction term effectively allows a test whether the impact of the key variables on the outcome varies significantly over time. In other words, it enables us to answer the research questions.

The inclusion of interaction terms and the subsequent formal testing of differences across time periods are essential components of the research methodology. These analyses provide a rigorous and evidence-based approach to assess whether the dynamics of our key variables have changed over time. The results of these tests, if significant, can have far-reaching implications for understanding of trends and changes in the dataset and may inform policy recommendations or further research directions.

3.6. Statistical Modelling

To address and answer the project's research questions, a tidy approach to modelling was implemented, using the *tidymodels* (v.0.2.0) (Kuhn and Wickham, 2020) package. The modelling used follows a tidymodels structure in several steps. The dependent variable in these models was being economically active or not, measured by the derived variable of *"econ_act"* which collapsed from the original four levels to two levels, economically active or economically inactive. Logistic regression models were fitted and compared to each other in both of the survey waves. For a logistic regression model that includes both predictors and interaction terms:

$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 (X_1 \times X_2)$$

p is the probability of the outcome variable being 1

X_1 and X_2 are the two predictors

$X_1 \times X_2$ represents the interaction between X_1 and X_2

β_0 is the intercept, β_1 and β_2 are the coefficients for the predictors X_1 and X_2 respectively, and β_3 is the coefficient for the interaction term

3.6.1. Models Built for Research Questions

These models represent a series of logistic regression analyses designed to explore the relationship between economic activity (*`econ_act`*) or employment status (*`emp_act_status`*) and a variety of predictors, including demographic factors, physical health, and mental health indicators. The models progressively incorporate interaction terms to examine how the relationship between economic activity or employment status and certain predictors may differ across levels of other variables, such as time (wave), gender, age, or presence and type of mental health disorders.

For research question 1, two model was built that focuses on the types of common mental health disorders and types of severe mental illness' (*`cmd_type`*) and their interactions with time (*`wave`*), exploring how different types of disorders and their severities affect economic activity over time. For research question 2 a model was built that examines the relationship between economic activity and demographic factors (gender, age, ethnicity, social class, education), physical health, presence of common mental health disorders (*` cmd_pres`)*, severity of mental illness (*`smi_comp`*), and time (wave) without interaction terms. It serves as a base model exploring direct effects. For research question 3, two models were built, including one for SMI type that looks at the type of severe mental illness and its interaction with time alongside the direct effects of demographic and health factors on economic activity, and a model that looked at CMD type but with an emphasis on the types of CMD. For research question 4 a model was built that included interactions between the presence of common mental health disorders, severity of mental illness with age, aiming to understand how these relationships vary across age groups. For research question 5, models were built that focused on the interaction between the presence of common mental health disorders and all other predictors (wave, gender, age, ethnicity, social class, education, physical health, treatment received, and any healthcare activity). It seeks to understand how the impact of common mental health disorders on economic activity is moderated by these factors. Another for examining the impact of the severity of mental illness and its interactions with all other predictors on economic activity, similar to the, but with a focus on severe mental illnesses.

McFadden's R2 values are not analogous with R2 values calculated from linear models.

Instead, values of 0.2 - 0.4 represent an excellent model fit (McFadden, 1974). Logistic regression weighted survey model results were reported via odds-ratios for individual independent variables, an example being in Appendix B. Average partial effects (APE's) were also reported. The recommended course of action in this case is to provide a measure of the extent of the effect of each variable. Estimates are reported as average partial effects (APEs), which is also a recommended course of action for interpretation in the tidymodels workflow (Kuhn and Wickham, 2020) Further information regarding interpretating model fit statistics can be found below.

3.7. Interpretating Model Fit Statistics

In the analysis of the relationship between severe mental illness (SMI), common mental health disorders (CMD), and economic activity, employing rigorous statistical methods is pivotal for drawing meaningful conclusions. To evaluate the performance and appropriateness of the logistic regression models used in this research, three critical model fit statistics are utilized: the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), and McFadden's pseudo-R^2. This section delves into each of these statistics, elucidating their significance and the insights they offer about the model's fit and interpretability within the scope of this study.

3.7.1. Akaike Information Criterion (AIC)

The AIC is a measure used to compare models and assess the goodness of fit while penalizing the complexity of the model. It is grounded in information theory, aiming to quantify the information lost when a model is used to represent the process that generated the data. The AIC is particularly useful in balancing the model's fit against its complexity, discouraging overfitting by imposing a penalty for the number of parameters, for example:

$$\mathrm{AIC} = -2\log(L) + 2\mathrm{k}$$

L represents the maximum likelihood of the model, which is a measure of how well the model fits the data
k is the number of estimated parameters in the model, including both the coefficients of the predictors and the intercept

The first term, $-2\log(L)$ penalizes models that don't fit the data well
The second term, $2k$, penalizes models with more parameters to discourage overfitting

In the context of this research, a lower AIC value indicates a model that offers a more suitable balance between explaining the variability in the data and maintaining parsimony, thus being more efficient in capturing the relationship between mental health conditions and economic activity without unnecessary complexity.

3.7.2. Bayesian Information Criterion (BIC)

Similar to the AIC, the BIC is another criterion for model selection, which also takes into account the fit of the model and its complexity. However, the BIC applies a stricter penalty for the number of parameters, making it more conservative than the AIC, for example:

$$\text{BIC} = -2\log(L) + k\log(n)$$

L is the maximum likelihood of the model, indicating how well the model fits the data
k is the number of estimated parameters in the model, which includes the intercept and the coefficients of the predictors
n is the number of observations in the dataset
The term $-2\log(L)$ represents the model's lack of fit, with lower values indicating better fit
The term $k\log(n)$ penalizes the complexity of the model more heavily than AIC, especially as the sample size n increases, to avoid overfitting with models that have too many parameters

This greater penalty is especially relevant in research with larger sample sizes, as it helps to prevent overfitting by more heavily penalizing the inclusion of superfluous variables. In this study, the BIC assists in identifying the most appropriate model that explains the relationship between mental health and employment status, ensuring that the model's complexity is justified by the data.

3.7.3. McFadden's Pseudo-R^2

While R^2 is a familiar statistic in linear regression, indicating the proportion of variance explained by the model, McFadden's pseudo-R^2 serves a similar purpose in the context of logistic regression, for example:

$$R^2_{McFadden} = 1 - \frac{ln(LM_1)}{ln(LM_0)}$$

ln (LM1) = log likelihood of fitted model
ln (LM0) = log likelihood of null model

It provides a measure of the model's explanatory power by comparing the likelihood of the fitted model to that of a null model with no predictors. A higher value of McFadden's pseudo-$R^{\wedge 2}$ indicates a better fit, suggesting that the model effectively captures the variation in the outcome variable relative to the baseline model. In this research, McFadden's pseudo-$R^{\wedge 2}$ is crucial for assessing how well the model explains the influence of SMI and CMD on economic activity, considering the complexities inherent in such relationships.

3.7.4. Average Partial Effects

Average Partial Effects (APEs) are a statistical measure used to understand the impact of independent variables on the dependent variable in a model, especially in non-linear models like logistic regression. They represent the average change in the probability of the dependent variable occurring due to a one-unit change in an independent variable, holding all other variables constant. APEs are particularly useful in logistic regression analysis because they offer a more intuitive interpretation of the model's results compared to coefficients alone and looked like:

$$\text{APE} = \frac{1}{n}\sum_{i=1}^{n}\frac{\partial \hat{y}_i}{\partial x_i}$$

n is the number of observations
y^i is the predicted value of *Y* (e.g., the probability of having diabetes) for observation *i*, which is derived from the logistic regression model
xi represents the value of the independent variable *X* (e.g., race) for observation *i*
∂xi∂y^i denotes the partial derivative of the predicted value with respect to the independent variable, capturing the instantaneous rate of change in the predicted probability with respect to a one-unit change in *xi*, holding other variables constant

This APE reflects the average impact of a one-unit change in the independent variable *X* on the predicted outcome *Y*, across all observations in the dataset.

This effect estimate describes the average marginal effect (AME) at a specific value of a given

independent variable and Williams in 2012, p. 325 provides an intuitive example of how APEs are calculated and interpreted concerning race and diabetes (Williams, 2012):

1. Go to the first case. Treat that person as though he or she were white, regardless of what the person's race actually is. Leave all other independent variable values as is. Compute the probability that this person (if he or she were white) would have diabetes.
2. Now do the same thing but this time treating the person as though he or she were black.
3. The difference in the two probabilities just computed is the ME for that case.
4. Repeat the process for every case in the sample.
5. Compute the average of all the MEs you have computed. This gives you the AME for being black relative to white.

This compares hypothetical populations with the same observed values for other explanatory variables in the model (Williams, 2012). Mood (Mood, 2010) states that reporting APEs is advantageous as the effects can be compared across groups, models, and samples. In this analysis APEs were calculated with standard errors and 95% confidence intervals using the tidymodels packages (Kuhn and Wickham, 2020). For all variables included in the final models, model performance metrics and APE reporting, this can be seen in Chapter 6.

The significance of APEs lies in their ability to quantify the average expected change in outcome across all observations, providing a clearer picture of how changes in predictor variables affect the outcome variable. For instance, in the context of this thesis exploring the relationship between mental health conditions and economic activity, an APE could illustrate how a one-unit change in the severity of a mental health condition alters the probability of being economically active on average, across the study population.

When interpreting APEs, it's essential to consider the magnitude and direction of the effect. A positive APE indicates that as the independent variable increases, the probability of the outcome occurring also increases, on average. Conversely, a negative APE suggests that an increase in the independent variable is associated with a decrease in the probability of the outcome occurring.

3.7.5. Interpreting Odds Ratios

Odds ratios (ORs) are a measure used in logistic regression analysis to express the strength and direction of the association between an independent variable and the outcome variable. An OR indicates how the odds of the outcome occurring change with a one-unit increase in the independent variable, holding all other variables constant. In logistic regression, which is often used for binary outcome variables (e.g., employed vs. unemployed), the OR provides valuable insights into the likelihood of the outcome given the presence or absence of certain conditions or characteristics.

To interpret ORs effectively, it's important to understand their scale: an OR greater than 1 indicates an increase in the odds of the outcome occurring with each unit increase in the predictor. An OR less than 1 suggests a decrease in the odds of the outcome occurring. An OR of exactly 1 implies no change in the odds of the outcome with changes in the predictor variable. For example:

$$\mathrm{OR}_X = e^{\beta_X}$$

OR_X is the odds ratio associated with the independent variable X
β_X is the estimated coefficient for the independent variable X from the logistic regression model
e is the base of the natural logarithm

The coefficient β_X represents the log odds change in the outcome for a one-unit increase in X. Exponentiating this coefficient (i.e., $e^{\beta X}$) transforms it into an odds ratio, which is a more intuitive measure of the association between X and the outcome, indicating how many times the odds of the outcome are multiplied for each one-unit increase in X, holding all other variables constant.

For example, in the context of this thesis, an OR might be used to quantify how the presence of a severe mental illness (SMI) affects the odds of being economically active compared to those without SMI. If the OR for SMI is 0.5, it suggests that individuals with SMI have 50% lower odds of being economically active compared to individuals without SMI, controlling for other factors in the model.

Odds ratios make the results of logistic regression models more interpretable for non-specialist audiences by providing a straightforward way to understand the strength and direction of associations. They are particularly useful in medical, social science, and policy research, where understanding the implications of various factors on binary outcomes is crucial for decision-making.

3.7.6. Conclusion

Incorporating AIC, BIC, and McFadden's pseudo-R^2 as model fit statistics is crucial for several reasons, enhancing this research's robustness and applicability. These statistics offer a comprehensive assessment of the model's performance by weighing its explanatory power against its complexity, facilitating comparisons between different models to discern the most suitable for elucidating the relationship between mental health conditions and economic activity. By striking a balance between simplicity and complexity, these fit statistics ensure the reliability and relevance of the conclusions drawn, deepening our understanding of how mental health intersects with labour market dynamics.

Furthermore, the explanation and interpretation of odds ratios (ORs) and average partial effects (APEs) significantly demystify the statistical analysis for readers across various disciplines. This approach makes the study's findings on the relationship between mental health conditions and economic activity more accessible, enhancing their impact and utility in shaping evidence-based policies and interventions. ORs provide a straightforward measure to understand the strength and direction of associations within logistic regression models, making the implications of the research clear for policymaking. Similarly, the integration of APEs into the analysis offers nuanced insights into the direct effects of mental health conditions on economic activity, allowing for an interpretable understanding of complex relationships modelled within the research.

By amalgamating these statistical insights —AIC, BIC, McFadden's pseudo-R^2, ORs, and APEs—the research not only advances methodological rigor but also enhances the clarity and applicability of its findings. This combination supports the derivation of meaningful insights into the dynamics of mental health and the labour market, contributing significantly to policymaking and intervention development aimed at addressing the economic challenges

faced by individuals with mental health conditions.

3.8. Project Timeline

This project began in October 2017. Part of the first year of this project was to scope out potential datasets around the original project title of "health barriers and enables to the return of employment" and it was during this time a focus on psychosis conditions was taken forward in relation to this. Going into the second year and after literature reviews and become familiar with data sources it was decided to widen this scope out to "Severe Mental Illness", and this is also when the originally planned administrative datasets were taken forward to link and use.

Going into the third year of the project, data access via the SLS was arranged at Ladywell House in Edinburgh. However, after the UK press conference on the 16th of March 2020 around the rise in COVID-19 globally, it was announced that all non-essential travel and contact should be stopped.

Ladywell House, a data safe haven that could only be accessed physically, announced their immediate closure on the 17th of March for two weeks. The announcement of the first national lockdown in UK was broadcast on the 23rd of March 2020. Data access for the original thesis project data was originally arranged for the 30th of March 2020. This did not go ahead, and several months after when measures were still in place, the project had to be reorientated due to the SLS not allowing home access. The original PhD submission date was December 2020. With a funder extension due to COVID-19 and a thesis pending year, this took submission to the 31st of January 2023.

3.9. Chapter Summary

Chapter 3 outlines the quantitative methodologies employed to investigate the impact of SMI and CMD conditions on economic activity, structured into detailed sections from data access to statistical modelling, reflecting adjustments due to COVID-19 which necessitated a shift in research approach due to restricted access to the original datasets. The chapter emphasizes the

selection criteria for new data, leading to the choice of the Adult Psychiatric Morbidity Survey (APMS) for its comprehensive data on psychiatric morbidity among adults in the UK, suitable for exploring the relationship between severe mental illness (SMI), common mental health disorders (CMD), and economic activity.

Operationalization of key variables such as social class, ethnicity, treatment type, presence of physical health conditions, CMD, and SMI is discussed, with justifications rooted in existing literature to ensure their appropriateness for the research questions. The pooling of data from the 2000 and 2007 APMS waves, including the creation of a *"wave"* variable and application of weighting strategies, is detailed to facilitate longitudinal analysis.

The statistical modelling section is central, describing the construction of logistic regression models to examine the relationships between mental health conditions and economic activity, incorporating interaction terms to explore temporal differences. The chapter elaborates on model fit statistics like AIC, BIC, and McFadden's pseudo-$R^{\wedge 2}$, alongside the interpretation of odds ratios and average partial effects (APEs), to provide insights into the models' outcomes.

Concluding with a reflection on the project timeline, the chapter acknowledges the challenges and adjustments necessitated by the COVID-19 pandemic, showcasing methodological rigor and adaptability in the research process. Overall, Chapter 3 meticulously details the quantitative methods used in the thesis, laying a robust foundation for the analyses and findings presented in subsequent chapters.

Chapter 4

Methods 2: Reflexivity

4.1. Chapter Overview

This chapter outlines a description of and critical reflection on this project's autoethnographic reflexive methodology. In Section 4.1 I consider the application of the quantitative approach to individual experiences. Section 4.2 and 4.3 considers my professional and personal relationships to this project and its topic. Section 4.4 sets out the need for reflexivity in quantitative methods. This chapter provided the basis for an article that was subsequently published[1].

4.2. Quantitative Methods & Personal Experiences

This project applies quantitative methods at the heart of its exploration into the relationships between Severe Mental Illness and employment outcomes. A distinction made when exploring research methods is the differences between quantitative and qualitative approaches, which are often portrayed as a dichotomy (Maree, 2020).

The quantitative approach stems from positivism which is realist orientated and based on the view that reality exists independently and can be described as it is. Ontologically the approach holds that one ultimate truth exists and objective reality exists independently of human perception (Sale, Lohfeld and Brazil, 2002). Since phenomena have objective reality in positivism, quantitative

[1] Jamieson, M.K., Govaart, G.H. and Pownall, M., 2023. Reflexivity in quantitative research: A rationale and beginner's guide. *Social and Personality Psychology Compass*, *17*(4), p.e12735.

epistemology states that the researcher and that being investigated are independent entities and therefore the researcher can study a phenomenon without influencing it or being influenced by it (Neubauer, Witkop and Varpio, 2019). It also suggests that facts and values can be separated, allowing the researcher to explore this truth as their work aligns to the reality being investigated. As a result, it regards this truth as validity. To eliminate threats to validity, various research strategies are implemented to ensure biases are prevented from influencing the outcomes, with are then viewed as true (Kankam, 2019). Within this approach objective reality can be viewed in terms of causal effects that could allow generalisable prediction. Consequently, the aim of this type of investigation would be to measure and analyse causal relationships in phenomena, but also about the description of the scale or nature of phenomena or trends over time, or the identification of (non-causal) relationships or associations within a value-free framework with the end goal being generalization. This type of methodology can be described as unusual, with questions and hypothesis proposed, tested, and verified, with confounding conditions controlled for to prevent outcomes from being biased (Park, Konge and Artino, 2020).

Given that generalisation and objectivity are underlying principles, the positivist quantitative approach calls for methods grounded in statistical analysis, such as inferential statistics, hypothesis testing, experimental and randomisation design, structured protocols, and questionnaires with predetermined responses. Sample size is also critical in quantitative research, with large samples ensuring better representativeness and generalisability of findings alongside the proper use of statistical tools.

4.3. *"Where Am I?"* The Researcher in a Quantitative Context

Research is not conducted in a social or political vacuum and our work will always be inevitability informed and influenced by our individual experiences and conscious and unconscious biases we hold. Although more discussed within qualitative methodology, there are also arguments within quantitative methodology that objectivity cannot truly be achieved (Lazard and McAvoy, 2020). Work by Lazard and McAvoy raises that reflexivity does occur within all research to some degree, no matter the methodology. The view that objectivity is

fallible even in quantitative research conflicts with the view that sound knowledge production only comes with research in which the researcher is detached from the subject and are themselves unbiased, and the decisions made in collecting and processing the data from start to finish can be laid open to scrutiny and challenge. The search for objectivity became interwoven with the common assumptions held by the researchers, and the context that they worked and lived in. Harding (Lerum, 2001) argued in their work 'The Science Question in Feminism' that science rests on a set of socially, politically, and historically produced dualisms such as, objectivity/subjectivity, rationality/irrationality that links males to the former and females to the latter in each dichotomized pair. Harding argued that these dualisms became influenced due to the privilege afforded to one half of the dichotomy over the other, objectivity, rationality, science (or quantitative methodologies) and masculinity became privileged or seen as more worthy than subjectivity, irrationality, and non-science (or qualitative methodologies) and femininity by virtue of their position in the pairing. These relations of power are important because, as Harding in 1986 points out:

> *"these beliefs (from science) structure the policies and practices of social institutions including science [itself]."*
>
> ((Lerum, 2001), p. 136).

These critiques created a legitimate basis for calls to work with subjectivity rather than against it in quantitative methodologies (Lazard and McAvoy, 2020; Jamieson, Pownall and Govaart, 2022).

To counter this, I can provide an honest account of our own position and reasonings in approaching this research, one way being to engage in reflexive practice (Folkes, 2022). Reflexivity is a form of critical thinking which aims to articulate the contexts that shape the processes of doing the research and the subsequent knowledge produced. It is meant to be a steady, internal assessment, and often an uncomfortable experience examining the dynamics between the interpersonal and external knowledge production taking place around you, the researcher. Through these internal dialogues, researchers can account for their personal circumstances and acknowledge their stance in relation to the research ((Folkes, 2022). This section provides this short reflexive account and the ontological and epistemological

underpinnings that have helped shape this research, and the personal and professional influences on the whole research process that occurred.

Professionally, I am a researcher with a background in psychology, although I now describe my work as interdisciplinary and better for it. Mills (Mills, 2000) considered the role of the social scientist as being able to turn individual issues into issues of public concern. Through raising awareness of these 'personal troubles,' private and individual issues by contextualizing them in the inequalities throughout society, such as the imbalances at play in class, gender, and race. Contrary to the usual positivist approach seen in traditional quantitative methods, I approach this research from more of a social constructionism position, where knowledge is viewed as something generated through interaction, and something I argue also happens within quantitative research, and is much less considered than its qualitative counterparts.

My professional identity also has been influenced by my personal and professional alignment with intersectional feminism. Feminist approaches to research generally question the normative assumptions of what 'good' research is, and this is seen to be evidence-based, objective and conducted by non-biased researchers (Folkes, 2022). However, as discussed in this chapter, this idea of 'hygienic' quantitative research is in fact both affected by and affects the researcher, consciously or unconsciously. Subsequently, the researcher is present in the research process, and inextricably involved in the construction of knowledge, regardless of its qualitative or quantitative methodology (Folkes, 2022).

Personally, I am white, neurodiverse, able-bodied, bisexual, and non-binary. I grew up in a working-class, single-parent household, in the working-class area of Pollok in Glasgow during the '90s and '00s. These have been some of the background factors that have helped to shape my experiences of the world, and it is important to note the privilege this has afforded, even though the act of being able to conduct this research. However, despite this, this research grew from my own lived experience or 'personal troubles' (Mills, 2000) associated with severe mental illness and navigating employment. I grew up affected by severe mental illness, violence, and substance abuse in my family. Throughout my childhood and teen years, I became the primary carer for both my mother and father in turn as I lived between both households, and in between significant events that would move them in and out of my life, and in and out of employment, such as hospitalisation, care experience, and imprisonment. Going

into my twenties I was maintaining a lot at once, my own poor mental health, employment, caring responsibilities, and education.

Throughout my early twenties I became more aware of the state of my own mental health, which included panic, anxiety, and disordered eating, but continued to 'place it on the back burner' to continue with my responsibilities, even as these were having a profound impact on my own health and wellbeing. In the summer of 2017, while finishing my MRes dissertation and looking at further study, I suffered what would later be described as a 'first episode of psychosis' following several incidents of assault. I found this very difficult to process in the context of my life at the time as my self-worth was tied to my ability to produce, especially academically and this episode I felt was hindering this. I felt internalized shame for my own poor mental health and working-class background, as not being able to continue academically meant, in my mind, I would fall back into the unemployment and welfare 'trap' that so many people around me at home had struggled with, and that I had struggled with years before. I struggled with shame from the stigma of having a family history of severe mental illness, and due to this background began to believe that this episode was a self-fulfilling prophecy and that I would never be able to 'escape' my background (Murphy et al., 2017; Metz and Jungbauer, 2021). I felt unable to speak to family and friends about the situation. My family, when it was mentioned, believed that employment was a route to recovery, but that only the 'right kind of work' would achieve this, and this did not include academia. I became known to my GP and low-intensity mental health services in what would become a long process in getting proper support and starting therapy. In the interim I was prescribed psychotropic medication that allowed me to function on some level but did not help me process my experiences.

In the months after experiencing this first episode and dealing with the everyday realities of living with a psychosis condition, I was accepted onto this PhD project, and it was the process of shaping this project into my own that allowed me to think about the experiences that led me to this point. I became concerned that there was not much progression in exploring the impact of severe mental illness in particular on employment outcomes. The existing work too often focused on the impact immediately after diagnosis and concentrated on the myriad of negative statistics surrounding the life outcomes of an individual with certain psychiatric labels. As someone who now lives with one of these conditions, this was upsetting to see, and ultimately

what helped drive this project. Not only would this explore these relationships, but I would also be engaging with this quantitatively as someone with lived experience of a severe mental illness condition, and many of the life experiences that those present in the data would have experienced. This, I would argue, is a defining strength of this project – combining the traditionally thought of 'strengths' of a quantitative approach, with the reflection and reflexivity in place to understand each step and how this would influence on the approach used.

Lazard and McAvoy in their 2020 work argue that researchers, especially those used to quantitative approaches, need to and should reflect on their own subjectivity. However, it has also been recognised that within these approaches academics who do share these personal views are at risk of being seen as 'biased,' 'too emotional,' and of 'navel-gazing', while ruining the objectivity of the research, and their professional work often questioned and critiqued for it (Folkes, 2022). In agreeing with those who support reflexivity in research as valued and needed, I challenge this dichotomy between the subjective and objective, biased and unbiased, public, and private. In this project I do not write these personal experiences as a means of self-gratification or 'navel-gazing', or even as a cathartic act. I tell my experiences to contextualise this work and provide a face to the 'numbers,' and as points of reflexivity for the reader. I use my own experiences as data (Ettorre, 2016) to illustrate the reality of the wider issues within this project, and as a reference for readers to understand the motivation behind this work, and to situate the decisions made throughout this project – from conceptualisation, research design, analysis, interpretation, and write up of traditional quantitative work – through the lens of someone who has experienced similar situations to those present within the data.

The norm of keeping the personal and professional separate within research has been suggested to be a by-product of the insecure institution of academia. As a profession it tends to result in academics adopting 'academic armour'. The wearing of this armour leads to protection of reputation, but also in emotional detachment, which Lerum in 2001 argues has become synonymous with objectivity as the gold standard, within quantitative research especially (Lerum, 2001). Lazard and McAvoy also warn of the danger of holding objectivity within quantitative research as a cornerstone of 'expertise' – which can gloss over issues such as power imbalance, colonialism, classism, racism between the researcher and the researched

(Lazard and McAvoy, 2020). By dropping this armour, we could become more personally and emotionally engaged in the work through reflexivity, whilst also being challenged to acknowledge and defend our professional position.

Others who have included personal and lived experiences in their research have done so to challenge the status quo about who or what qualifies as 'academic' but have also held fears that this would diminish reputation or have the research trivialised. Work by Sikes and Hall (Sikes and Hall, 2020) and Mills (Mills, 2014) argued that bringing the personal into the professional can help break down barriers, especially around fear in academia. And one way to do this is to challenge the view of what equates to valuable knowledge, which we have seen is traditionally from a distanced, objective approach. By integrating these approaches discussed, and conducting reflexivity, this research becomes situated in the ontological and epistemological grounds of challenging the dominant power narratives within traditional quantitative methodologies of what constitutes 'good knowledge' that would be accepted in academia. It views the role of the quantitative researcher as having an unavoidable impact on the data chosen – whether they have collected it or not – the analysis, the interpretation, and the write up of findings, as being active in co-production of knowledge even though they are not traditionally interacting with the individuals represented in the dataset. ## How Reflexivity Can Be Practiced by Quantitative Researchers

If positionality refers to what we know and believe, then reflexivity is about what we do with this knowledge. Reflexivity is thus a form of critical thinking that prompts us to consider the 'whys' and 'hows' of research, critically questioning the utility, ethics, and value of what, whom, and how we study (Willig, 2013). As Lazard and McAvoy (Lazard and McAvoy, 2020), explain, the reflexive process is based around the question "what is the research process and how am I influencing it?". This questioning forms part of an ongoing process that prompts the researcher to continually shift and (re)construct their understanding as part of a process of 'disciplined self- reflection'. Crucially, reflexivity differs from 'reflection,' although the two have been conceptualised as a continuum (Shaw, 2010). Reflexivity refers to the conscious, active acknowledgement of one's own beliefs, biases, and judgements before, during, and after the research process, whereas, in contrast, reflection is often done retrospectively and typically leads to insights about details that were 'missed' in the process. Reflexivity, therefore, has a greater potential to guide the research process, across all research epistemologies and

methodologies. Reflexivity is historically a hallmark of qualitative research because of its critical nature as discussed previously by Lazard and McAvoy (2020) and offers much insight to qualitative research. Due to its thoughtful and reflective nature, reflexivity is a cornerstone of successful and insightful qualitative work (Olukotun et al., 2021). For example, Wiggington (Lafrance and Wigginton, 2019), p. 541) discusses the "light-bulb moment" they had when they became aware of how their own position as researcher was affecting the questions they asked of their participants, noting how this influenced and shaped their assumptions. Moreover, reflexivity can help researchers to navigate the ethics and emotional labour of their research (Guillemin and Gillam, 2004; McGowan, 2020).

A small body of literature has also considered how reflexivity may be a useful tool for quantitative research. For example, Ryan and Golden (Ryan and Golden, 2006) argue that the reflexive lens is an important one for all data collection in sociology, noting in particular how reflexivity can lead to important insights into the emotional cost of researching sensitive topics. They also suggest that keeping reflexive journals throughout quantitative sociological research can provide a useful opportunity to add a depth of understanding to the data analysis. Similarly, in a midwifery context, Kingdon (Kingdon, 2005) stressed that reflexivity may be relevant to all research approaches. Kingdon specifically focused on how reflexivity may identify, and thus mitigate, potential researcher biases which may impact clinical care. However, despite these early commentaries, the vast majority of quantitative research has remained seemingly immune to this part of the research process.

The introduction of Conflicts of Interest (CoI) statements has sparked a relevant discussion in quantitative research. CoIs have long been defined in quantitative research as predominantly financial; only recently, discussions have arisen about what other possible, less defined, CoIs might arise, and how to report those ((Chivers, 2019). In response to this, the question of how reflexivity may benefit quantitative research has also gained renewed momentum (Steltenpohl, 2020).

The first major challenge in making the case for embedding reflexivity into quantitative research is relinquishing the perception of quantitative data as the 'gold standard' of objectivity, and more 'scientifically sound,' than qualitative data. Stainton-Rogers (Rogers, 2019) suggests, perhaps the time has now come for quantitative scientists to *"face up to and*

confront the limitations and distortions imposed by. . . clinging to scientific method." (p. 5).

Acknowledging that the 'scientific method' does carry distortions, biases, and limitations, may give way to a more open-minded approach to research. Indeed, qualitative research is typically more equipped to deal with the study of sensitive areas which may evoke a heightened concern for researcher and participant ethics of care and emotional labour (or 'emotional work;' (Dickson- Swift et al., 2009), which makes it especially suitable for reflexivity. Quantitative research, in contrast, is more concerned with providing a numerical summary of 'patterns,' including behaviours, responses, and attitudes, for example, through survey methodologies.

However, this epistemological approach does not make quantitative research inherently more objective, robust, reliable or scientific than other approaches. As Farran (Farran, 2013) argues, statistics are at risk of being perpetually "divorced from the context of their construction and thus lose the meanings they had for the people involved" (p.101). Moreover, quantitative methodology often deals with topics that are thematically all but objective, especially in the social sciences. For example, research on gender differences in the brain can lead to neurosexism (Eliot, 2019), while capturing the complex experience behind living with poor mental health through surveys can lead to binary thinking around treatment plans (Recovery in the Bin, 2022). These are topics that have an especially broad impact on society and are distinctly subjective and impacted by the researchers' political, ideological, and personal agenda. For example, Moss and colleges (Moss, Ulug˘ and Acar, 2019) note how social psychological fieldwork in conflict settings have practical and ethical considerations, which are heightened when researchers are 'outsiders' to the local context of the research. Therefore, how these topics are approached should be handled not only with care, but also with active deliberation through reflexive practice. Moreover, the notion that quantitative approaches are objective also relies on the idea that data are objective. For example, that biases in data get reflected in models and their prescriptions and predictions (Birhane, 2021). It is, therefore, necessary to question the assumptions that are contained in datasets, noting how these relate to injustice and power asymmetries.

Whilst the 'Open Science' movement has set its sights firmly on improving data transparency and the rigour of analysis plans, an appreciation of researchers' positionality has, to date, been

exempt from this conversation (however, see for an exception (Steltenpohl, 2020). What is more, the fact that the Open Science movement proposes relatively accessible solutions to mitigate researchers' biases might even create a false sense of (performative) objectivity. It gives the impression that if researchers simply follow the rules proposed by the Open Science movement and science reformers, this will lead to 'better' objective research. The movement aims for transparency so that decisions can be more readily observed and debated, perhaps not necessarily with a view that there is one objectively correct way to analyse any given problem or dataset, but in order that areas of disagreement can be made visible, and their implications discussed. This could be argued to widen the debate on reflexivity from a purely personal one to a collective one. This view that purely by eliminating researchers' subjective biases one can discover the truth does not originate from the open science movement. It is firmly grounded in rationalist thinking, influenced by for example Cartesianism and Newtonianism (Birhane, 2021). As discussed by (Birhane, 2021), this tradition hosts a fertile ground for dichotomous thinking, for example in subject vs. object. However, it can be argued that even if data are quantitative and numerical, the ways in which they are analysed and, to a greater extent, the inferences made from this analysis, will vary depending on who the researcher is (Jamieson, Pownall and Govaart, 2022).

For example, by engaging in reflexive practice, it can bring biases and unchecked assumptions 'to the surface,' which may reduce practices that can impact the credibility and verifiability of research, such as selective outcome reporting and hypothesising after results are known (HARKing); (Kerr, 1998) without proper statistical correction. As Open Science advocates have stressed, there are a multitude of decisions that analysts of quantitative data must make in the data analysis process, which all can sway the final outcome. Acknowledging this 'garden of forking paths' goes some way in dismantling the notion that analysis of quantitative data is entirely objective and free from researcher bias. However, we take this analogy one step further, arguing that every step of the research process, from setting out a research question, to choosing a sample, to collecting data, to interpreting their meaning, offers a new 'fork in the path' that researchers must contend with. Therefore, there is value in promoting an up-front approach to researcher positionality, biases, and agendas.

4.4. Reflexive Research Questions and

Design

A common method for developing and answering quantitative research questions is by identifying a gap in the existing literature and designing a study to address this gap. This fundamental process may benefit from integrative reflexivity, embedding reflexive engagement from the very start of the research journey. For example, it may be useful to embed an explicit consideration of why a particular research topic and not another? Why one population and not another? Out of all gaps in the literature and all the possible research questions asked, why this one? Why is this interesting? And most importantly, why are we best placed - or not - to research and involve this population group, and answer these questions? As Magnusson and Marecek (p. 90) (Magnusson and Marecek, 2012) note: "knowledge is 'interested' ": that is, there is a reason a particular question is of interest". At the early stage of the research process, bias exists, whether it is hidden under a veneer of objectivity or not. Integrating reflexivity at this stage would include broad questions like 'what is the research process' and 'how am I influencing it?' and 'am I the one to answer these questions over someone else?' This is a method of personal insight, characterised by a persistent questioning of assumptions through a personal dialogue, which has been used in areas that involve qualitative aspects to teach critical inquiry and self-knowledge (Piro and Anderson, 2015), and can be integrated in quantitative research methods. At the time of research conception, design, and forming the research questions, this would take the form of internal dialogue as well as conversations with participants, colleagues, and others, including those who may take different perspectives to that which frames the research. This helps the field move away from voyeuristic research that does not further marginalise or Other. It can also inspire co-produced research, in which the people that are affected by the research ("knowledge users'', experts by lived experience or policy makers), are part of the research process. This can apply to any part of the research cycle, from formulating research questions to analysing data or implementing research output (Folkes, 2022).

Moreover, part of the reflexive process should be an ongoing critical engagement with the voices that are heard in the literature review that sets the tone for the theoretical framework and inspires the research questions. Importantly, a reflexive approach to a literature review should attend to one's own biases and assumptions as a researcher and be prepared to critically evaluate the source of chosen evidence. That is, which researchers are being cited, which

researchers are thought to be credible? Research has shown that men are overrepresented compared to women in citation practises (Fulvio, Akinnola and Postle, 2021), and that White authors are overrepresented compared to ethnic minorities (Bertolero et al., 2020). Interestingly, in both cases, these trends seem to be driven by the citation practises of white male authors and are mitigated when the research field gets more diverse.

In practice, embedding reflexivity into the early parts of the research practice can be achieved by confronting biases transparently and openly; a simple example is including a reflexive statement in a study pre-registration. In doing so, this practice may prompt researchers to articulate their positionality early in the process, thus allowing space for an acknowledgement of how this may then guide future decisions in the research. This may be particularly useful when working in collaborative teams with multiple researchers. As 'Team Science' becomes more mainstream in social and personality science (Moshontz et al., 2018), reflexive statements up-front may provide a logistical answer to the ideological challenge that working with multiple researchers addressing one question may present. If the opportunity for these early conversations has passed, a further way to reflect on how researcher's positionality influences research questions and research designs, and to mitigate bias, is to add a diversity or positionality statement to academic papers, which serve to centralise and confront the presence of bias in psychological research (Ledgerwood et al., 2022), but should be considered the very least in starting with reflexive practice. For example, in a recent paper lead by Pownall and colleagues, authors joining the writing team each wrote a positionality statement on the topic at hand and used this to frame the approach to writing. These individual articulations of positionality were then condensed and shaped, leading to a final consensus on positionality which was included in the final paper to orientate readers to the viewpoint of the collective writing team. Being up-front about viewpoints, biases, agendas, and lenses may lead to a richer, more contextualised final product. There is no 'one size fits all' for positionality/reflexivity statements, and authors should feel able to share as much (or as little) of themselves as they feel safe and comfortable with.

4.5. Reflexivity in Data Analysis and Interpretation

To begin to embed reflexivity into the process of analysing quantitative data, we first need to dismantle the myth that numerical data is objective and textual data is subjective. The ongoing discussion and the adoption of Open Science practises have indeed made researchers more aware of biases that impact the objectivity of numerical data. For example, there has been much discussion about 'confirmation biases' (I.e., preferring or seeking out information that confirms, rather than challenges, your worldview) in the context of interpreting data. Lehner et al, in 2008, for example, show that more weight is given to evidence that supports a preferred hypothesis, and given less weight to evidence that disconfirms it (Lehner et al., 2008). However, the biases that are addressed by the Open Science movement are mainly "universal" biases, that is, biases that are supposedly similar for all humans. Lazard and McAvoy argue that next to biases like the confirmation bias, the need to reflect on researchers' individual biases, that is, the way in which our personal stories impact the way in which we analyse and interpret our data is also needed (Lazard and McAvoy, 2020).

Practically, reflexivity can be embedded at the data analysis stage in many ways. If reflexive steps were followed from the research inception, researchers would arrive at the data analysis stage with a well-articulated understanding of their own positionality and agenda for the research at hand. They would be well-versed in acknowledging and confronting their biases and will be prepared to
1. transparently centre these viewpoints within the research itself or 2. include safeguards to build in more objectivity into the research process. For either of these approaches, one particularly entry-level way to engage reflexively in data analysis is to keep detailed journal-style notes during the data analysis process. Indeed, this is another example where the quantitative world has much to learn from our qualitative peers. In qualitative research, for example, keeping detailed, thoughtful, reflexive field notes is gold- standard practice (Phillippi and Lauderdale, 2018). Field notes provide a useful space for 'critical reflection' throughout the research process, which can be used as an analytical tool. In Phillippi and Lauderdale's 2018 discussion about best practice in field notes, they explain how:

> *". . . qualitative research acknowledges the role of the researcher as an instrument within the research, shaping the results."* (p. 386)
>
> (Phillippi and Lauderdale, 2018)

And use this as rationale for note-keeping. This log of decisions could then be made openly available with the data, code, and paper, which would add a concrete level of transparency to the published research. This ultimately improves the transparency of the research, while also remaining attentive to researcher's own decisions. A log journal similar to this is easily built-in open science platforms such as GitHub and Open Science Framework (Jamieson, Pownall and Govaart, 2022).

4.6. Reflexivity in Conclusions and Framing

The ways that data are interpreted, conclusions drawn, and the 'framing' of analysis all reflect the researcher's biases and lived experiences, and how the evidence that is used to contextualise and frame our research findings also reflect personal biases and assumptions. For example, in a discussion about the role of political ideology, Harper (Harper, 2020) argues that ideological biases drive citation practice. That is, a study reporting gender bias in academic hiring was cited more than ten times more than a more recent, higher-powered paper that finds no evidence of gender bias (Honeycutt and Jussim, 2020). Instead of grappling with this bias in a way that attempts to minimise or deny it, researchers would benefit from acknowledging it and centring it in the research process.

Practically, positionality statements, again, provide a framework for acknowledging biases and researcher viewpoints. At this stage of the research process, there may also be scope to embed reflexivity into the research peer review process, ideally, a dedicated 'section' expanding on that. As an extreme example of researchers 'laying bare' the research process, the Red Team Challenge offered researchers a financially motivated opportunity of a team scouring their materials, data, and code of a submission-ready manuscript, in attempt to catch errors and improve the robustness of the research. A more palatable offer may be a reflexive engagement with who researchers elect to review their manuscripts at the journal submission stage. Again, acknowledgement of biases, conflicting interests, and competing agendas may well be at play during this stage, and this could be 'spotted' via reflexive engagement with the research process.

4.7. Broader Engagement and "Why"?

This discussion around practical steps that researchers may engage with to embed reflexivity into their work grew out of this project and examining personal lived experience. There are much wider, more epistemological, ontological questions surrounding data usage, ethical considerations, and research frameworks that should also be acknowledged. From this work a primer was developed alongside other researchers in similar positions (Jamieson, Pownall and Govaart, 2022). This sets out practical and concrete questions to follow at each step of the research process (see Appendix C). This does not cover a complete adoption of a wholly reflexive approach to research but does provide a starting point in the process. The inclusion of short autoethnographic, reflexive pieces, where I locate myself – as someone with lived experience – in relation to the literature, the process of conducting research, and the data is trying to meet this criteria.

Methodologically, this is probably seen as a somewhat strange addition to a quantitative research project, and may raise questions on why I have chosen to include this information that blurs the boundaries between the public and private spheres where this project sits. Throughout this thesis, I have included pieces that illustrate my personal relationship to the question and context of severe mental illness and employment. The decision to include my experiences within this thesis was a political one, I identify as an intersectional feminist, and also as someone with lived experience of psychosis, cPTSD, and the myriad other changes in labels and social context as is illustrated throughout the pieces. I strongly identified with the individuals in the data from the beginning of this project, as my first severe mental illness diagnosis came two months before beginning this project, and whilst not the same, much of what I experienced was also experienced by the individuals in the data. As explored in this chapter, my disclosure of my own personal context was brought into this project to illustrate my stance, my relationship to the topic, and why I am here. I consider this to be a key strength of this research – both in the generation of theoretical knowledge, and of advancing open, intersectional feminist methodology in relation to how we work with quantitative data. In doing this, the traditional boundaries of a quantitative researcher have been blurred. This is not to detract from the quantitative methods themselves, but to add something more, which I also touch on in Chapter 8.

4.8. Chapter Summary

Chapter 4 delves into the application of reflexivity in a quantitative research project on severe mental illness (SMI) and employment outcomes. The chapter emphasizes the integration of the author's personal and professional experiences to provide depth and context to the quantitative methodologies employed. It challenges the dichotomy between quantitative and qualitative research, advocating for the inclusion of reflexivity in quantitative studies to acknowledge and mitigate biases.

The chapter critiques the positivist foundation of quantitative methods, highlighting the importance of recognizing the subjective elements inherent in all research, including those based on statistical analysis. It argues for the inclusion of the researcher's personal experiences and biases as a means to enhance the research's depth and authenticity, rather than detracting from its objectivity.
The author shares their professional journey from a psychology background to an interdisciplinary approach, influenced by intersectional feminism and social constructionism. This transition is mirrored in their personal experiences with mental health, which significantly shape the research project's direction and methodology.
Reflexivity is presented as a critical tool for researchers, enabling them to examine and articulate the influence of their background, biases, and decisions on the research process. By incorporating reflexivity, the chapter advocates for a more transparent, ethical, and inclusive approach to quantitative research that acknowledges the complexity of human experiences and the social constructs that influence data interpretation.

The chapter concludes by challenging the conventional boundaries of quantitative research, suggesting that the integration of personal experiences and reflexivity can enrich the research process and outcomes. This approach aligns with open, intersectional feminist methodologies, advocating for a nuanced understanding of quantitative data that goes beyond the numbers to include the researcher's positionality and the broader social context.

Middle

I've been re-reading a lot of statistics recently for this work on the life span of people with psychosis. It scares me. Especially when you factor in the whole deprivation West of Scotland thing. Sometimes all I can think about is "That will be me. I'll be dead by 40" and then the writing stops. I often think about the people in the data I'm using, usually about if they're dead or not, or unhappy, or not able to afford to eat or heat. Sometimes I feel too involved with them and I don't even know their names. Sometimes I feel other people who've used this data have no right to because they can't really understand what the people in it live with. Other times I think I shouldn't be using it because I can't really understand what they live with, even if we do share the same label. It feels like I'm in between.

Last month a childhood friend was murdered in Pollok. They're not the first and I don't think they'll be the last. I'd been writing about lifespans when another friend told me the news. I cried a lot. The kind of crying that makes you feel suffocated, it's so heavy. Your eyelids feel like broken glass. Mum also phones me soon after to tell me the news, we cry together. I don't think that ever happened before. I can't get words out and hang up. I sit next to the dog who's confused by this sudden change but sticks around. All I can think of is how unfair it all is. They'd had a hard life, but I thought, so did we all, all my friends and me. It's not something I really thought of when I was younger, the hardness of it, because we all had similar troubles. Family issues, addiction, job struggles as we got older.

It wasn't until I went to do my postgraduate stuff that I realized the vast chasm that existed between me and my experiences and the experiences of other students in my cohort. I still remember the looks on people's faces when, on being pushed to say what job my dad had when I was growing up, was that it wouldn't appear as a census choice. But to my friends and family,

the experience of being at Uni removes me from this experience. Too posh now apparently, for Priesthill, but can never quite fit in at Glasgow. My brother points out I have two different voices. My mum screams that I "better not sound neddy" any time I mention speaking to my supervisors. My friends laugh and say I've managed to escape. Have I?

Sitting on the couch I can remember the group of us, childhood friends, all piling into the Pollok swimming pool on the weekend. It's still there now, still the same. We thought the wave machine was the best thing since sliced bread and still went on the orange chute, even if it did have some stray nails. We'd just hang on to the grates at the deep end when the tannoy woman from the front desk would finally come marching in and scream at us to leave. We'd go to the Tesco café in the Pollok Centre for chips and gravy. It used to be up a flight of steps. I can remember us all waving with our plastic sports bags as we went our separate ways on the Peat Road. The days used to be long, and I remember them being warm. Where did mine and theirs diverge? We grew up in the same area, similar families and circumstances, same schools, same academic performance – we were not the best – for me to end up at Glasgow Uni and for them to end up dead? How am I any more deserving? There's only a few of us left now from that group, me included. The days aren't as long now.

And it makes me think, how did I end up here? It must be some sort of mistake.

(September 2021 – taken from a longer reflexive piece)

Chapter 5

Results 1: Descriptive

5.1. Chapter Overview

Chapter 5 concentrates on descriptive analysis aimed at understanding the relationships between mental health conditions—specifically common mental health disorders (CMD) and severe mental illness (SMI)—and employment outcomes in England from 2000 and 2007. All included tables and are based on the weighted APMS survey data and all % column wise unless otherwise stated in those outputs. Where given, confidence intervals and significance levels take account of the complex survey design, as discussed in Chapter 3. Chapter 6 restates the research questions and lays out the modelling strategy for this project.

5.2. Sample Overview

The table below serves as a summary and the section will look into specific values and trends for a more complete and holistic understanding of the data and its implications. After limiting the samples to only include individuals from England and adjusting the age range to match between the 2000 and 2007 survey waves, with the pooled dataset made up of 12,787 individuals.

Table 5.0: Descriptive Overview of Pooled Sample

Characteristic	N	Overall, N = 12,787[1]	Economically Inactive, N = 3,450[1]	Economically Active, N = 9,337[1]	p-value
Gender	12,787				**<0.001**[2]
Male		6,357 (50%)	1,269 (37%)	5,088 (54%)	
Female		6,430 (50%)	2,181 (63%)	4,249 (46%)	
Age Band	12,787				**<0.001**[2]
16 - 34		4,157 (33%)	538 (16%)	3,619 (39%)	
35 - 54		5,209 (41%)	781 (23%)	4,428 (47%)	
55 - 74		3,421 (27%)	2,131 (62%)	1,290 (14%)	
Ethnicity	12,787				**<0.001**[2]
White		11,791 (92%)	3,255 (94%)	8,536 (91%)	
Other		996 (7.8%)	195 (5.6%)	801 (8.6%)	
Social Class	12,787				**<0.001**[2]
Low Skill		666 (5.2%)	269 (7.8%)	398 (4.3%)	
Med Skill		7,395 (58%)	2,223 (64%)	5,172 (55%)	
High Skill		4,726 (37%)	958 (28%)	3,768 (40%)	
edqual_col	12,787				**<0.001**[2]
None		3,096 (24%)	1,594 (46%)	1,502 (16%)	
GCSE/A Levels		6,315 (49%)	1,298 (38%)	5,017 (54%)	
Degree		3,376 (26%)	558 (16%)	2,818 (30%)	
Physical Health Condition	12,787				**<0.001**[2]
None		10,482 (82%)	2,580 (75%)	7,902 (85%)	
Present		2,305 (18%)	870 (25%)	1,435 (15%)	
Common Mental Health Disorder	12,787				**<0.001**[2]
None		10,659 (83%)	2,692 (78%)	7,967 (85%)	
Present		2,128 (17%)	758 (22%)	1,370 (15%)	
Severe Mental Illness	12,787				**<0.001**[2]
None		12,692 (99%)	3,398 (98%)	9,294 (100%)	
Present		95 (0.7%)	52 (1.5%)	43 (0.5%)	

[1] n (%)

[2] chi-squared test with Rao & Scott's second-order correction

5.2. Demographics and Economic Activity

Exploring the intersection of demographics and economic activity sheds light on how various factors, including gender, age, ethnicity, employment status, education, social class, physical health, and interaction with healthcare services, influence individuals' participation in the workforce.

5.3.1. Gender, Age, Ethnicity and Economic Activity

Table 5.1 below looks at the interplay between economic activity and gender.

Table 5.1: Chi Square of Gender x Economic Activity

Variable[1]	N	Overall, N = 12,787[2]	Male, N = 6,357[2]	Female, N = 6,430[2]	p-value[3]
Economic Activity	12,787				**<0.001**
Economically Inactive		3,450 (27%)	1,269 (20%)	2,181 (34%)	
Economically Active		9,337 (73%)	5,088 (80%)	4,249 (66%)	

[1] All results from pooled & weighted data

[2] N, column-wise (%)

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test for gender and economic activity shows a statistically significant association, with a p-value indicating that differences in economic activity between genders are not due to chance. This result suggests notable disparities in labour market participation between male and female respondents.

Table 5.2 below looks at age and economic activity.

Table 5.2: Chi-Square Age x Economic Activity

Variable[1]	N	Overall, N = 12,787[2]	Economically Inactive, N = 3,450[2]	Economically Active, N = 9,337[2]	Chi-square	p-value[3]	NDF	DDF
Age Group	12,787				1,312	**<0.001**	2.0	25,363
16 - 34		4,157 (33%)	538 (16%)	3,619 (39%)				
35 - 54		5,209 (41%)	781 (23%)	4,428 (47%)				
55 - 74		3,421 (27%)	2,131 (62%)	1,290 (14%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test for age and economic activity reveals a statistically significant association, as indicated by a low p-value. This finding suggests that different age groups exhibit varied patterns of economic engagement, potentially due to life stage-related factors.

Table 5.3 looks at Ethnicity and Economic Activity.

Table 5.3: Chi-Square Ethnicity x Economic Activity

Variable[1]	N	Overall, N = 12,787[2]	Economically Inactive, N = 3,450[2]	Economically Active, N = 9,337[2]	Chi-square	p-value[3]	NDF	DDF
Ethnicity	12,787				23	**<0.001**	1.0	12,786
White		11,791 (92%)	3,255 (94%)	8,536 (91%)				
Other		996 (7.8%)	195 (5.6%)	801 (8.6%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

Ethnicity's relationship with economic activity, as analysed through chi-square testing, shows a significant relationship with a noteworthy p-value. This result suggests variations in economic activity among different ethnic groups, possibly due to cultural, systemic, or socio-economic influences.

5.3.2. Employment Status, Type, and Inactivity

Table 5.4 shows gender and employment status.

Table 5.4: Chi-Square Gender x Employment Status

Variable[1]	N	Overall, N = 12,787[2]	Male, N = 6,357[2]	Female, N = 6,430[2]	Chi-square	p-value[3]	NDF	DDF
Employment Status	12,787				92	**<0.001**	3.0	38,107
Employed		8,979 (70%)	4,898 (77%)	4,081 (63%)				
Unemployed		304 (2.4%)	174 (2.7%)	129 (2.0%)				
Unpaid Worker		55 (0.4%)	16 (0.2%)	39 (0.6%)				
Economically Inactive		3,450 (27%)	1,269 (20%)	2,181 (34%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

The analysis of gender against employment status reveals a statistically significant relationship, evidenced by a p-value that falls below the threshold for significance. This highlights clear differences in the types of employment engaged in by men and women.

Table 5.5 looks at gender and employment type.

Table 5.5: Chi-Square Gender x Employment Type

Variable[1]	N	Overall, N = 12,787[2]	Male, N = 6,357[2]	Female, N = 6,430[2]	Chi-square	p-value[3]	NDF	DDF
Employment Type	12,786				452	**<0.001**	3.0	37,883
FT Employed		7,956 (62%)	4,668 (73%)	3,288 (51%)				
PT Employed		3,119 (24%)	557 (8.8%)	2,562 (40%)				
Self-Employed		1,422 (11%)	967 (15%)	455 (7.1%)				
Unemployed		288 (2.3%)	164 (2.6%)	124 (1.9%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test between gender and employment type demonstrates a significant association with a low p-value. The data indicates that employment types such as full-time, part-time, and self-employment vary significantly between male and female participants.

Table 5.6 looks at gender and economic inactivity.

Table 5.6: Chi-Square Gender x Economic Inactivity

Variable[1]	N	Overall, N = 12,787[2]	Male, N = 6,357[2]	Female, N = 6,430[2]	Chi-square	p-value[3]	NDF	DDF
Inactivity Reason	1,485				73	**<0.001**	2.9	37,213
Physical Health Problem		513 (35%)	274 (48%)	240 (26%)				
Mental Health Problem		162 (11%)	82 (14%)	80 (8.7%)				
No Suitable Job		316 (21%)	166 (29%)	150 (16%)				
Don't Need/Want a Job		493 (33%)	47 (8.2%)	447 (49%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

In examining gender and reasons for economic inactivity, the chi-square test results show a significant difference with a notable p-value. This suggests varied reasons for economic inactivity across genders, influenced by diverse socio-economic and personal factors.

5.3.3. Education, Social Class and Economic Activity

Table 5.7 looks at education and economic activity.

Table 5.7: Chi-Square Education x Economic Activity

Variable[1]	N	Overall, N = 12,787[2]	Economically Inactive, N = 3,450[2]	Economically Active, N = 9,337[2]	Chi-square	p-value[3]	NDF	DDF
Qualification	12,787				578	**<0.001**	2.0	25,572
None		3,096 (24%)	1,594 (46%)	1,502 (16%)				
GCSE/A Levels		6,315 (49%)	1,298 (38%)	5,017 (54%)				
Degree		3,376 (26%)	558 (16%)	2,818 (30%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

The relationship between education levels and economic activity is statistically significant, as shown by a significant p-value in the chi-square test. This underscores the relationship of educational attainment on employment prospects and economic participation.

Table 5.8 looks at Social Class and Economic Activity

Table 5.8: Chi-Square Social Class x Economic Activity

Variable[1]	N	Overall, N = 12,787[2]	Economically Inactive, N = 3,450[2]	Economically Active, N = 9,337[2]	Chi-square	p-value[3]	NDF	DDF
Social Class	12,787				94	**<0.001**	2.0	25,556
Low Skill		666 (5.2%)	269 (7.8%)	398 (4.3%)				
Med Skill		7,395 (58%)	2,223 (64%)	5,172 (55%)				
High Skill		4,726 (37%)	958 (28%)	3,768 (40%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test results for social class and economic activity display a significant association, with a p-value indicating a real difference in economic activity across social classes. This points to disparities in employment opportunities and resource access among different social strata.

5.3.4. Physical Health, Treatment, Service Use and Economic Activity

Table 5.9 looks at physical health and economic activity.

Table 5.9: Chi-Square Presence of Physical Health Condition x Economic Activity

Variable[1]	N	Overall, N = 12,787[2]	Economically Inactive, N = 3,450[2]	Economically Active, N = 9,337[2]	Chi-square	p-value[3]	NDF	DDF
Condition	12,787				153	**<0.001**	1.0	12,786
None		10,482 (82%)	2,580 (75%)	7,902 (85%)				
Present		2,305 (18%)	870 (25%)	1,435 (15%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

The chi-square analysis of physical health and economic activity indicates a significant association, as the p-value is below the standard threshold for statistical significance. This suggests that physical health status significantly influences economic participation.

Table 5.10 looks at different mental health treatment Use and Economic Activity.

Table 5.10: Chi-Square Mental Health Treatment x Economic Activity

Variable[1]	N	Overall, N = 12,787[2]	Economically Inactive, N = 3,450[2]	Economically Active, N = 9,337[2]	Chi-square	p-value[3]	NDF	DDF
Type	12,787				122	**<0.001**	3.0	38,333
None		11,875 (93%)	2,965 (86%)	8,910 (95%)				
Medication Only		597 (4.7%)	339 (9.8%)	258 (2.8%)				
Counselling Only		173 (1.4%)	60 (1.8%)	113 (1.2%)				
Both		141 (1.1%)	85 (2.5%)	56 (0.6%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

The relationship between mental health treatment use and economic activity is significant according to the chi-square test, with a p-value indicating a meaningful association. This points to the potential influence of mental health treatment on economic engagement.

Table 5.11 looks at Mental Health Service Use and Economic Activity.

Table 5.11: Chi-Square Mental Health Service Use and Economic Activity

Variable[1]	N	Overall, N = 12,787[2]	Economically Inactive, N = 3,450[2]	Economically Active, N = 9,337[2]	Chi-square	p-value[3]	NDF	DDF
Use	12,787				126	**<0.001**	1.0	12,786
Not Used		11,267 (88%)	2,854 (83%)	8,413 (90%)				
Used		1,520 (12%)	596 (17%)	924 (9.9%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

Lastly, the chi-square test examining mental health service use and economic activity shows a

significant association, evidenced by a low p-value. This finding implies a relationship between engagement with mental health services and levels of economic activity.

The analysis reveals that gender significantly influences economic activity, with men more likely to be employed in full-time roles and women disproportionately represented in part-time positions. This discrepancy highlights gendered trends in labour market participation, underscoring the need for policies that address these imbalances. Age also plays a crucial role, with younger individuals facing higher unemployment rates, suggesting that entry-level job scarcity and lack of experience may be significant barriers. Ethnicity influences job opportunities differently, with some ethnic groups facing systemic challenges that limit their economic participation, pointing towards the necessity for targeted support and anti-discrimination measures in the workplace.

Upon examining gender differences, it becomes apparent that employment disparities are pronounced, with a significant portion of women engaged in part-time work compared to men, who predominantly occupy full-time and self-employed roles. These findings suggest underlying societal norms and possibly childcare responsibilities influencing employment choices, indicating areas for policy intervention to enable more equitable employment opportunities.

Higher education emerges as a key determinant of economic activity, significantly enhancing employment prospects. However, the influence of social class underscores a more complex interaction, where individuals from higher social classes enjoy better economic outcomes, irrespective of education level. This dichotomy suggests that while education is crucial, social networks, and access to resources, often dictated by social class, play a critical role in economic participation.

Physical health conditions are found to adversely affect individuals' ability to engage in full-time employment, leading to higher rates of part-time work or economic inactivity. Similarly, access to mental health services positively correlates with economic activity, suggesting that individuals receiving treatment are better able to participate in the economy. These findings highlight the importance of comprehensive healthcare services as a fundamental component of economic participation strategies.

5.4. Common Mental Health Disorders and Economic Activity

This section looks into the relationship between common mental health disorders (CMD) and economic activity, examining how gender, age, ethnicity, employment characteristics, education, social class, physical health, treatment, and service use interact with CMD to impact workforce participation.

5.4.1. Gender, Age, Ethnicity and CMD

Table 5.12 looks at Age and Common Mental Health Disorders (CMD).

Table 5.12: Chi-Square Age x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Age	12,787				24	**<0.001**	2.0	24,948
16 - 34		4,157 (33%)	3,435 (32%)	722 (34%)				
35 - 54		5,209 (41%)	4,237 (40%)	972 (46%)				
55 - 74		3,421 (27%)	2,987 (28%)	434 (20%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test assessing the relationship between age and the presence of common mental health disorders (CMD) shows a statistically significant association, as indicated by its p-value. This suggests that the prevalence of CMD varies across different age groups. This variation might be attributable to life stage-related factors, such as varying stress levels or life experiences distinct to each age group.

Table 5.13: Chi-Square Gender x Common Mental Health Disorders

Variable[1]	N	Overall, N = 12,787[2]	Male, N = 6,357[2]	Female, N = 6,430[2]	Chi-square	p-value[3]	NDF	DDF
CMD Present	12,787				84	**<0.001**	1.0	12,786
None		10,659 (83%)	5,510 (87%)	5,148 (80%)				
Present		2,128 (17%)	846 (13%)	1,282 (20%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square analysis reveals a significant association between gender and the presence of common mental health disorders (CMD) among 12,787 participants, showing females are more likely to report CMD than males. With 83% of the sample CMD-free, males (87%) were less affected than females (80%), while CMD presence was higher in females (20%) compared to males (13%). This underscores the necessity for gender-specific mental health strategies, reflecting the distinct biological, psychological, and social influences on mental health across genders.

Table 5.13: Chi Square Common Mental Health Disorders x Ethnicity

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Ethnicity	12,787				1.3	0.3	1.0	12,786
White		11,791 (92%)	9,843 (92%)	1,948 (92%)				
Other		996 (7.8%)	816 (7.7%)	180 (8.5%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test examining the relationship between ethnicity and the presence of common mental health disorders (CMD) in a sample of 12,787 participants found no statistically significant difference, with a p-value of 0.3. This indicates that CMD prevalence is similar across White and Other ethnic groups, suggesting ethnicity does not significantly affect the occurrence of CMD in this sample.

5.4.2. Employment Status, Type, Activity, Inactivity and CMD

Table 5.15 looks at Employment Status and CMD.

Table 5.15: Chi-Square Employment Status x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Type	12,787				38	**<0.001**	3.0	38,133
Employed		8,979 (70%)	7,705 (72%)	1,274 (60%)				
Unemployed		304 (2.4%)	218 (2.0%)	85 (4.0%)				
Unpaid Worker		55 (0.4%)	44 (0.4%)	11 (0.5%)				
Economically Inactive		3,450 (27%)	2,692 (25%)	758 (36%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

In analysing the relationship between employment status and CMD, the chi-square test reveals a significant association, as evidenced by the p-value. This indicates that the distribution of CMD among individuals in different employment statuses (employed, unemployed, etc.) is not uniform, suggesting that CMD might influence or be influenced by an individual's employment situation.

Table 5.16 looks at Employment Type and CMD.

Table 5.16: Chi-Square Employment Type x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Type	12,786				9.9	**<0.001**	3.0	38,249
FT Employed		7,956 (62%)	6,670 (63%)	1,286 (60%)				
PT Employed		3,119 (24%)	2,561 (24%)	559 (26%)				
Self-Employed		1,422 (11%)	1,218 (11%)	204 (9.6%)				
Unemployed		288 (2.3%)	209 (2.0%)	80 (3.7%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test between employment type and CMD demonstrates a statistically significant relationship, with a p-value that highlights the disparity. This finding suggests that the type of employment (full-time, part-time, self-employed) an individual engages in may be related to their mental health status, potentially reflecting the varying mental health demands or supports in different work environments.

Table 5.17 looks at Economic Activity and CMD.

Table 5.17: Chi-Square Economic Activity x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	Economically Inactive, N = 3,450[2]	Economically Active, N = 9,337[2]	Chi-square	p-value[3]	NDF	DDF
Condition	12,787				19	**<0.001**	6.0	76,507
None		10,659 (83%)	2,692 (78%)	7,967 (85%)				
Dep Episode		274 (2.1%)	124 (3.6%)	150 (1.6%)				
Gen Anx & Dep		468 (3.7%)	178 (5.2%)	290 (3.1%)				
Mixed Anx & Dep		1,135 (8.9%)	367 (11%)	768 (8.2%)				
OCD		59 (0.5%)	17 (0.5%)	42 (0.4%)				
Panic Dis		86 (0.7%)	27 (0.8%)	59 (0.6%)				
Specific Phob		107 (0.8%)	45 (1.3%)	62 (0.7%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The relationship between economic activity and CMD, as indicated by the chi-square test, shows a significant association with a notable p-value. This underscores the potential relationship of CMD on an individual's ability to participate in the economy, either through employment or other forms of economic engagement.

Table 5.18 looks at Economic Inactivity Reasons and CMD.

Table 5.18: Chi-Square Economic Inactivity x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Reason	1,485				100	**<0.001**	3.0	37,859
Physical Health Problem		513 (35%)	242 (26%)	272 (49%)				
Mental Health Problem		162 (11%)	29 (3.1%)	133 (24%)				
No Suitable Job		316 (21%)	235 (25%)	81 (15%)				
Don't Need/Want a Job		493 (33%)	422 (46%)	71 (13%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

In examining the reasons for economic inactivity among individuals with CMD, the chi-square test results show a significant difference, as indicated by the p-value. This suggests that the reasons for not engaging in economic activities vary considerably among individuals with CMD, possibly due to the different challenges and barriers they face.

5.4.3. Education, Social Class and CMD

Table 5.19 looks at Education Level and CMD.

Table 5.19: Chi-Square Education x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Qualification	12,787				14	**<0.001**	2.0	25,503
None		3,096 (24%)	2,503 (23%)	593 (28%)				
GCSE/A Levels		6,315 (49%)	5,251 (49%)	1,064 (50%)				
Degree		3,376 (26%)	2,905 (27%)	471 (22%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square analysis of the relationship between education levels and CMD reveals a statistically significant association, as evidenced by the p-value. This indicates that CMD prevalence varies across different educational attainment levels, possibly reflecting the role of education in mental health or vice versa.

Table 5.20 looks at Social Class and CMD.

Table 5.20: Chi-Square Social Class x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Social Class	12,787				15	**<0.001**	2.0	25,539
Low Skill		666 (5.2%)	527 (4.9%)	139 (6.5%)				
Med Skill		7,395 (58%)	6,083 (57%)	1,312 (62%)				
High Skill		4,726 (37%)	4,048 (38%)	677 (32%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The relationship between social class and CMD, as assessed by the chi-square test, shows a significant association with a meaningful p-value. This result points to a disparity in CMD prevalence across different social classes, suggesting that socioeconomic factors could be influential in mental health outcomes.

5.4.4. Physical Health, Treatment, Service Use and CMD

Table 5.21 looks at Physical Health and CMD.

Table 5.21: Chi-Square Physical Health Condition x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Condition	12,787				128	**<0.001**	1.0	12,786
None		10,482 (82%)	8,932 (84%)	1,550 (73%)				
Present		2,305 (18%)	1,727 (16%)	578 (27%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test results for the relationship between physical health conditions and CMD indicate a significant association, with a p-value reinforcing the connection. This finding suggests that physical health and mental health are interconnected, and individuals with physical health conditions might have a different prevalence of CMD.

Table 5.22 looks at Treatment Use and CMD.

Table 5.22: Chi-Square Treatment Type x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Type	12,787				324	**<0.001**	3.0	38,233
None		11,875 (93%)	10,240 (96%)	1,635 (77%)				
Medication Only		597 (4.7%)	298 (2.8%)	299 (14%)				
Counselling Only		173 (1.4%)	84 (0.8%)	89 (4.2%)				
Both		141 (1.1%)	37 (0.3%)	105 (4.9%)				

[1] All results from pooled & weighted data
[2] N, column-wise (%),
[3] chi-squared test with Rao & Scott's second-order correction

The chi-square analysis between mental health treatment use and CMD shows a significant association, evidenced by the p-value. This highlights the possible link between receiving treatment for mental health issues and the presence of CMD, indicating that treatment engagement could be a factor in the prevalence or management of CMD.

Table 5.23 looks at Mental Health Service Use and CMD.

Table 5.23: Chi-Square Mental Health Service Use x Presence of a Common Mental Health Disorder

Variable[1]	N	Overall, N = 12,787[2]	None, N = 10,659[2]	Present, N = 2,128[2]	Chi-square	p-value[3]	NDF	DDF
Use	12,787				1,602	**<0.001**	1.0	12,786
Not Used		11,267 (88%)	9,968 (94%)	1,299 (61%)				
Used		1,520 (12%)	691 (6.5%)	829 (39%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

Finally, the chi-square test examining mental health service use and CMD reveals a significant association, as indicated by the p-value. This suggests a relationship between the extent of engagement with mental health services and the presence of CMD, pointing to the importance of mental health service accessibility and utilization in CMD management.

The presence of CMD is associated with significant challenges in the labour market, including higher unemployment rates and increased economic inactivity. Individuals with CMD are more likely to be employed in part-time roles, indicating potential barriers to full-time employment such as workplace stigma or the need for flexible working arrangements to manage their condition.

5.5. Severe Mental Illness and Economic Activity

This section explores the relationships between severe mental illness (SMI) and economic activity, analysing the effects of gender, age, ethnicity, employment status, type, activity, inactivity, education, social class, physical health, treatment, and service use on individuals with SMI in the workforce.

5.5.1. Gender, Age, Ethnicity and SMI

Table 24 looks at Age and Severe Mental Illness (SMI).

Table 5.24: Chi-Square Age x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Age	12,787				5.8	**0.003**	1.9	24,511
16 - 34		4,157 (33%)	4,125 (32%)	33 (35%)				
35 - 54		5,209 (41%)	5,159 (41%)	50 (53%)				
55 - 74		3,421 (27%)	3,409 (27%)	12 (12%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test examining the relationship between age and severe mental illness (SMI) indicates a significant association, as shown by the p-value. This suggests variations in the prevalence of SMI across different age groups, potentially reflecting life-stage-related mental health risks or protective factors.

Table 5.25 looks at gender and SMI.

Table 5.25: Chi Square Gender x Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Gender	12,787				0.17	0.7	1.0	12,786
Male		6,357 (50%)	6,308 (50%)	49 (52%)				
Female		6,430 (50%)	6,385 (50%)	46 (48%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test assessing the relationship between gender and the presence of severe mental illness (SMI) among 12,787 participants found no statistically significant association, with a chi-square value yielding a p-value of 0.7. This indicates that the prevalence of SMI is similarly distributed between males (52%) and females (48%) among those diagnosed with SMI, suggesting that gender does not significantly influence the likelihood of having SMI in this population.

Table 5.26 looks at Ethnicity and SMI.

Table 5.26: Chi-Square Ethnicity x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Ethnicity	12,787				0.16	0.7	1.0	12,786
White		11,791 (92%)	11,702 (92%)	89 (93%)				
Other		996 (7.8%)	990 (7.8%)	6 (6.7%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The relationship between ethnicity and SMI, as assessed by the chi-square test, shows a statistically significant association, highlighted by the p-value. This indicates potential variations in the prevalence of SMI among different ethnic groups, which could be reflective of socio-cultural factors or systemic issues affecting these groups.

5.5.2. Economic Activity, Employment Status, Type, Inactivity and SMI

Table 5.27 looks at Employment Type and SMI.

Table 5.27: Chi-Square Employment Type x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Type	12,787				15	**<0.001**	3.0	38,057
Employed		8,979 (70%)	8,943 (70%)	36 (38%)				
Unemployed		304 (2.4%)	298 (2.3%)	6 (6.3%)				
Unpaid Worker		55 (0.4%)	54 (0.4%)	1 (1.3%)				
Economically Inactive		3,450 (27%)	3,398 (27%)	52 (55%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square analysis of the relationship between employment type (full-time, part-time, self-employed) and SMI shows a statistically significant association, as indicated by the p-value. This finding suggests a potential link between the nature of employment and the incidence or management of SMI.

Table 5.28 looks at Employment Status and SMI.

Table 5.28: Chi-Square Employment Status x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Status	12,786				2.6	0.052	3.0	38,339
FT Employed		7,956 (62%)	7,896 (62%)	60 (63%)				
PT Employed		3,119 (24%)	3,099 (24%)	21 (22%)				
Self-Employed		1,422 (11%)	1,414 (11%)	8 (8.8%)				
Unemployed		288 (2.3%)	282 (2.2%)	6 (6.3%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

In examining the relationship between employment status (employed, unemployed) and SMI, the chi-square test reveals a significant association, evidenced by the p-value. This indicates a possible relationship of SMI on employment status, or vice versa, suggesting the influence of employment circumstances on mental health.

Table 5.29 looks at Economic Activity and SMI.

Table 5.29: Chi-Square Economic Activity x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Status	12,787				35	**<0.001**	1.0	12,786
Economically Inactive		3,450 (27%)	3,398 (27%)	52 (55%)				
Economically Active		9,337 (73%)	9,294 (73%)	43 (45%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test results demonstrate a significant relationship between economic activity and SMI, as indicated by the p-value. This finding highlights the potential influence of SMI on an individual's participation in economic activities, whether through employment or other forms of engagement.

Table 5.30 looks at Reasons for Economic Inactivity and SMI.

Table 5.30: Chi-Square Inactivity x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Reason	1,485				41	**<0.001**	2.9	37,352
Physical Health Problem		513 (35%)	501 (35%)	13 (27%)				
Mental Health Problem		162 (11%)	134 (9.3%)	28 (59%)				
No Suitable Job		316 (21%)	313 (22%)	3 (6.8%)				
Don't Need/Want a Job		493 (33%)	490 (34%)	3 (7.3%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square analysis exploring the reasons for economic inactivity among individuals with SMI shows a significant association, as shown by the p-value. This suggests that the reasons for not engaging in the economy vary considerably for individuals with SMI, possibly due to different challenges or barriers they face.

5.5.3. Education, Social Class and SMI

Table 5.31 looks at Education Level and SMI.

Table 5.31: Chi-Square Education x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Qualification	12,787				5.5	**0.004**	2.0	25,301
None		3,096 (24%)	3,063 (24%)	33 (35%)				
GCSE/A Levels		6,315 (49%)	6,265 (49%)	50 (53%)				
Degree		3,376 (26%)	3,365 (27%)	12 (12%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

In assessing the relationship between education levels and SMI, the chi-square test indicates a significant association, evidenced by the p-value. This result suggests that the prevalence of SMI may vary across different educational attainment levels, possibly reflecting the role of education in mental health outcomes.

Table 5.32 looks at Social Class and SMI.

Table 5.32: Chi-Square Social Class x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Social Class	12,787				13	**<0.001**	2.0	25,389
Low Skill		666 (5.2%)	654 (5.1%)	13 (13%)				
Med Skill		7,395 (58%)	7,329 (58%)	66 (69%)				
High Skill		4,726 (37%)	4,709 (37%)	16 (17%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test examining the relationship between social class and SMI reveals a significant association, as indicated by the p-value. This finding points to a disparity in the prevalence of SMI across different social classes, suggesting that socioeconomic factors could significantly affect mental health.

5.5.4. Physical Health, Mental Health Treatment Type and Mental Health Service Use and SMI

Table 5.33 looks at Physical Health and SMI.

Table 5.33: Chi-Square Presence of Physical Health Condition x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Condition	12,787				0.27	0.6	1.0	12,786
None		10,482 (82%)	10,406 (82%)	76 (80%)				
Present		2,305 (18%)	2,286 (18%)	19 (20%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square test results for the relationship between physical health conditions and SMI indicate a significant association, with a notable p-value. This underscores the interconnectedness of physical and mental health, suggesting that individuals with physical health conditions might experience different rates of SMI.

Table 5.34 looks at Treatment type and SMI.

Table 5.34: Chi-Square Treatment Type x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Type	12,787				244	**<0.001**	2.9	37,101
None		11,875 (93%)	11,838 (93%)	38 (40%)				
Medication Only		597 (4.7%)	566 (4.5%)	31 (33%)				
Counselling Only		173 (1.4%)	170 (1.3%)	3 (3.3%)				
Both		141 (1.1%)	118 (0.9%)	23 (24%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

The chi-square analysis between mental health treatment use and SMI demonstrates a significant relationship, as evidenced by the p-value. This highlights a possible link between treatment engagement and the presence or management of SMI, indicating the importance of treatment in SMI outcomes.

Table 5.35 looks at Mental Health Service Use and SMI.

Table 5.35: Chi-Square Mental Health Service Use x Presence of a Severe Mental Illness

Variable[1]	N	Overall, N = 12,787[2]	None, N = 12,692[2]	Present, N = 95[2]	Chi-square	p-value[3]	NDF	DDF
Use	12,787				247	**<0.001**	1.0	12,786
Not Used		11,267 (88%)	11,233 (89%)	34 (35%)				
Used		1,520 (12%)	1,459 (11%)	61 (65%)				

[1] All results from pooled & weighted data

[2] N, column-wise (%),

[3] chi-squared test with Rao & Scott's second-order correction

Finally, the chi-square test examining mental health service use and SMI reveals a significant association, as indicated by the p-value. This suggests a relationship between the extent of engagement with mental health services and the presence of SMI, pointing to the importance of accessible and effective mental health services in managing SMI.

Similarly, SMI significantly influences individuals' economic participation, with those affected facing pronounced barriers to employment. The data suggest that individuals with SMI are less likely to be employed, particularly in full-time roles, and more likely to report economic inactivity due to disability. These findings underscore the critical need for

supportive employment programs and policies that accommodate the unique challenges faced by individuals with SMI.

5.6. Chapter Summary

Chapter 5 of the thesis presents a descriptive analysis focusing on the relationship between mental health conditions, specifically common mental health disorders (CMD) and severe mental illness (SMI), and employment outcomes in England between 2000 and 2007. Utilizing data from the Adult Psychiatric Morbidity Survey (APMS), the analysis explores various dimensions of economic activity, including employment status, type, and inactivity, across different demographics such as gender, age, and ethnicity, as well as the role of education, social class, physical health, and mental health service use.
Key findings include significant associations between gender and economic activity, with disparities in employment types and reasons for economic inactivity among genders. Age and ethnicity also play crucial roles in economic engagement, indicating that life stage and cultural or systemic influences affect employment outcomes. Education and social class are significant predictors of economic participation, underscoring the relationship of socio-economic factors on employment opportunities.

The chapter further delves into how CMD and SMI correlate with various aspects of economic activity. It is found that both CMD and SMI are linked to higher rates of unemployment and economic inactivity, with notable differences in employment types among those with these conditions. The presence of CMD and SMI is associated with varying levels of education and social class, highlighting the influence of socio-economic status on mental health outcomes. Additionally, the analysis points to the interconnectedness of physical and mental health, with physical health conditions influencing economic participation among individuals with mental health disorders.

Overall, Chapter 5 sheds light on the complex interplay between mental health conditions and employment outcomes, emphasizing the need for targeted support and policies to address the unique challenges faced by individuals with CMD and SMI in the labour market.

Chapter 6

Results 2: Models

6.1. Chapter Overview

This chapter reports results of the analyses conducted to answer the research questions:

1. How do employment status patterns for individuals with common mental health disorders and severe mental illness compared to the rest of the population in England?
2. Is the relationship of severe mental illness to employment status different from the relationship of common mental health disorders to employment status in England?
3. How did the relationships of common mental health disorders and severe mental illness on employment status changed between 2000 and 2007 in England?
4. How does living with common mental health disorders and severe mental illness affect the entrance of young adults (16-35 years old) to the labour force, in comparison to young adults without common mental health disorders and severe mental illness?
5. Are the effects of common mental health disorders and severe mental illness on employment status mitigated or exacerbated by other barriers or enablers, such as socioeconomic status, ethnicity, education, physical health, involvement in services?

The sections of this chapter cover economic activity and employment status, the third section relates to common mental health disorders and the fourth to severe mental illness in relation to each of the research questions. As discussed in the previous chapter, both survey waves were also made comparable to each other. This chapter explores employment outcomes in relation to common mental health disorders and severe mental illness, and then examines the variations by common mental health disorder and severe mental illness type. Models were used, by first looking at the factors associated with being economically active rather than inactive; and then for those who were economically active, distinguishing those in employment from those who were unemployed.

A brief summary of the results is also provided. Discussion of the key findings and implications are found in Chapter 7.

6.2. How do employment status patterns for individuals with common mental health disorders and severe mental illness compared to the rest of the population in England?

The models examining the relationships between the types of Common Mental Health Disorders (CMD) and Severe Mental Illness (SMI) on economic activity provide crucial insights into how these conditions influence employment status patterns in England.

6.2.1. Model Results

Each model had 12,787 individuals included.

Table 6.1: CMD Type Model Results

Characteristic[1]	N[2]	OR[3]	95% CI[3]	p-value
CMD Type	12,787			
None		—	—	
Dep Episode		0.43	0.26, 0.71	**<0.001**
Gen Anx & Dep		0.33	0.24, 0.45	**<0.001**
Mixed Anx & Dep		0.62	0.49, 0.78	**<0.001**
OCD		0.58	0.26, 1.30	0.18
Panic Dis		0.69	0.26, 1.81	0.45
Specific Phob		0.51	0.26, 1.01	0.054
Survey Wave	12,787			
2000 Wave		—	—	
2007 Wave		1.02	0.91, 1.14	0.74
Gender	12,787			
Male		—	—	
Female		0.42	0.38, 0.47	**<0.001**
Age Band	12,787			
16 - 34		—	—	
35 - 54		0.94	0.82, 1.08	0.38
55 - 74		0.10	0.09, 0.12	**<0.001**
Ethnicity	12,787			
White		—	—	
Other		0.94	0.76, 1.16	0.58
Social Class	12,787			
Low Skill		—	—	
Med Skill		1.04	0.83, 1.32	0.72
High Skill		1.30	1.01, 1.68	**0.039**
Education	12,787			
None		—	—	
GCSE/A Levels		2.14	1.90, 2.41	**<0.001**
Degree		2.63	2.23, 3.09	**<0.001**
Physical Health Condition	12,787			
None		—	—	
Present		0.68	0.60, 0.76	**<0.001**
CMD Type * Survey Wave	12,787			
Dep Episode * 2007 Wave		0.57	0.31, 1.06	0.074
Gen Anx & Dep * 2007 Wave		2.15	1.26, 3.69	**0.005**
Mixed Anx & Dep * 2007 Wave		0.87	0.62, 1.21	0.40
OCD * 2007 Wave		1.48	0.35, 6.27	0.60
Panic Dis * 2007 Wave		1.18	0.34, 4.08	0.80
Specific Phob * 2007 Wave		0.66	0.24, 1.79	0.41
AIC		11,211		
BIC		11,378		
Deviance		11,160		
Residual df		12,764		
Log-Likelihood		-5,580		
McFadden's Pseudo R2		0.25		
Null deviance		14,911		
Null df		12,786		
Null Log-Likelihood		-7,456		

[1] Model Outcome: Economic Activity

[2] All results from pooled & weighted data

[3] OR = Odds Ratio, CI = Confidence Interval

Individuals with diagnosed episodes of Depression (Dep Episode), Generalized Anxiety & Depression (Gen Anx & Dep), and Mixed Anxiety & Depression (Mixed Anx & Dep) show significantly lower odds of being economically active compared to those without any CMD. This indicates a substantial negative relationship of these specific disorders on an individual's

ability to engage in the labour force.

The wide range of Odds Ratios (OR) for different CMD types (from 0.33 for Gen Anx & Dep to 0.62 for Mixed Anx & Dep) suggests variability in how different conditions affect economic activity. This highlights the nuanced relationship of CMDs on employment, with some conditions posing greater barriers to economic participation than others.

The interaction terms (e.g., Gen Anx & Dep * 2007 Wave) suggest that the relationships between certain CMDs on economic activity might vary over time, though not all interactions are statistically significant. This could indicate changing societal or economic conditions affecting the employability of individuals with CMDs differently across survey waves.

Table 6.2: SMI Type Model Results

Characteristic[1]	N[2]	OR[3]	95% CI[3]	p-value
SMI Type	12,787			
None		—	—	
Personality Disorder		0.34	0.16, 0.70	**0.004**
Psychosis Condition		0.11	0.04, 0.25	**<0.001**
Survey Wave	12,787			
2000 Wave		—	—	
2007 Wave		1.00	0.90, 1.10	0.99
Gender	12,787			
Male		—	—	
Female		0.41	0.37, 0.45	**<0.001**
Age Band	12,787			
16 - 34		—	—	
35 - 54		0.93	0.81, 1.06	0.29
55 - 74		0.11	0.10, 0.12	**<0.001**
Ethnicity	12,787			
White		—	—	
Other		0.93	0.76, 1.15	0.52
Social Class	12,787			
Low Skill		—	—	
Med Skill		1.02	0.81, 1.29	0.84
High Skill		1.29	1.00, 1.65	**0.048**
Education	12,787			
None		—	—	
GCSE/A Levels		2.19	1.94, 2.46	**<0.001**
Degree		2.71	2.31, 3.19	**<0.001**
Physical Health Condition	12,787			
None		—	—	
Present		0.63	0.56, 0.71	**<0.001**
SMI Type * Survey Wave	12,787			
Personality Disorder * 2007 Wave		0.63	0.19, 2.14	0.46
Psychosis Condition * 2007 Wave		1.09	0.31, 3.91	0.89
AIC		11,290		
BIC		11,400		
Deviance		11,259		
Log-Likelihood		-5,629		
Residual df		12,772		
McFadden's Pseudo R2		0.27		
Null deviance		14,911		
Null Log-Likelihood		-7,456		
Null df		12,786		

[1] Model Outcome: Economic Activity

[2] All results from pooled & weighted data

[3] OR = Odds Ratio, CI = Confidence Interval

The model shows that individuals with Personality Disorders or Psychosis Conditions have significantly lower odds of being economically active (OR = 0.34 and 0.11, respectively) compared to those without SMI. This starkly highlights the severe nature of the relationships between these conditions on employment status, with Psychosis Conditions showing a particularly profound effect.

Similar to the CMD model, factors like gender, age, social class, and education consistently influence economic activity across the population. Females and older age groups (55-74) are less likely to be economically active, while higher education and social class are associated with higher economic activity.
These models illuminate the complex relationship between mental health conditions and employment status in England. They demonstrate that CMD and SMI significantly lower an individual's likelihood of being economically active, suggesting that these conditions are substantial barriers to labour force participation. The degree of influence varies by type of disorder, with some conditions, particularly under SMI, leading to a more pronounced reduction in economic activity. Temporal and demographic factors play a role in modulating this relationship, though the core finding that CMD and SMI are detrimental to employment status remains consistent.

In conclusion, the employment status patterns for individuals with CMD and SMI in England significantly differ from those of the general population, with mental health disorders presenting considerable challenges to entering and remaining in the labour force. This underscores the need for targeted support and interventions aimed at improving employment outcomes for individuals facing these mental health challenges.

6.2.2. Goodness of Fit

For the CMD type model, several indicators highlight its fit for exploring the research question. The AIC for the CMD type model is 12,787. This criterion helps in comparing models, with a lower AIC indicating a model that better fits the data while penalizing for the number of parameters. The AIC provides a means to balance model complexity against how well the model fits the data. The BIC, standing at 11,378 for the CMD type model, serves a

similar purpose to the AIC but applies a stricter penalty for the number of parameters. This makes BIC particularly useful in models with large datasets.

With a McFadden's Pseudo R^2 value of 0.25, this statistic suggests that the model explains a substantial portion of the variance in economic activity relative to a null model with no predictors. It's a measure of the model's explanatory power, albeit lower than traditional R^2 values found in linear regression.
The closer this value is to zero, the better, indicating the likelihood of the model given the data. For the CMD type model, the log-likelihood is -5,580, which should be considered relative to the null model's log-likelihood.

Similarly, for the SMI type model, with a value of 11,290, the AIC indicates the model's efficiency in explaining the variability in economic activity among individuals with SMI, considering the number of predictors used. The BIC value of 11,400, like AIC, helps in model selection by penalizing free parameters more severely, useful for comparing models with different numbers of predictors.

The McFadden's Pseudo R^2 value of 0.27 for this model suggests a decent level of variance in economic activity explained by the model. It indicates the improvement of fit that the model provides over a baseline "null" model.

The log-likelihood for the SMI type model is -5,629, indicating the fit of the model to the data. Comparing this to the null model helps in understanding the model's improvement in fit.

Both the CMD and SMI type models demonstrate a reasonable fit to the data, as indicated by their AIC, BIC, McFadden's Pseudo R^2, and log-likelihood values. These metrics suggest that both models are adequately specified to explore how different types of mental health conditions affect economic activity among the population in England.

6.2.3. Average Partial Effects

The Average Partial Effects (APE) tables for the Common Mental Health Disorders (CMD) and Severe Mental Illness (SMI) type models provide insightful data on how these conditions,

alongside various demographic and socioeconomic factors, influence the patterns of economic activity in England. These tables help to quantify the marginal effect of each variable, holding other factors constant, thereby illuminating the direct influence of CMD and SMI on employment status within this specific demographic.

Table 6.3: CMD Type APE Results

Variable	APE	Std. Error	z-score	p-value	< 95% CI	> 95% CI
Education: Degree[1]	0.15	0.01	11.56	**<0.001**	0.13	0.18
Education: GCSE/A Levels[1]	0.12	0.01	11.59	**<0.001**	0.11	0.15
Social Class: High Skill[2]	0.04	0.02	2.00	<0.05	0.00	0.07
Social Class: Med Skill[2]	0.01	0.02	0.36	0.72	-0.03	0.04
Wave: 2007[3]	0.00	0.01	0.36	0.72	-0.01	0.02
Age: 35 - 54	-0.01	0.01	-0.87	0.38	-0.02	0.01
Ethnicity: Other[4]	-0.01	0.02	-0.55	0.58	-0.04	0.02
CMD: Panic Dis[1]	-0.04	0.05	-0.86	0.39	-0.14	0.05
CMD: OCD[1]	-0.05	0.05	-1.02	0.31	-0.16	0.05
Physical Health: Present[1]	-0.06	0.01	-6.15	**<0.001**	-0.08	-0.04
CMD: Mixed Anx & Dep[1]	-0.08	0.01	-5.92	**<0.001**	-0.11	-0.06
CMD: Gen Anx & Dep[1]	-0.12	0.02	-5.44	**<0.001**	-0.16	-0.08
Gender: Female[5]	-0.12	0.01	-16.96	**<0.001**	-0.14	-0.11
CMD: Spec Phob[1]	-0.13	0.04	-3.06	**<0.001**	-0.22	-0.05
CMD Dep Episode[1]	-0.17	0.03	-6.10	**<0.001**	-0.23	-0.12
Age: 55 - 74[6]	-0.43	0.01	-37.30	**<0.001**	-0.46	-0.41

[1] Reference: None
[2] Reference: Low Skill
[3] Reference: 2000
[4] Reference: White
[5] Reference: Male
[6] Reference: 16 - 34

Higher educational attainment significantly increases the probability of being employed. Degree holders have a 15% higher probability of employment, and those with GCSE/A Levels have a 12% higher probability compared to those without any qualifications. Being in a high-skill social class increases the probability of employment by 4%, indicating the positive relationship between skill level on employment opportunities.

The presence of physical health conditions decreases the probability of employment by 6%, underscoring the compounded negative effect of health issues on employment prospects.

Different types of CMD have varying degrees of negative relationships on employment. For example, individuals with Generalized Anxiety & Depression are 12% less likely to be employed, while those with a Depressive Episode are 17% less likely to be employed,

highlighting the severe impression of these conditions on labour force participation.

Females are also 12% less likely to be employed than males, indicating gender disparities in employment among those with CMD. Older age groups face significantly lower probabilities of employment, with individuals aged 55-74 being 43% less likely to be employed compared to the youngest age group.

Table 6.4: SMI Type APE Results

Variable	APE	Std. Error	z-score	p-value	< 95% CI	> 95% CI
Education: Degree[1]	0.15	0.01	12.05	**<0.001**	0.14	0.19
Education: GCSE/A Levels[1]	0.13	0.01	11.99	**<0.001**	0.11	0.15
Social Class: High Skill[2]	0.04	0.02	1.92	0.06	0.00	0.07
Social Class: Med Skill[2]	0.00	0.02	0.20	0.84	-0.03	0.04
Wave: 2007[3]	0.00	0.01	-0.06	0.95	-0.01	0.01
Age: 35 - 54[4]	-0.01	0.01	-1.06	0.29	-0.03	0.01
Ethnicity: Other[5]	-0.01	0.02	-0.64	0.52	-0.04	0.02
Physical Health: Present[1]	-0.07	0.01	-7.35	**<0.001**	-0.09	-0.05
Gender: Female[6]	-0.13	0.01	-17.97	**<0.001**	-0.15	-0.12
SMI Type: Personality Disorder[1]	-0.21	0.06	-3.78	**<0.001**	-0.33	-0.11
SMI Type: Psychosis Condition[1]	-0.39	0.06	-6.50	**<0.001**	-0.50	-0.26
Age: 55 - 74[4]	-0.42	0.01	-36.46	**<0.001**	-0.45	-0.40

[1] Reference: None
[2] Reference: Low Skill
[3] Reference: 2000
[4] Reference: 16 - 34
[5] Reference: White
[6] Reference: Male

The type of SMI has a profound negative association with employment status. Individuals with a Psychosis Condition are 39% less likely to be employed, and those with a Personality Disorder are 21% less likely to be employed compared to those without SMI.

Similar to the CMD model, higher education and being in a higher social class positively influence employment probabilities, with degree holders having a 15% higher probability of employment.

The presence of physical health issues further reduces the probability of employment by 7%, highlighting the intersection of physical and mental health challenges in affecting employment.

The findings underscore the importance of addressing both mental and physical health needs,

promoting educational attainment, and ensuring skill development as part of comprehensive strategies to improve employment outcomes among those with mental health disorders. These insights can inform targeted interventions and policies aimed at reducing employment disparities for individuals living with CMD and SMI, facilitating their integration into the labour force.

6.3. Is the relationship of severe mental illness to employment status different from the relationship of common mental health disorders to employment status in England?

6.3.1. Model Results

Table 6.5 below focusing on economic activity has 12, 787 observations.

Table 6.5: Economic Activity Model Results

Characteristic[1]	N[2]	OR[3]	95% CI[3]	p-value
Gender	12,787			
Male		—	—	
Female		0.42	0.38, 0.47	**<0.001**
Age Band	12,787			
16 - 34		—	—	
35 - 54		0.93	0.81, 1.06	0.29
55 - 74		0.10	0.09, 0.12	**<0.001**
Ethnicity	12,787			
White		—	—	
Other		0.95	0.77, 1.17	0.62
Social Class	12,787			
Low Skill		—	—	
Med Skill		1.02	0.81, 1.29	0.85
High Skill		1.27	0.99, 1.64	0.063
Education	12,787			
None		—	—	
GCSE/A Levels		2.15	1.91, 2.43	**<0.001**
Degree		2.64	2.24, 3.10	**<0.001**
Physical Health Condition	12,787			
None		—	—	
Present		0.68	0.60, 0.76	**<0.001**
Common Mental Health Disorder	12,787			
None		—	—	
Present		0.51	0.45, 0.59	**<0.001**
Severe Mental Illness	12,787			
None		—	—	
Present		0.25	0.16, 0.40	**<0.001**
Survey Wave	12,787			
2000 Wave		—	—	
2007 Wave		1.01	0.91, 1.12	0.85
AIC		11,191		
BIC		11,287		
Deviance		11,164		
Log-Likelihood		-5,582		
Residual df		12,774		
McFadden's Pseudo R2		0.25		
Null deviance		14,911		
Null Log-Likelihood		-7,456		
Null df		12,786		

[1] Model Outcome: Economic Activity

[2] All results from pooled & weighted data

[3] OR = Odds Ratio, CI = Confidence Interval

The model provides a comprehensive look at how common mental health disorders (CMD) and severe mental illness (SMI) associate with economic activity in England, while also considering demographic and socioeconomic factors.

Key findings were that females are less likely to be economically active compared to males (OR = 0.42, $p < 0.001$), indicating a significant gender disparity in economic participation. The odds of being economically active significantly decrease with age, especially notable in the 55-74 age band (OR = 0.10, $p < 0.001$), highlighting age as a major factor in economic

activity.

Ethnicity and Social Class did not show a statistically significant difference in economic activity levels, suggesting that within this model, the relationship with ethnicity and social class is not as pronounced as other factors.

Higher levels of education (GCSE/A Levels and Degree) significantly increase the likelihood of being economically active (ORs = 2.15 and 2.64, respectively, $p < 0.001$), emphasizing the role of education in economic participation. And the presence of a physical health condition reduces the likelihood of being economically active (OR = 0.68, $p < 0.001$), pointing to the association between health and employment status.

Having a CMD significantly reduces the odds of being economically active (OR = 0.51, $p < 0.001$), illustrating the negative association between CMD and employment. The presence of SMI has a more pronounced negative effect on economic activity compared to CMD (OR = 0.25, $p < 0.001$), indicating that SMI poses a greater barrier to economic participation.

The comparison between 2000 and 2007 shows no significant change in economic activity levels over time (OR = 1.01, $p = 0.85$), suggesting that the overall relationship of the factors analysed on economic activity has remained stable during this period.

In response to the research question, this model demonstrates that the relationship of SMI to employment status is distinctly different—and more detrimental—compared to the relationship of CMD to employment status in England. Individuals with SMI are significantly less likely to be economically active than those with CMD, highlighting the need for targeted interventions and support for those with severe mental health issues to facilitate their participation in the labour force. This finding underscores the importance of distinguishing between the relationship of different types of mental health disorders when designing policies and services to support mental health and employment.

6.3.2. Goodness of Fit

The goodness of fit for the model examining the relationships of common mental health

disorders (CMD) and severe mental illness (SMI) on economic activity provides insight into how well the model explains the variance in employment status among individuals in England.

McFadden's Pseudo $R^{\wedge 2}$ value of 0.25 indicates a moderate level of explanatory power of the model. While this value does not directly correspond to the R^2 in linear regression, it suggests that the model adequately captures some of the variability in economic activity based on the included predictors.

The AIC value of 11,191 provides a measure of the model's relative quality and complexity. In the context of comparing models, a lower AIC indicates a better fit to the data, considering both the model's complexity and its ability to explain variability. The BIC value of 11,287 also accounts for model complexity and fit. BIC is particularly useful for models with large sample sizes and provides a stringent test of model quality.

The model's deviance of 11,164, compared to the null deviance of 14,911, shows a significant reduction when predictor variables are included. This reduction indicates that the model with predictors (gender, age, CMD, SMI, etc.) is more effective in explaining economic activity than a model without these predictors. The improvement in log-likelihood from the null model (-7,456) to the fitted model (-5,582) further supports the model's effectiveness in capturing the relationship between mental health status and economic activity.

The goodness of fit indicators suggest that the model is reasonably effective in explaining the variance in economic activity among individuals with CMD and SMI compared to the rest of the population in England. The model's moderate explanatory power (as indicated by McFadden's Pseudo R^2) and the significant improvement in fit over the null model (as shown by the reduction in deviance and improvement in log-likelihood) support its relevance to the research question.

The model confirms that SMI has a more detrimental association between employment status compared to CMD, highlighting the importance of targeted interventions for individuals with SMI to improve their economic participation. The goodness of fit measures provide confidence that the model adequately captures the complex relationship between mental health disorders and employment status, offering valuable insights for policymakers and mental

health professionals in addressing employment barriers faced by individuals with mental health disorders in England.

6.3.3. Average Partial Effects

The Average Partial Effects (APE) table provides an insightful look into how various factors influence the likelihood of individuals with common mental health disorders (CMD) and severe mental illness (SMI) entering the labour force in England, relative to the rest of the population.

Table 6.6: Economic Activity APE Results

Variable	APE	Std. Error	z-score	p-value	< 95% CI	> 95% CI
Education: Degree[1]	0.15	0.01	11.62	**<0.001**	0.13	0.18
Education: GCSE/A Levels[1]	0.12	0.01	11.67	**<0.001**	0.11	0.15
Social Class: High Skill[2]	0.03	0.02	1.81	0.07	0.00	0.07
Social Class: Med Skill[2]	0.00	0.02	0.19	0.85	-0.03	0.04
Wave: 2007[3]	0.00	0.01	0.18	0.85	-0.01	0.02
Age: 35 - 54[4]	-0.01	0.01	-1.07	0.29	-0.03	0.01
Ethnicity: Other[5]	-0.01	0.02	-0.49	0.62	-0.04	0.02
Physical Health: Present[1]	-0.06	0.01	-6.21	**<0.001**	-0.08	-0.04
CMD: Present[1]	-0.10	0.01	-9.39	**<0.001**	-0.12	-0.08
Gender: Female[6]	-0.12	0.01	-17.04	**<0.001**	-0.14	-0.11
SMI: Present[1]	-0.23	0.04	-5.15	**<0.001**	-0.32	-0.14
Age: 55 - 74[4]	-0.43	0.01	-37.41	**<0.001**	-0.46	-0.41

[1] Reference: None
[2] Reference: Low Skill
[3] Reference: 2000
[4] Reference: 16 - 34
[5] Reference: White
[6] Reference: Male

Higher education levels significantly increase the probability of being economically active. Individuals with a Degree (APE = 0.15) and those with GCSE/A Levels (APE = 0.12) show a greater likelihood of engaging in the labour force, underscoring the protective role of education against the negative employment relationships of mental health issues.

Being in a high skill social class has a positive, albeit marginally significant, effect on economic activity (APE = 0.03, p = 0.07), suggesting that higher socioeconomic status provides some resilience against the employment challenges posed by mental health conditions.

The presence of physical health conditions decreases the likelihood of employment (APE = -0.06), highlighting the compounded barriers faced by individuals dealing with both mental and physical health challenges.

The negative relationship of CMD (APE = -0.10) and SMI (APE = -0.23) on economic activity is significant, with SMI showing a more substantial detrimental effect. This indicates that severe mental illness is a stronger barrier to labour force participation compared to common mental health disorders.

Female gender (APE = -0.12) and advancing age, particularly being in the 55-74 age band (APE = -0.43), are associated with lower probabilities of being employed, reflecting broader societal and demographic influences on employment opportunities for those with mental health issues.

The APE analysis aligns with the research question by highlighting the nuanced ways in which CMD and SMI differentially influence employment status in England. It underscores the importance of considering educational attainment, social class, and demographic factors in understanding and addressing the employment challenges faced by individuals with mental health disorders. Specifically, the findings suggest that interventions aimed at improving education and skills training, along with targeted support for those with SMI, could be effective strategies for enhancing labour force participation among this population.

6.4. How did the relationships of common mental health disorders and severe mental illness on employment status changed between 2000 and 2007 in England?

To interpret the CMD Type and SMI Type models in relation to the question of how the relationships of common mental health disorders (CMD) and severe mental illness (SMI) on employment status changed between 2000 and 2007 in England, we need to focus on the

interaction terms between the CMD/SMI types and the survey wave. These interactions are crucial for understanding temporal changes in the relationship between mental health conditions and employment status.

6.4.1. Model Results

Table 6.7: CMD Type Model Results

Characteristic[1]	N[2]	OR[3]	95% CI[3]	p-value
CMD Type	12,787			
None		—	—	
Dep Episode		0.43	0.26, 0.71	**<0.001**
Gen Anx & Dep		0.33	0.24, 0.45	**<0.001**
Mixed Anx & Dep		0.62	0.49, 0.78	**<0.001**
OCD		0.58	0.26, 1.30	0.18
Panic Dis		0.69	0.26, 1.81	0.45
Specific Phob		0.51	0.26, 1.01	0.054
Survey Wave	12,787			
2000 Wave		—	—	
2007 Wave		1.02	0.91, 1.14	0.74
Gender	12,787			
Male		—	—	
Female		0.42	0.38, 0.47	**<0.001**
Age Band	12,787			
16 - 34		—	—	
35 - 54		0.94	0.82, 1.08	0.38
55 - 74		0.10	0.09, 0.12	**<0.001**
Ethnicity	12,787			
White		—	—	
Other		0.94	0.76, 1.16	0.58
Social Class	12,787			
Low Skill		—	—	
Med Skill		1.04	0.83, 1.32	0.72
High Skill		1.30	1.01, 1.68	**0.039**
Education	12,787			
None		—	—	
GCSE/A Levels		2.14	1.90, 2.41	**<0.001**
Degree		2.63	2.23, 3.09	**<0.001**
Physical Health Condition	12,787			
None		—	—	
Present		0.68	0.60, 0.76	**<0.001**
CMD Type * Survey Wave	12,787			
Dep Episode * 2007 Wave		0.57	0.31, 1.06	0.074
Gen Anx & Dep * 2007 Wave		2.15	1.26, 3.69	**0.005**
Mixed Anx & Dep * 2007 Wave		0.87	0.62, 1.21	0.40
OCD * 2007 Wave		1.48	0.35, 6.27	0.60
Panic Dis * 2007 Wave		1.18	0.34, 4.08	0.80
Specific Phob * 2007 Wave		0.66	0.24, 1.79	0.41
AIC		11,211		
BIC		11,378		
Deviance		11,160		
Residual df		12,764		
Log-Likelihood		-5,580		
McFadden's Pseudo R2		0.25		
Null deviance		14,911		
Null df		12,786		
Null Log-Likelihood		-7,456		

[1] Model Outcome: Economic Activity

[2] All results from pooled & weighted data

[3] OR = Odds Ratio, CI = Confidence Interval

Key findings were that the interaction term for depressive episodes with the survey wave, although showing a tendency towards a change in effect from 2000 to 2007, did not reach statistical significance ($p = 0.074$). This suggests that while there might have been a change in how depressive episodes influenced employment status over time, the evidence is not strong

enough to conclusively state there was a significant shift.

The interaction for General Anxiety & Depression and Survey Wave was significant ($p = 0.005$), indicating a meaningful change in how generalized anxiety and depression affected employment status between 2000 and 2007. The direction of this change would need to be further explored, but this finding suggests that interventions or broader social and economic factors may have altered the relationships of these conditions on employment.

The interactions between other CMD types (Mixed Anxiety & Depression, OCD, Panic Disorder, Specific Phobia) and the survey wave were not significant, suggesting that their relationship on employment status remained relatively stable across the two survey periods.

Table 6.8: SMI Type Model Results

Characteristic[1]	N[2]	OR[3]	95% CI[3]	p-value
SMI Type	12,787			
None		—	—	
Personality Disorder		0.34	0.16, 0.70	**0.004**
Psychosis Condition		0.11	0.04, 0.25	**<0.001**
Survey Wave	12,787			
2000 Wave		—	—	
2007 Wave		1.00	0.90, 1.10	0.99
Gender	12,787			
Male		—	—	
Female		0.41	0.37, 0.45	**<0.001**
Age Band	12,787			
16 - 34		—	—	
35 - 54		0.93	0.81, 1.06	0.29
55 - 74		0.11	0.10, 0.12	**<0.001**
Ethnicity	12,787			
White		—	—	
Other		0.93	0.76, 1.15	0.52
Social Class	12,787			
Low Skill		—	—	
Med Skill		1.02	0.81, 1.29	0.84
High Skill		1.29	1.00, 1.65	**0.048**
Education	12,787			
None		—	—	
GCSE/A Levels		2.19	1.94, 2.46	**<0.001**
Degree		2.71	2.31, 3.19	**<0.001**
Physical Health Condition	12,787			
None		—	—	
Present		0.63	0.56, 0.71	**<0.001**
SMI Type * Survey Wave	12,787			
Personality Disorder * 2007 Wave		0.63	0.19, 2.14	0.46
Psychosis Condition * 2007 Wave		1.09	0.31, 3.91	0.89
AIC		11,290		
BIC		11,400		
Deviance		11,259		
Log-Likelihood		-5,629		
Residual df		12,772		
McFadden's Pseudo R2		0.27		
Null deviance		14,911		
Null Log-Likelihood		-7,456		
Null df		12,786		

[1] Model Outcome: Economic Activity

[2] All results from pooled & weighted data

[3] OR = Odds Ratio, CI = Confidence Interval

For the SMI type model, in relation to the research question, the interaction term for personality disorder with the survey wave was not statistically significant ($p = 0.46$), indicating that the influence of personality disorders on employment status did not significantly change from 2000 to 2007.
Similarly, the interaction term for psychosis conditions with the survey wave was not significant ($p = 0.89$), suggesting that the influence of psychosis conditions on employment status remained consistent over the period studied.

The significant interaction between Generalized Anxiety & Depression and the survey wave suggests that there has been a change in how this condition affects employment status over the specified period. This could be due to various factors, including changes in societal attitudes towards mental health, improvements in treatment and support services, or variations in the economic environment affecting employment opportunities for individuals with mental health conditions.

For policymakers and mental health professionals, the findings underscore the importance of temporal context in understanding and addressing the employment challenges faced by individuals with CMD and SMI. The significant interaction involving generalized anxiety and depression points to areas where targeted interventions or policies may have been effective or where further action is needed to support individuals affected by these conditions in the labour market.

In conclusion, while the relationship of most CMD and SMI types on employment status remained stable between 2000 and 2007, the changing relationship for generalized anxiety and depression highlights the need for ongoing monitoring and adaptable strategies to support mental health in the context of employment.

6.4.2. Goodness of Fit

For the CMD type model, McFadden's Pseudo R^2 is a crucial measure indicating the proportion of variance explained by the model compared to a null model with no predictors. A value of 0.25 suggests that the model explains a significant portion of the variance in

employment status based on CMD types and other covariates. While not directly comparable to R^2 in linear regression, this value indicates a moderate fit.

The AIC and BIC are used to assess model fit while penalizing for the number of predictors, helping to avoid overfitting. Lower values are preferable. For the CMD type model, AIC = 11,211 and BIC = 11,378 suggest that the model is relatively well-fitted to the data, considering the complexity of the model and the number of parameters estimated.

The log-likelihood (-5,580) indicates the likelihood of the data given the model. Higher (less negative) values are better, indicating that the model's predictions closely match the observed outcomes.

Similar to the CMD model, the SMI type model has a Pseudo R^2 of 0.27, which implies a slightly better fit to the data, explaining the variance in employment status based on SMI types and other factors. For the SMI type model, AIC = 11,290 and BIC = 11,400. These values, like those in the CMD model, indicate a good balance between model complexity and fit, suggesting that the model is adequately fitted without being overly complex.

The log-likelihood value for the SMI model is -5,629, which, while indicating a good fit, suggests slightly less model efficiency compared to the CMD model, potentially due to the variability associated with SMI types.

Both the CMD and SMI type models show a moderate to good fit to the data based on the goodness of fit statistics. The models effectively capture the relationships of mental health conditions on employment status, with the CMD model showing a slightly better fit according to McFadden's Pseudo R^2, AIC, and BIC values.

6.4.3. Average Partial Effects

Tables 6.3 and Table 6.4 above show the APE for the CMD and SMI Type models. To assess the associations of common mental health disorders (CMD) and severe mental illness (SMI) on employment status changes between 2000 and 2007 in England, the Average Partial Effects (APE) derived from the CMD and SMI type models offer insightful perspectives.

For the CMD type model, both levels of education (Degree and GCSE/A Levels) show a significant positive effect on employment status, indicating that higher education levels consistently improve employment prospects across the board. This effect underscores the protective role of education against employment challenges posed by CMD.

High skill levels within social classes show a positive effect, albeit with marginal significance. This suggests that individuals in higher skilled roles may have better resources or workplace accommodations to mitigate the influence of CMD on employment.

The wave variable's APE being non-significant across CMD types indicates that, broadly, the transition between 2000 and 2007 did not universally alter the employment landscape for individuals with CMD.

The negative APE for CMD conditions such as General Anxiety & Depression and Depressive Episode points to these conditions' detrimental relationship on employment status. However, the interaction with the survey wave, particularly for General Anxiety & Depression, signals a change in this relationship over time, necessitating further investigation into contextual or policy shifts that might explain this variation (see Table 6.3)

For the SMI Type model, similar to the CMD model, education and higher skill levels within social classes significantly influence employment status positively, reinforcing the importance of socio-economic factors in employment outcomes for individuals with SMI.

The absence of significant APE for the survey wave interaction across SMI types suggests that the influence of severe mental illnesses on employment status did not undergo marked changes between 2000 and 2007.

The significantly negative APE for conditions like Personality Disorder and Psychosis Condition highlights the substantial barriers to employment faced by individuals with these SMIs, emphasizing the need for targeted support and interventions (see Table 6.4).

The APE analysis for both CMD and SMI type models in relation to the temporal research

question reveals nuanced insights. While educational attainment and higher social class skills consistently bolster employment prospects, the variable influence of specific CMD and SMI conditions, and the lack of significant temporal shifts for SMI, spotlight areas where policy and practice need to adapt. Notably, the identified change for individuals with General Anxiety & Depression calls for focused research to understand underlying causes and address them effectively. Through this lens, the APE tables contribute to a detailed understanding of the complex interplay between mental health conditions, socio-economic factors, and employment status over time, offering a foundation for informed policymaking and support strategies.

6.5. How does living with common mental health disorders and severe mental illness affect the entrance of young adults (16-35 years old) to the labour force, in comparison to young adults without common mental health disorders and severe mental illness?

Addressing the research question about the relationships of common mental health disorders (CMD) and severe mental illness (SMI) on the employment status of economically active young adults, the model analysis offers critical insights. By examining employment status with a focus on those who are employed versus unemployed among the economically active, the analysis sheds light on the influence of CMD and SMI, factoring in socio-economic and demographic variables. This nuanced approach aims to identify key patterns and interactions that might elucidate the relationship between mental health conditions and employment outcomes, providing a targeted and analytical perspective on the data.

6.5.1. Model Results

There were 12,787 individuals included in the pooled model. The table below illustrates the

model output.

Table 6.9: Economic Activity and Age Model Results

Characteristic[1]	N[2]	OR[3]	95% CI[3]	p-value
Gender	9,337			
Male		—	—	
Female		1.28	0.91, 1.82	0.16
Survey Wave	9,337			
2000 Wave		—	—	
2007 Wave		0.99	0.67, 1.45	0.95
Common Mental Health Disorder	9,337			
None		—	—	
Present		0.44	0.27, 0.73	**0.001**
Age Band	9,337			
16 - 34		—	—	
35 - 54		1.24	0.89, 1.72	0.20
55 - 74		1.56	0.95, 2.56	0.076
Severe Mental Illness	9,337			
None		—	—	
Present		0.51	0.11, 2.47	0.41
Ethnicity	9,337			
White		—	—	
Other		0.74	0.48, 1.14	0.17
Social Class	9,337			
Low Skill		—	—	
Med Skill		1.39	0.84, 2.30	0.20
High Skill		3.80	2.14, 6.77	**<0.001**
Education	9,337			
None		—	—	
GCSE/A Levels		1.69	1.22, 2.34	**0.001**
Degree		1.65	1.07, 2.53	**0.022**
Physical Health Condition	9,337			
None		—	—	
Present		1.01	0.70, 1.46	0.96
Gender * Survey Wave	9,337			
Female * 2007 Wave		0.91	0.53, 1.55	0.72
Common Mental Health Disorder * Age Band	9,337			
Present * 35 - 54		0.97	0.51, 1.86	0.94
Present * 55 - 74		1.98	0.69, 5.73	0.21
Age Band * Severe Mental Illness	9,337			
35 - 54 * Present		0.50	0.07, 3.61	0.49
55 - 74 * Present		0.07	0.00, 5.55	0.24
AIC		2,482		
BIC		2,605		
Deviance		2,442		
Residual df		8,579		
Log-Likelihood		-1,221		
McFadden's Pseudo R2		0.05		
Null deviance		2,572		
Null Log-Likelihood		-1,286		
Null df		8,596		

[1] Model Outcome: Employment Status

[2] All results from pooled & weighted data

[3] OR = Odds Ratio, CI = Confidence Interval

The analysis of the relationships between common mental health disorders (CMD) and severe mental illness (SMI) on the employment status among economically active individuals,

particularly young adults, offers profound insights. It underscores the pronounced influence of CMD and SMI on one's ability to secure employment, while examining the nuances introduced by factors such as gender, age, and physical health.
The odds ratio (OR) of 1.28 for females compared to males suggests that women are slightly more likely to be employed than men, if already economically active, although this effect is not statistically significant ($p = 0.16$).

The comparison between 2007 and 2000 shows no significant change in employment status ($OR = 0.99$, $p = 0.95$), indicating stability in employment patterns over time within the economically active population. Individuals with CMD have significantly lower odds ($OR = 0.44$, $p = 0.001$) of being employed compared to those without, highlighting a substantial negative influence of CMD on employment. The presence of SMI shows a notable, yet not statistically significant, reduction in the odds of being employed ($OR = 0.51$, $p = 0.41$), suggesting a potential negative relationship that requires further investigation due to wide confidence intervals indicating uncertainty in the estimate.

The model suggests a trend where older age groups might have higher odds of employment compared to the youngest group (16-34), but only the "55 - 74" age band shows a marginally significant effect ($OR = 1.56$, $p = 0.076$).

Higher skill levels and higher educational attainment are significantly associated with increased odds of employment, with high skill showing a particularly strong effect ($OR = 3.80$ for high skill, $p < 0.001$). Physical health status does not significantly affect employment odds among the economically active ($OR = 1.01$, $p = 0.96$).

The interaction terms between CMD, SMI and age band were included for exploring whether the associations of CMD and SMI on employment varies by age, directly addressing the research question focused on young adults. However, none of these interactions are statistically significant, which might suggest that within this dataset, the relationship of CMD and SMI on employment status does not significantly differ across age groups. This lack of significant findings does not negate the value of including these terms; rather, it provides evidence that the effect of mental health conditions on employment might be broadly consistent across age groups within this economically active population.

These findings underscore the significant challenge posed by CMD and SMI on securing employment, reaffirming the necessity for targeted support and interventions. The analysis reveals that individuals with CMD are substantially less likely to be employed, a trend that persists across different age bands. This highlights the pervasive nature of mental health barriers in the labour market and the critical need for comprehensive policies and support mechanisms that address these challenges.

While the interactions between CMD/SMI and age did not yield statistically significant differences, the inclusion of these terms was pivotal. It allowed for a nuanced exploration of how the relationships of mental health conditions on employment might vary across life stages. The absence of significant age-specific effects suggests that the detrimental associations of CMD and SMI on employment is a widespread issue, affecting individuals across the age spectrum. This finding calls for universal strategies as well as targeted interventions to support individuals with mental health conditions in the workforce.

6.5.2. Goodness of Fit

Assessing the model's goodness of fit is crucial for understanding how well it explains the variability in employment status and for evaluating its effectiveness in addressing the research question, particularly concerning the role of age as a factor in employment outcomes for those with CMD and SMI.

The McFadden's Pseudo R-squared value offers insight into the model's explanatory power. Although Pseudo R-squared values are inherently lower for logistic regression models compared to R-squared values in linear regression, they provide a useful measure of the model's ability to distinguish between employed and unemployed individuals based on the predictors included. In this context, a Pseudo R-squared value of 0.05, though modest, indicates that the model does capture some of the variance in employment status related to CMD, SMI, and other factors.

The log-likelihood and information criteria such as the AIC and the BIC are critical for assessing model fit. Lower values of AIC and BIC suggest a model that better fits the data

while penalizing for complexity. The reported values indicate that the model achieves a balance between fitting the data and maintaining parsimony, suggesting it is adequately specified for the analysis at hand.

The statistical significance of individual coefficients within the model, particularly for CMD and SMI, supports the model's relevance in addressing the research question. The significant negative influence of CMD on employment status across age groups underscores the model's effectiveness in capturing the essential dynamics.

The research question seeks to explore whether the effects of CMD and SMI on employment status are mitigated or exacerbated by age, among other factors. The goodness of fit indicators suggests that while the model does capture some of the complexity associated with this question, the relatively low Pseudo R-squared value indicates that there are additional unexplained variances. This could be due to the multifaceted nature of employment status determinants or the potential for other unmeasured variables that might influence this relationship.

6.5.3. Average Partial Effects

The analysis using the Average Partial Effects (APE) model provides targeted insights into the relationships between common mental health disorders (CMD) and severe mental illness (SMI) on the employment status of young adults aged 16-35. This focused approach allows us to understand how various factors, particularly mental health conditions, influence the transition of young adults into the labour force.

The negative APE for CMD (-0.03) indicates that young adults living with common mental health disorders are significantly less likely to enter the labour force compared to their peers without these conditions. This substantial effect highlights the barrier that CMD poses to employment for young adults, underscoring the need for targeted mental health interventions and support systems to facilitate their successful integration into the labour market. Although the APE for SMI (-0.09) is negative, suggesting that severe mental illness may further decrease the likelihood of employment among young adults, this effect is not statistically significant ($p=0.17$). This implies a potential trend that warrants further investigation, given

the substantial influence it could have on the employment prospects of young adults with SMI.

The positive APEs for high skill level and higher education (Degree and GCSE/A Levels) underscore the importance of socioeconomic status and educational attainment in mitigating the negative relationship of mental health conditions on employment. These findings suggest that education and skill development are crucial areas for intervention to improve employment outcomes for young adults with mental health conditions.

The analysis does not directly break down the effects specifically for the age group of 16-35 beyond the reference group (16 - 34) for CMD and SMI influences. However, the broader age categories included indicate a nuanced relationship between age and employment, with age potentially acting as a modifier in the context of mental health conditions.

The APE analysis provides valuable insights into how CMD and, to a lesser extent, SMI affect the employment status of young adults, emphasizing the need for targeted support and interventions. By addressing the educational, skill development, and mental health needs of this population, policymakers and practitioners can better support young adults with mental health conditions in overcoming barriers to employment, facilitating a smoother transition into the labour force.

Table 6.10: Economic Activity and Age APE Results

Variable	APE	Std. Error	z-score	p-value	< 95% CI	> 95% CI
Social Class: High Skill[1]	0.04	0.01	3.05	**<0.001**	0.01	0.06
Education: Degree[2]	0.02	0.01	2.27	<0.05	0.00	0.03
Education: GCSE/A Levels[2]	0.02	0.01	2.82	**<0.001**	0.00	0.03
Age: 35 - 54[1]	0.01	0.00	1.33	0.18	0.00	0.01
Age: 55 - 74[3]	0.01	0.01	2.44	<0.05	0.00	0.03
Gender: Female[3]	0.01	0.00	1.47	0.14	0.00	0.01
Social Class: Med Skill[4]	0.01	0.01	1.13	0.26	-0.01	0.04
Physical Health: Present[2]	0.00	0.01	0.05	0.96	-0.01	0.01
Wave: 2007[5]	0.00	0.00	-0.39	0.69	-0.01	0.01
Ethnicity: Other[6]	-0.01	0.01	-1.23	0.22	-0.03	0.01
CMD: Present[2]	-0.03	0.01	-3.88	**<0.001**	-0.04	-0.01
SMI: Present[2]	-0.09	0.07	-1.36	0.17	-0.24	0.03

[1] Reference: Low Skill
[2] Reference: None
[3] Reference: 16 - 34
[4] Reference: Male
[5] Reference: 2000
[6] Reference: White

6.6. Are the effects of common mental health disorders and severe mental illness on employment status mitigated or exacerbated by other barriers or enablers, such as socioeconomic status, ethnicity, education, physical health, involvement in services?

In response to the research question concerning the relationships of common mental health disorders (CMD) on employment status and the potential mitigating or exacerbating effects of various socio-economic and health-related factors, the model analysis provides valuable insights. With an understanding that economic inactivity is the reference level for the dependent variable, we delve into how CMD presence, alongside other determinants, influences economic activity. This approach aims to highlight the most significant findings while addressing the feedback for a more insightful and less descriptive analysis.

6.6.1. Model Results

There were 12,787 individuals included in the pooled model. The table below illustrates the model output.

Table 6.11: CMD Presence Model Results

Characteristic[1]	N[2]	OR[3]	95% CI[3]	p-value
Common Mental Health Disorder	12,787			
None		—	—	
Present		0.44	0.24, 0.80	**0.007**
Survey Wave	12,787			
2000 Wave		—	—	
2007 Wave		1.03	0.92, 1.16	0.59
Gender	12,787			
Male		—	—	
Female		0.37	0.33, 0.41	**<0.001**
Age Band	12,787			
16 - 34		—	—	
35 - 54		1.05	0.90, 1.24	0.52
55 - 74		0.09	0.08, 0.11	**<0.001**
Ethnicity	12,787			
White		—	—	
Other		0.92	0.72, 1.18	0.53
Social Class	12,787			
Low Skill		—	—	
Med Skill		1.08	0.82, 1.42	0.60
High Skill		1.21	0.90, 1.63	0.21
Education	12,787			
None		—	—	
GCSE/A Levels		2.12	1.85, 2.43	**<0.001**
Degree		2.49	2.08, 2.99	**<0.001**
Physical Health Condition	12,787			
None		—	—	
Present		0.77	0.67, 0.88	**<0.001**
Treatment	12,787			
None		—	—	
Medication Only		0.48	0.36, 0.64	**<0.001**
Counselling Only		0.73	0.38, 1.43	0.37
Both		0.44	0.18, 1.11	0.081
Service Use	12,787			
Not Used		—	—	
Used		0.78	0.61, 0.99	**0.040**
Common Mental Health Disorder * Survey Wave	12,787			
Present * 2007 Wave		0.92	0.71, 1.17	0.49
Common Mental Health Disorder * Gender	12,787			
Present * Female		2.13	1.66, 2.73	**<0.001**
Common Mental Health Disorder * Age Band	12,787			
Present * 35 - 54		0.81	0.59, 1.11	0.19
Present * 55 - 74		1.84	1.28, 2.66	**0.001**
Common Mental Health Disorder * Ethnicity	12,787			
Present * Other		0.79	0.48, 1.30	0.35
Common Mental Health Disorder * Social Class	12,787			
Present * Med Skill		0.88	0.53, 1.48	0.64
Present * High Skill		1.42	0.80, 2.51	0.23
Common Mental Health Disorder * Education	12,787			
Present * GCSE/A Levels		1.08	0.81, 1.44	0.60
Present * Degree		1.38	0.91, 2.08	0.13
Common Mental Health Disorder * Physical Health Condition	12,787			
Present * Present		0.68	0.52, 0.90	**0.007**
Common Mental Health Disorder * Treatment	12,787			
Present * Medication Only		0.61	0.39, 0.94	**0.025**
Present * Counselling Only		0.50	0.21, 1.14	0.10
Present * Both		0.33	0.12, 0.95	**0.040**
Common Mental Health Disorder * Service Use	12,787			
Present * Used		1.03	0.73, 1.47	0.86
AIC		10,949		
BIC		11,168		
Deviance		10,884		
Log-Likelihood		-5,442		
Residual df		12,757		
McFadden's Pseudo R2		0.27		
Null deviance		14,911		
Null Log-Likelihood		-7,456		
Null df		12,786		

[1] Model Outcome: Economic Activity

[2] All results from pooled & weighted data

[3] OR = Odds Ratio, CI = Confidence Interval

Analysis provides compelling evidence on the significant associations between common mental health disorders (CMD) on economic activity, pointing towards interactions with gender, age, and physical health conditions. Below, are the core insights and strategic implications derived from the above model, advocating for a paradigm shift in policy and intervention approaches.

CMD's association with economic activity is central to this question. The model shows the stark reality that the presence of CMD is significantly associated with reduced economic activity (OR = 0.44, p = 0.007). This relationship underscores the critical need for policy and workforce development strategies to not only recognize but actively address mental health as a pivotal factor influencing economic engagement.

There was also a striking gender disparity in the relationship between CMD and economic activity. Women with CMD face significantly greater obstacles to economic participation (OR = 2.13, $p < 0.001$), highlighting a critical area for targeted policy intervention. This disparity transcends individual health challenges, pointing to broader societal and systemic barriers that exacerbate economic inactivity among women with mental health issues. Addressing this requires a concerted effort to implement gender-specific support systems and policies.

On aging and economic participation. The interaction between CMD and the 55-74 age band (OR = 1.84, p = 0.001) suggests that older adults with CMD are not inevitably economically inactivity. Instead, this insight prompts a reconsideration around how better support can enable the economic engagement of older individuals, exploring new avenues for re-engagement and sustained, healthy participation in the workforce.

The analysis also shed light on the compounded associations of coexisting CMD and physical health conditions on economic activity (OR = 0.68, p = 0.007), which indicates a statistically significant relationship, suggesting that individuals who have both CMD and physical health conditions are less likely to be economically active compared to those without these conditions, or with only one of the conditions. This finding is a backs the call for integrated health services that address both mental and physical health in a cohesive manner, recognizing the intertwined nature of these factors in shaping an individual's ability to engage

economically.

Table 6.12 below explores question 6 through the lens of SMI and these barriers and enablers to participating in the labour market.

Table 6.12: SMI Presence and Economic Activity

Characteristic[1]	N[2]	OR[3]	95% CI[3]	p-value
SMI Presence	12,787			
None		—	—	
Present		2.49	0.33, 18.6	0.37
Survey Wave	12,787			
2000 Wave		—	—	
2007 Wave		1.02	0.92, 1.13	0.73
Gender	12,787			
Male		—	—	
Female		0.43	0.38, 0.47	**<0.001**
Age Band	12,787			
16 - 34		—	—	
35 - 54		0.99	0.86, 1.14	0.91
55 - 74		0.10	0.09, 0.12	**<0.001**
Ethnicity	12,787			
White		—	—	
Other		0.89	0.72, 1.10	0.30
Social Class	12,787			
Low Skill		—	—	
Med Skill		1.05	0.83, 1.33	0.69
High Skill		1.28	0.99, 1.66	0.060
Education	12,787			
None		—	—	
GCSE/A Levels		2.15	1.91, 2.43	**<0.001**
Degree		2.67	2.27, 3.14	**<0.001**
Physical Health Condition	12,787			
None		—	—	
Present		0.67	0.59, 0.76	**<0.001**
Treatment	12,787			
None		—	—	
Medication Only		0.39	0.31, 0.49	**<0.001**
Counselling Only		0.45	0.30, 0.66	**<0.001**
Both		0.17	0.11, 0.29	**<0.001**
Service Use	12,787			
Not Used		—	—	
Used		0.69	0.58, 0.83	**<0.001**
SMI Presence * Survey Wave	12,787			
Present * 2007 Wave		0.33	0.08, 1.27	0.11
SMI Presence * Gender	12,787			
Present * Female		3.39	0.95, 12.2	0.061
SMI Presence * Age Band	12,787			
Present * 35 - 54		0.37	0.11, 1.25	0.11
Present * 55 - 74		0.40	0.06, 2.67	0.34
SMI Presence * Ethnicity	12,787			
Present * Other		0.05	0.00, 0.53	**0.013**
SMI Presence * Social Class	12,787			
Present * Med Skill		0.36	0.06, 2.33	0.28
Present * High Skill		3.01	0.43, 21.1	0.27
SMI Presence * Education	12,787			
Present * GCSE/A Levels		2.93	0.63, 13.6	0.17
Present * Degree		5.13	0.67, 39.4	0.12
SMI Presence * Physical Health Condition	12,787			
Present * Present		0.66	0.11, 4.12	0.66
SMI Presence * Treatment	12,787			
Present * Medication Only		0.14	0.03, 0.67	**0.014**
Present * Counselling Only		0.33	0.03, 3.12	0.33
Present * Both		0.59	0.13, 2.68	0.49
SMI Presence * Service Use	12,787			
Present * Used		0.44	0.12, 1.59	0.21
AIC		11,040		
BIC		11,266		
Deviance		10,983		
Residual df		12,757		
Log-Likelihood		-5,491		
McFadden's Pseudo R2		0.26		
Null deviance		14,911		
Null Log-Likelihood		-7,456		
Null df		12,786		

[1] Model Outcome: Economic Activity
[2] All results from pooled & weighted data
[3] OR = Odds Ratio, CI = Confidence Interval

The above model looks into the dynamics between Severe Mental Illness (SMI) presence and various demographic, social, and health-related factors, analysing their collective relationships on economic activity. This analysis, set against a backdrop of 12,787 observations, offers a

more nuanced understanding of how SMI intersects with facets of identity and condition to influence participation in the economy and answer this research question.

The odds ratio (OR) for SMI presence (2.49) suggests a complex relationship with economic activity, though not statistically significant ($p = 0.37$) within this particular model. This wide confidence interval (CI) points to a considerable variability, underscoring the complexity of SMI's influence on economic engagement.

Gender is also a critical factor; with females exhibiting significantly lower odds ($OR = 0.43$, $p < 0.001$) of economic activity compared to males. This stark disparity signals deep-rooted gender inequalities, magnified in the context of SMI.

The age bands reveal significant variance in economic activity, with individuals aged 55-74 showing dramatically reduced odds ($OR = 0.10$, $p < 0.001$) of being economically active. This highlights the age-related challenges in the workforce, especially pronounced for those with SMI.

Education levels significantly influence economic activity, with those holding GCSE/A Levels or a Degree showing much higher odds (ORs = 2.15 and 2.67, respectively, $p < 0.001$) of economic participation. This underscores education as a powerful lever for economic engagement, offering a buffer against the adverse effects of SMI.

Treatment for SMI, whether medication only, counselling only, or both, significantly affects economic activity, with particularly low odds for those on medication only ($OR = 0.39$, $p < 0.001$). This suggests that while treatment is crucial for managing SMI, it also reflects the severity of illness and its influence on economic participation.

Worth noting is the interaction between SMI presence and being female suggests an exacerbated disadvantage ($OR = 3.39$, $p = 0.061$), although not statistically significant, it points towards a compounded challenge for women with SMI in the economic sphere.

A significant interaction between SMI presence and ethnicity other than White ($OR = 0.05$, $p = 0.013$) indicates a profound, though highly variable, relationship with economic activity,

suggesting that ethnicity intersects with SMI in complex ways that warrant further investigation.

The interaction showing that those with SMI on medication only are significantly less likely to be economically active (OR = 0.14, p = 0.014) reveals the nuanced ways in which the type of treatment correlates with the capacity for economic engagement while indicating severity and complexity of illness.

The evidence above highlights that both CMD and SMI are significant determinants of reduced economic activity, with CMD presence notably decreasing the likelihood of being economically active (OR = 0.44, p = 0.007). This stark reality underscores the pressing need for comprehensive policy and workforce development strategies that prioritize mental health support as a critical component of economic participation and productivity.

Gender emerged as a critical factor, with women facing significantly greater obstacles to being economically active, particularly when navigating the challenges of CMD (OR = 2.13, p < 0.001) and SMI. This gender disparity transcends individual health challenges, pointing to broader societal and systemic barriers that exacerbate economic inactivity among women with mental health issues. It calls for gender-specific interventions and policy measures aimed at dismantling these barriers.

Age also played a modifier role, especially in the context of SMI, with older adults (55-74) showing a markedly lower likelihood of economic activity (OR = 0.10, p < 0.001). This finding challenges conventional narratives around aging and economic participation, suggesting that older adults with mental health issues face unique challenges that necessitate targeted support and innovative strategies to foster their engagement in the workforce.

Furthermore, the compounded association of coexisting CMD and physical health conditions (OR = 0.68, p = 0.007) highlights the necessity for integrated health services that address both mental and physical health needs holistically, acknowledging their interconnectedness in shaping economic participation.

These models directly address the research question regarding the effects of CMD and SMI on

employment status and the potential mitigating or exacerbating role of socioeconomic status, ethnicity, education, physical health, and involvement in services. It is evident that socioeconomic factors, such as education and social class, play a significant role in moderating the relationship between mental health conditions on economic activity. Higher education levels emerge as a potent enabler, significantly increasing the odds of economic participation for individuals with mental health issues.

Ethnicity and treatment types for mental health conditions also interact with CMD and SMI presence in complex ways, indicating that the pathway to economic activity is influenced by a myriad of factors, including the severity of the mental health condition, the cultural context, and the accessibility and type of treatment received.

6.6.2. Goodness of Fit

The goodness of fit for each model is crucial in determining how well the models explain the variance in economic activity among the 12,787 individuals included in the study.

The first model focuses on the associations between CMD on economic activity, factors such as survey wave, gender, age band, ethnicity, social class, education, physical health condition, treatment, and service use, along with interaction terms to explore nuanced relationships. The goodness of fit metrics for this model were the AIC of 10,949, BIC of 11,168, Deviance of 10,884, and McFadden's Pseudo R-squared of 0.27. These metrics suggest a moderate fit of the model to the data. The AIC and BIC values provide a measure of the model's relative quality and complexity, with lower values generally indicating a better fit. The deviance value complements these criteria by offering insight into the model's explanatory power. McFadden's Pseudo R-squared, while not directly comparable to the R-squared of linear regression, indicates that approximately 27% of the variability in economic activity is explained by the model, signifying a meaningful capture of the underlying dynamics.

The second model shifts focus to the influence of SMI on economic activity, also accounting for the same broad range of factors and interactions. The goodness of fit for this model were an AIC of 11,040, a BIC of 11,266, Deviance of 10,983 and a McFadden's Pseudo R-squared of 0.26. Similar to the first model, these metrics indicate a moderate fit to the data. The

slightly higher AIC and BIC values compared to the first model suggest a marginally increased complexity without a proportional increase in explanatory power, as reflected in the slightly lower Pseudo R-squared value. This implies that while the model effectively captured certain aspects of the relationship between SMI and economic activity, there remains a considerable amount of unexplained variability.

Both models demonstrate a moderate goodness of fit for exploring the research question, indicating that while they provide valuable insights into the factors influencing economic activity among individuals with CMD and SMI, they also highlight the complexity and multifaceted nature of these relationships. The modest McFadden's Pseudo R-squared values underscore the presence of other unmodeled factors or inherent variability in economic activity that is not captured by the current models. The interaction terms in both models reveal significant insights into how the presence of mental health disorders intersects with other variables to influence economic activity, suggesting areas for targeted policy intervention and support. However, the wide confidence intervals for some interaction terms, especially in the SMI model, indicate substantial uncertainty around these estimates, which could be addressed in future research through model refinement or inclusion of additional variables.

6.6.3. Average Partial Effects

In addressing the question of whether the effects of common mental health disorders (CMD) and severe mental illness (SMI) on employment status are mitigated or exacerbated by various socio-economic factors, education, physical health, and involvement in services, the Average Partial Effects (APEs) from two comprehensive models provide insightful evidence. These APEs help in understanding the average change in the probability of being employed for individuals with CMD or SMI, considering other interacting factors.

Table 6.13: CMD Presence APE Results

Variable	APE	Std. Error	z-score	p-value	< 95% CI	> 95% CI
Education: Degree[1]	0.14	0.01	11.57	**<0.001**	0.13	0.18
Education: GCSE/A Levels[1]	0.12	0.01	11.57	**<0.001**	0.10	0.14
Social Class: High Skill[2]	0.04	0.02	1.95	<0.05	0.00	0.07
Social Class: Med Skill[2]	0.01	0.02	0.40	0.69	-0.03	0.04
Age: 35 - 54[3]	0.00	0.01	0.02	0.98	-0.02	0.02
Wave: 2007[4]	0.00	0.01	0.27	0.79	-0.01	0.02
Ethnicity: Other[5]	-0.02	0.02	-1.15	0.25	-0.05	0.01
Service Use: Used[6]	-0.03	0.01	-2.35	<0.05	-0.06	-0.01
CMD: Present[1]	-0.04	0.01	-3.70	**<0.001**	-0.05	-0.01
Physical Health: Present[7]	-0.05	0.01	-5.42	**<0.001**	-0.07	-0.03
Treatment: Counselling Only[1]	-0.07	0.04	-1.61	0.11	-0.15	0.01
Gender: Female[1]	-0.11	0.01	-16.54	**<0.001**	-0.13	-0.11
Treatment: Medication Only[1]	-0.12	0.02	-6.27	**<0.001**	-0.17	-0.09
Treatment: Both[3]	-0.16	0.06	-2.53	<0.01	-0.29	-0.04
Age: 55 - 74[3]	-0.42	0.01	-36.28	**<0.001**	-0.45	-0.40

[1] Reference: None
[2] Reference: Low Skill
[3] Reference: 16 - 34
[4] Reference: 2000
[5] Reference: White
[6] Reference: Not Used
[7] Reference: Male

The APE analysis for CMD presence reveals significant insights into how socio-economic status, education level, and physical health conditions influence employment outcomes for individuals with CMD. Notably, holding a Degree or GCSE/A Levels substantially increased the probability of employment (APE = 0.14 and 0.12, respectively), underscoring education as a potent enabler of economic activity for those with CMD.

The presence of physical health conditions further reduced the probability of employment (APE = -0.05), highlighting the compounded barriers faced by individuals struggling with both CMD and physical health issues. Being female also significantly decreased the probability of being employed (APE = -0.11), indicating gender as a significant factor that exacerbates economic inactivity among those living with CMD.

Utilization of services was also associated with a decreased probability of employment (APE = -0.03), suggesting that while service use is crucial for managing CMD, it may also reflect the severity of the condition that influences economic activity.

Table 6.14: SMI Presence APE Results

Variable	APE	Std. Error	z-score	p-value	< 95% CI	> 95% CI
Education: Degree[1]	0.15	0.01	11.83	**<0.001**	0.13	0.18
Education: GCSE/A Levels[1]	0.12	0.01	11.70	**<0.001**	0.11	0.15
Social Class: High Skill[2]	0.03	0.02	1.90	0.06	0.00	0.07
Social Class: Med Skill[2]	0.01	0.02	0.35	0.73	-0.03	0.04
Age: 35 - 54[3]	0.00	0.01	-0.24	0.81	-0.02	0.01
SMI: Present[4]	0.00	0.05	0.02	0.99	-0.09	0.11
Wave: 2007[5]	0.00	0.01	0.19	0.85	-0.01	0.02
Ethnicity: Other[6]	-0.02	0.01	-1.20	0.23	-0.05	0.01
Service Use: Used[1]	-0.05	0.01	-4.04	**<0.001**	-0.08	-0.03
Physical Health: Present[7]	-0.06	0.01	-6.33	**<0.001**	-0.08	-0.04
Gender: Female[1]	-0.12	0.01	-16.54	**<0.001**	-0.14	-0.11
Treatment: Counselling Only[1]	-0.12	0.03	-3.66	**<0.001**	-0.19	-0.06
Treatment: Medication Only[1]	-0.15	0.02	-7.36	**<0.001**	-0.19	-0.11
Treatment: Both[3]	-0.29	0.05	-6.16	**<0.001**	-0.39	-0.20
Age: 55 - 74[3]	-0.42	0.01	-36.61	**<0.001**	-0.45	-0.40

[1] Reference: None
[2] Reference: Low Skill
[3] Reference: 16 - 34
[4] Reference: 2000
[5] Reference: White
[6] Reference: Not Used
[7] Reference: Male

For individuals living with SMI, the APE analysis provides parallel insights, with some differences. The APE for SMI presence itself shows no significant change in the probability of employment (APE = 0.00), suggesting that, on average, SMI's direct influence on employment status might be nuanced and influenced by the interaction with other factors. Similar to CMD, higher education (Degree or GCSE/A Levels) significantly increased employment probability (APE = 0.15 and 0.12), while high skill level shows a positive but not statistically significant trend (APE = 0.03). Different treatment modalities for SMI (medication only, counselling only, both) show varying degrees of negative influence on employment probability, with those receiving both treatments experiencing the most substantial decrease (APE = -0.29), reflecting the severity of SMI and its complex relationship with employment.

Both models indicate that education acts as a crucial enabler, significantly mitigating the adverse effects of CMD and SMI on employment status. Conversely, factors such as gender, physical health conditions, and the need for multiple treatments for SMI exacerbate challenges in maintaining economic activity.

These findings emphasize the necessity for targeted interventions and policies that enhance access to and quality of education for individuals with mental health disorders, recognizing its pivotal role in enabling economic participation. Address the gender disparities and provide

tailored support for women with CMD or SMI to overcome the specific barriers they face in the workforce. Integrate mental and physical health services to offer comprehensive care that addresses the compounded relationship of coexisting conditions on employment. Consider the complexity of treatment needs for those with SMI, ensuring support systems are in place to facilitate their engagement in economic activities.

In conclusion, the effects of CMD and SMI on employment status are intricately linked with socio-economic status, ethnicity, education, physical health, and service involvement. While education emerges as a significant enabler, other factors can mitigate or exacerbate these effects, pointing to the need for a holistic approach in addressing the barriers to employment faced by individuals with mental health disorders.

6.7. Chapter Summary

Chapter 6 delves into the effects of common mental health disorders (CMD) and severe mental illness (SMI) on employment status in England, utilizing models to explore how these conditions influence labour force participation. It examines the differences in employment patterns for individuals with CMD and SMI compared to the general population, how these relationships have evolved from 2000 to 2007, and the role of various socio-economic factors, such as education and physical health, in moderating these effects.

The findings reveal that both CMD and SMI significantly reduce the likelihood of being economically active, with SMI showing a more pronounced negative relationship. Education emerges as a key factor in mitigating the adverse effects of mental health conditions on employment status, while physical health conditions and gender disparities exacerbate these challenges. The analysis indicates a stable relationship between mental health disorders on employment over the studied period, suggesting the need for ongoing support and targeted interventions to improve employment outcomes for affected individuals.

For CMD, specific disorders like depression and generalized anxiety are linked to lower economic activity, while for SMI, conditions such as personality disorders and psychosis are particularly detrimental. The models highlight the complexity of the relationship between mental health and employment, suggesting that interventions need to be nuanced and inclusive

of various factors to effectively support individuals with mental health conditions in the workforce.

Overall, Chapter 6 underscores the significant barriers to employment faced by individuals with CMD and SMI, pointing to the critical need for comprehensive strategies that address mental health support, education, and socio-economic inclusion to facilitate their participation in the labour market.

Chapter 7

Discussion

7.1. Chapter Overview

This chapter discusses key findings from this thesis and places their implications in context. A section comparing findings to previous research is then presented before a section outlining the general strengths and limitations of the thesis. The final section outlines recommendations for future research. Concluding statements can be found in Chapter 8.

7.2. Findings in Context

This section summarises the key findings, relates them to existing literature and draws out implications for policy. There are four subsections covering: 1. The role of demographic factors in economic activity, 2. the relationship between common mental health disorders and severe mental illness on economic activity, 3. the effect of treatment use on economic activity, and 4. the influence of common mental health disorders and severe mental illness type on economic activity.

This work highlights the significant associations between demographic factors, particularly age, gender, and education, have on economic activity in England, particularly in the context of poor mental health. The findings suggest that older individuals and women are more likely to face barriers to employment, and that education has a positive association with economic activity. To address these issues, it is crucial for society to invest in holistic policies and programs that support individuals with mental illnesses in finding and keeping employment if able, addressing the barriers faced by older individuals and women, and providing support and resources that are tailored to their specific needs. Additionally, it is important to invest in education and training programs that support individuals in gaining the skills and

qualifications needed to access employment opportunities, and to address the broader social context, including the prevalence of mental health conditions, the type and source of support and resources, and the level of stigma and discrimination faced by individuals living with mental illnesses.

7.3. The Influence of CMD & SMI on Economic Activity

This section examines the influence of Common Mental Health Disorders (CMD) and Severe Mental Illness (SMI) on economic activity. It explores how these conditions affect individuals' participation in the labour market and the implications for employment outcomes. Drawing from findings in Chapters 5 and 6, we aim to highlight the barriers faced by people with CMD and SMI and their significance in the broader context of economic engagement in England.

7.3.1. CMD and Economic Activity

Chapters 5 and 6 provide a comprehensive analysis of how Common Mental Health Disorders (CMD) influence economic activity, utilizing a combination of chi-square tests and logistic regression models to examine the dynamics. This analysis is critical for understanding the nuanced ways in which CMD presence influences employment outcomes, with a specific focus on the interaction effects between CMD and various demographic variables, including gender, age, and educational attainment.

The chi-square tests highlighted in Chapter 5 demonstrate significant associations between the presence of CMD and economic inactivity, revealing a notable gender disparity in the economic participation of individuals with CMD. Women are disproportionately affected, suggesting that CMD exacerbates existing gender inequalities in the labour market. This finding is consistent with the broader literature on mental health and employment, as discussed in Chapter 2, where Modini and colleagues (2016) and Brouwers (2020) emphasize the gendered relationship between mental health on work engagement.

Building on these findings, the logistic regression models explored in Chapter 6 looked into

the interaction effects, revealing that younger individuals with higher education levels experience a somewhat mitigated relationship of CMD on their economic activity. This suggests that education may act as a protective factor against the negative economic consequences of CMD, echoing the observations made by Heron and colleagues in their work (2022) which explored loneliness among people with severe mental illness as well as factors such as education, as well as by Marwaha and Johnson (2004) who focused on employment outcomes for individuals with CMD and SMI. Such insights highlight the critical role of educational attainment in providing resilience against the employment challenges posed by mental health disorders.

Moreover, the analysis showed that the detrimental associations between CMD on economic activity remained consistent between 2000 and 2007, indicating ongoing challenges in the labour market for individuals with CMD despite potential improvements in mental health awareness and treatment during this period, which is explored in Bailey's work (2015). This stability suggests a need for sustained and targeted efforts to support mental health in the workplace, such as the peer support interventions discussed by Repper and Schneider (2011) in which they found that peer support workers in mental health services can significantly reduce hospital admissions and improve various aspects of life for those with mental health problems, such as gaining and keeping employment.

The models also shed light on the specific types of CMD that exert the most significant negative effects on economic activity, with depression and generalized anxiety disorder identified as particularly impactful. This differentiation underscores the importance of tailored workplace interventions to address the varied needs of individuals with different mental health conditions, a point supported by Beresford's (2002) work on the importance of a social model of mental health and a need for a holistic understanding and approach to mental health that considers societal and structural factors, as well as the work by Chandola and colleagues (2017) on understanding the influence of type of mental health conditions on employment and the role of job quality in mediating this relationship.

In synthesizing these analyses, it reveals the complex interplay between CMD and employment. The insights gained underscore the multifaceted nature of mental health challenges in the labour market and reinforce the need for a comprehensive policy approach.

Such an approach should consider the distinct effects of various CMD types and incorporate demographic factors like age, gender, and education, to develop effective employment practices and mental health interventions that are inclusive and supportive of all individuals in the workforce.

7.3.2. SMI and Economic Activity

The intersection of Severe Mental Illness (SMI) and economic activity presents a complex landscape for understanding labour market participation among individuals grappling with complex mental health conditions. This section looks into the significant findings from both chi-square tests and logistic regression models, offering a nuanced discussion on the multifaceted relationships of SMI presence and types on economic activity.

Initial chi-square analyses underscore a significant disparity in economic activity between individuals with SMI and the general population. This divergence highlights a critical barrier to labour market participation, consistent with existing literature emphasizing the employment challenges faced by those with mental health conditions. Particularly, the heightened economic inactivity among individuals with psychosis conditions suggests a profound need for specialized interventions that address the unique barriers encountered by this subgroup. This is supported by the work of Marwaha and Johnson (2004), which highlighted the significant employment challenges and barriers faced by individuals with schizophrenia, illustrating the broader issue of economic inactivity within this group. Complementing this, Burns and colleagues (2009) present evidence on the efficacy of supported employment programs, showcasing their potential to enhance both clinical and social functioning for those with severe mental illnesses, including psychosis conditions.

Logistic regression models provide a richer understanding of the dynamics between SMI and economic activity. The substantial reduction in odds of being economically active for individuals with SMI, especially those with psychosis conditions, underscores the severe implications of these illnesses for employment prospects. Furthermore, the models reveal that the association of SMI on economic activity is not uniformly felt across demographic groups. This variability necessitates a differentiated approach to support, recognizing the specific needs and challenges of diverse subpopulations within the SMI community. The research by

Allsopp et al. (2019), Brouwers (2020), and Hampson, Watt, and Hicks (2020) collectively underscore the need for a comprehensive approach to employment support for individuals with SMI. Highlighting the challenges of diagnostic variability, the pervasive influence of social stigma, and workplace discrimination, especially for those with psychosis, these studies call for interventions that are sensitive to the diverse experiences within the SMI community, advocating for policies that both recognize and address these multifaceted barriers to improve employment outcomes.

A critical insight from the regression models is the protective role of education in mitigating the negative relationship between SMI on labour market participation. Higher educational attainment appears to offer a buffer against the employment challenges posed by SMI, suggesting that education can serve as a crucial lever for improving employment outcomes for individuals with SMI. This finding points to the importance of accessible educational opportunities and supports for individuals experiencing mental health challenges. Further emphasizing this point, Ralston and colleagues (2022) research on NEET populations underscores the nuanced challenges faced by young individuals not in education, employment, or training, highlighting the critical role of targeted educational and vocational interventions in facilitating their transition into the labour market, a principle that extends to supporting individuals with SMI in overcoming employment barriers through education.

The discussion on SMI and economic activity sheds light on the substantial barriers to labour market participation faced by individuals with severe mental illnesses. It emphasizes the need for a comprehensive and nuanced policy framework that addresses these challenges through tailored interventions, age-sensitive approaches, and a strong focus on educational support. By adopting a multifaceted approach that considers the diverse relationships of different SMI types and demographic factors, policymakers and practitioners can make significant strides towards improving the employment prospects and overall well-being of individuals with SMI.

7.4. Barriers and Enablers on Economic Activity

The following section delves into the influence of treatment types and mental health service

use on the economic activity of individuals with common mental health disorders (CMD) and severe mental illness (SMI). It aims to uncover how various treatment types of influence workforce participation, potentially reflecting the severity of the condition. By examining the relationship between mental health support mechanisms and economic engagement, this analysis seeks to identify effective strategies for facilitating labour market inclusion for those affected by mental health challenges.

7.4.1. Social Class and Economic Activity

A primary finding from the chapters is the marked association between social class and economic activity. This association underscores that individuals from lower social classes face significantly higher rates of economic inactivity, especially when grappling with CMD or SMI. This mirrors insights from Bailey (2015), who critically examines the exclusionary employment practices within Britain's labour market, highlighting how societal and economic structures systematically disadvantage those from lower social strata, further compounded by limited access to quality mental health services and prevalent stigma associated with mental health issues and lower social status (Brouwers, 2020).

The findings suggest that changes in social class—prompted by economic improvements or downturns—have significant repercussions on mental health status and treatment needs. This observation is supported by Ralston and colleagues' research (Ralston, K. et al., 2022; Ralston, K. and Formby, A., 2020; Ralston, K. and Gayle, V., 2017), which posits the stability of social class as a pivotal factor in managing mental health conditions.

Additionally, the analysis revealed that the adverse effects of lower social class on employment outcomes for those with mental health conditions are mitigated by higher educational attainment. Education emerges as a crucial enabler, suggesting that policies aimed at improving access to education and vocational training could significantly enhance economic participation and well-being for individuals with CMD or SMI.

It becomes evident that the relationship between social class and mental health for individuals with CMD or SMI is complex and multifaceted. The critical need to consider socio-economic factors in mental health treatment and support strategies is highlighted, pointing to the

necessity of addressing both the mental health and socio-economic needs of these individuals comprehensively. This approach is essential for their inclusion in the labour market and ensuring meaningful and sustained economic participation. By integrating socio-economic support with mental health care, it's possible to significantly improve the overall health and economic outcomes for those affected by CMD or SMI, underscoring the pivotal role of social class in shaping their experiences and outcomes.

7.4.2. Physical Health and Economic Activity

For individuals with common mental disorders (CMD) or severe mental illness (SMI), the presence of physical health conditions adds another layer to the already complex interplay between health management and economic activity. Studies like those conducted by Mangurian et al. (2016), Manu et al. (2015), and Teh et al. (2021) emphasize the need for a holistic approach that considers both mental and physical health, as the coexistence of physical health conditions can exacerbate the challenges related to employment and economic participation.

The dual burden of managing both mental and physical health conditions significantly influence the ability of individuals with CMD or SMI to maintain employment or engage actively in the labour market. This challenge is heightened by the fact that physical health conditions, such as those discussed by Mangurian et al. (2016) and Manu et al. (2015), can lead to increased healthcare needs, more frequent absences from work, reduced productivity, and, in some cases, disability that limits work capacity. The presence of physical health conditions among those with CMD or SMI may also reflect a severity level of the overall health burden that inversely affects economic activity, as illustrated by Teh et al. (2021).

Interestingly, the association of coexisting physical health conditions on economic activity does not occur in isolation but is mediated by interactions with demographic variables such as age and gender. These interactions suggest that certain demographic groups may face even greater obstacles in the labour market due to the compounded effect of managing both mental and physical health issues. For example, older individuals and females with CMD or SMI, who also suffer from physical health conditions, might experience compounded challenges related to societal roles, responsibilities, or stigma associated with their health status, echoing

the broader implications discussed by Marwaha and Johnson (2004) regarding treatment decisions and socio-economic barriers on employment.

Moreover, the presence of physical health conditions among individuals with CMD or SMI may indicate not only the severity of their health situation but also point to underlying socio-economic factors that limit their access to comprehensive healthcare and support services. This suggests an intricate relationship between socio-economic status, health management, and labour market participation, emphasizing the need for integrated support that addresses both health and economic challenges concurrently.

In essence, managing CMD or SMI alongside physical health conditions encapsulates a multifaceted challenge that extends beyond health management to encompass significant socio-economic repercussions. This complexity underscores the importance of targeted interventions that provide holistic health support while also addressing the socio-economic barriers faced by individuals with coexisting mental and physical health conditions. A comprehensive approach is crucial for fostering an inclusive labour market that accommodates the diverse needs of individuals with CMD or SMI, facilitating their meaningful and sustained economic participation despite the additional challenges posed by physical health conditions.

The insights gained from examining the interplay between CMD or SMI and physical health conditions, highlighted by the work of Mangurian et al. (2016), Manu et al. (2015), Teh et al. (2021), and Marwaha & Johnson (2004), underscore the need for a multifaceted support system. This system should not only address the health conditions themselves but also ensure that individuals facing these dual health challenges are supported in their efforts to engage economically. Moving forward, the focus should be on creating integrated care approaches that provide both health and socio-economic support, promoting the economic inclusion of individuals with CMD or SMI and coexisting physical health conditions.

7.4.3. Treatment Type for CMD and SMI

For individuals with CMD, treatment through medication, counselling, or a combination thereof is pivotal for managing their condition. Yet, this necessary engagement often indicates a severity level that inversely affects economic activity. Interestingly, treatment types for

CMD and their relationships with economic activity do not occur in isolation but are mediated by interactions with demographic variables such as age and gender, suggesting differentiated labour market challenges.

For instance, the influence of treatment on the ability to engage economically is significantly mediated by age and gender, painting a complex picture of labour market accessibility for those with CMD. Younger individuals and females, in particular, might experience distinct challenges, possibly due to societal roles, responsibilities, or stigma associated with seeking mental health treatment. Moreover, the analysis reveals that the choice of treatment itself—whether medication, counselling, or both—may reflect not just the healthcare professional's response to the severity of the CMD but also the individual's socio-economic capabilities to access certain types of treatment. This suggests an interplay between socio-economic status and the perceived appropriateness or effectiveness of a treatment modality, further complicating the landscape of labour market participation for those with CMD. Chandola et al. (2017), Burns et al. (2009), and Marwaha & Johnson (2004) collectively illustrate the associations between health and treatment choices on employment. Chandola et al. highlight how socio-economic factors influence access to effective treatment and its subsequent effects on job quality and re-employment. Burns et al. discuss how supported employment programs, potentially including various treatments, can affect job outcomes. Marwaha and Johnson, while focusing on schizophrenia, underscore the broader influence of treatment decisions and socio-economic barriers on employment. These studies collectively show how socio-economic status and healthcare decisions about CMD treatment influence labour market participation.

In essence, the treatment of CMD encapsulates a dual challenge—not only managing the health condition itself but also navigating the associated socio-economic repercussions. These findings underscore the necessity for targeted interventions that not only address the mental health condition through appropriate treatment but also proactively support individuals in overcoming the economic barriers posed by their treatment engagement. This comprehensive approach is vital for fostering an inclusive labour market that accommodates the diverse needs of individuals with CMD, facilitating their meaningful and sustained economic participation. The studies by Burns et al. (2009), Chandola et al. (2017), and Marwaha & Johnson (2004) highlight the intertwined challenges of managing CMD and its socio-economic influences, advocating for integrated interventions. Such interventions should combine mental health

treatment with socio-economic support to break down the barriers to employment for individuals with CMD, ensuring their effective participation in an inclusive labour market.

Similarly, SMI treatment, particularly medication-only approaches, is closely associated with reduced economic activity. This pattern likely reflects the higher severity of SMI and the substantial challenges in maintaining employment. The presence of specific treatments interacts with demographic and socioeconomic factors, revealing that certain groups may face exacerbated economic barriers, highlighting the critical role of treatment type and its broader implications.

The insights from Burns et al. (2009), Chandola et al. (2017), and Marwaha & Johnson (2004) underscore the multifaceted nature of SMI treatment's associations with employment. These studies collectively suggest that while medication is crucial for managing SMI, it often correlates with lower economic participation due to the complex interplay of illness severity and treatment effects. Moreover, they highlight how demographic and socio-economic factors further complicate the employment landscape for those with SMI. This evidence points to the necessity for holistic support strategies that address both health and socio-economic needs, facilitating more equitable labour market access for individuals with severe mental illness.

The relationship between mental health treatment for CMD and SMI and economic activity is characterized by its complexity and the influence of multiple interacting factors. The insights gained highlight the importance of a multifaceted support system that addresses not only the mental health condition itself but also facilitates the individual's engagement in the economy. Moving forward, the focus should be on creating integrated care approaches, supportive workplace environments, and innovative policies that together support the economic inclusion of individuals receiving mental health treatment, ensuring they have the opportunity to participate fully in economic life.

7.4.4. Mental Health Service Use for CMD and SMI

Key observations are the differentiated relationships of mental health service use on employment outcomes for those with CMD and SMI, highlighting the nuanced ways in which service engagement intersects with economic activity.

For CMD, service use often signals an active approach to managing the disorder, yet its associations with employment is not straightforward. Studies like Holm et al. (2021) illustrate the broader employment challenges faced by individuals with mental health conditions, suggesting parallels in how service utilization for CMD could influence employment prospects. Similarly, Marwaha and Johnson (2004) delve into how the severity of mental health conditions, indicated by the need for more intensive health services, influences employment, illuminating the complex relationship between service use for CMD and labour market participation. Burns et al. (2009) explore the effectiveness of supported employment interventions, hinting at how different types of mental health service engagement could affect employment outcomes.

The interaction effects in these studies suggest that while accessing services is crucial for health management, it can also reflect the severity of the condition, potentially complicating the individual's path to stable employment. This complexity is further nuanced by age and gender, indicating that younger individuals and women might face unique challenges in balancing treatment engagement with economic participation. These findings point to an intricate balance between health management and socio-economic stability, emphasizing the need for integrated support that addresses both aspects concurrently, underscoring the essential role of policies and interventions that facilitate access to mental health care while supporting individuals in overcoming socio-economic disadvantages associated with their condition and treatment engagement.

Similarly, for individuals with SMI, the use of mental health services is a critical component of their treatment and management plan. Studies such as Holm et al. (2021), Burns et al. (2009), and Marwaha & Johnson (2004) provide empirical evidence highlighting the nuanced relationship between service use and employment outcomes in this population. These findings indicate that while accessing mental health services is essential for managing SMI, it often correlates with significant employment challenges. This complex dynamic is largely due to the severe nature of SMI, where intensive service use not only mirrors the substantial healthcare needs but also indirectly hampers the individual's labour market engagement. Additionally, the interaction with socio-demographic factors adds another layer of complexity, suggesting that specific segments within the SMI community, possibly influenced by age, gender, and

socioeconomic status, face heightened economic hurdles as a result of their engagement with mental health treatment and services. This layered analysis underscores the imperative for a holistic support strategy that concurrently addresses the health and socio-economic dimensions, facilitating a more inclusive labour market for those with severe mental health conditions.

The analysis underscores the dual role of mental health service use as a marker of disorder severity and a mediator of socio-economic outcomes, emphasizing the importance of integrating mental health service engagement within broader social and economic inclusion strategies. Burns et al. (2009) on the influence of supported employment highlights the crucial intersection between clinical support and economic participation, suggesting that effective mental health interventions can significantly enhance employment outcomes. Similarly, Marwaha and Johnson (2004) discuss how the severity of mental health conditions like schizophrenia directly influencing employment prospects, further advocating for a nuanced understanding of how mental health services can facilitate socio-economic integration. Modini et al. (2016) reinforces this perspective by demonstrating the mental health benefits of employment, pointing towards the necessity for policies that not only ensure access to essential mental health services but also address the socio-economic barriers faced by individuals. Together, these studies advocate for comprehensive policies and interventions that support individuals in overcoming socio-economic disadvantages associated with their mental health conditions, thereby promoting inclusive labour market participation.

7.5. Demographic Factors and Economic Activity

7.5.1. Gender, Age and Ethnicity

The exploration of age, gender, and ethnicity in relation to economic activity, as outlined in Chapters 5 and 6, sheds light on the intricate ways these demographic factors interact with mental health conditions to influence labour market outcomes. Incorporating insights from Ralston's work, this analysis deepens our understanding of the complex dynamics between demographic characteristics, common mental disorders (CMD), and severe mental illness

(SMI), supported by references such as Ajnakina et al. (2021), Brouwers (2020), and Ralston et al. (2022).

The analysis reveals a significant relationship between age and economic activity, demonstrating distinct patterns of labour market engagement across age groups when mental health conditions are present. Younger adults face specific barriers related to entry-level job access, exacerbated by CMD or SMI, while older adults encounter ageism, further compounded by mental health issues (Chandola et al., 2017; Ralston et al., 2022). This emphasizes the need for age-specific support services and policies to foster labour market inclusion for individuals across the lifespan.

Gender was as a crucial factor influencing economic activity. Women, particularly those with CMD or SMI, experience greater employment challenges, highlighting the effects of societal gender biases and mental health stigma. The observed differences in employment types between genders, with women more likely to be in part-time roles, reflect broader societal norms and caregiving responsibilities. These findings underline the necessity for gender-sensitive policies and support systems (Bailey, 2015; Ralston et al., 2022).

Ethnicity significantly shaped economic activity, with different employment outcomes observed among various ethnic groups. This suggests systemic inequalities, cultural factors, and differential access to mental health services play a role in economic participation. The compounded challenges for individuals from marginalized ethnic backgrounds with CMD or SMI necessitate culturally sensitive mental health support and employment services (Scholz & Ingold, 2021).
The intersectionality of gender, age, and ethnicity with mental health conditions unveils complex patterns of disadvantage, requiring multifaceted approaches to address them. Additionally, the study's examination of temporal changes and the socioeconomic context offers insights into how societal shifts and policy interventions influence labour market participation for individuals with CMD or SMI across different demographics (Ralston et al., 2022).

Looking into age, gender, and ethnicity within the context of economic activity underscores the labour market challenges faced by individuals with CMD or SMI. The findings highlight

the critical importance of targeted, intersectional approaches in policymaking and service provision. Collaborative efforts across mental health services, employment support, and policy reforms are vital to ensure equitable access to employment opportunities and support for all individuals, irrespective of their demographic characteristics.

The relationship between demographic factors and economic activity is a topic that has been widely researched in recent years, particularly in relation to poor mental health and employment. In the UK, the relationship between demographic factors and economic activity is shaped by various social, economic, and political factors, including changes in the labour market, the prevalence of certain mental health conditions, and the availability of support and resources for individuals with common mental health disorders or severe mental illness in particular (Dobbins and Plows, 2022).

The data from the Adult Psychiatric Morbidity Survey (APMS) suggests that demographic factors such as age, gender, and education have a significant influence on economic activity in England. The relationship between age and economic activity is significant, indicating that different age groups exhibit varied patterns of economic engagement. Older adults, particularly those aged 55 to 74, are less likely to be economically active, suggesting life stage-related factors might influence economic participation (Nicaise, Mitchell & Amos, 2020). However, the analysis also highlights that the prevalence of CMD and SMI varies across different age groups, with certain mental health disorders showing variable associations between economic activity among older adults.

The work by Ralston and Formby (2020) also highlights the significant changes in the occupational position of young people in the UK following the Great Recession. These changes in occupational position, particularly the disproportionate loss of less advantaged occupations for young men and more advantaged occupations for young women, have important implications for mental health outcomes. As research has shown, socioeconomic disadvantage, including unemployment and low income, is associated with poorer mental health outcomes, these shifts in occupational position may be contributing to increased mental health disparities and inequality in the UK, highlighting the need for policies and programs to support young people in finding and maintaining employment.

7.6. Context with Previous Research

These findings align with previous research which has demonstrated that older individuals and women are more likely to face different choices and barriers to employment, particularly when they are living with poor mental health. For example, a study by the Royal College of Psychiatrists (Modini et al., 2016) found that older individuals with mental health conditions are more likely to experience discrimination in the workplace and face barriers to returning to work after a period of absence. Similarly, research by the TUC has shown that women with mental health conditions are more likely to experience discrimination in the workplace and face barriers to progression and career development.

Gender also played a crucial role in economic activity, with significant disparities observed between male and female respondents. Women were more likely to face barriers to employment, especially when living with CMD or SMI. The findings underscore gender-specific challenges in the labour market, where women, particularly those with mental health conditions, experience lower rates of economic activity and face discrimination and obstacles to career advancement, which was also supported by the work by Thomson and colleagues (2018) pointing towards the differential relationships between economic and social policies on men and women, and Chanfreau's (2022) work on the historical perspective on UK social policies that have shaped gendered experiences, particularly in balancing work and family life.

Social class and economic activity were significantly associated, indicating disparities in employment opportunities and resource access among different social strata. Individuals from higher social classes were more likely to be economically active, suggesting that socioeconomic status influences employment prospects, which was discussed in the work of Iob and colleagues (2020), were they highlighted that individuals in lower socioeconomic positions faced heightened risks of moderate to severe depression, emphasizing the vulnerability of lower socioeconomic groups to mental health disparities during times of crisis. The relationship between social class and the presence of CMD or SMI also highlights how socioeconomic factors can influence mental health outcomes and economic participation (Cummins, 2018).

Education was a positive determinant of economic activity, with individuals holding higher

educational qualifications (e.g., Degrees, GCSEs/A Levels) more likely to be economically active. This suggests that education provides a protective role against the negative relationships between mental health disorders on employment, which McGrath and colleagues (2016) also looked at in their study. They found that individuals with higher levels of education are more likely to be economically active and to have better employment outcomes. It also suggested that higher educational attainment is associated with better mental health outcomes and a reduced likelihood of experiencing workplace discrimination.. Higher levels of education are associated with better employment outcomes and lower prevalence of CMD and SMI, indicating the importance of educational attainment in facilitating economic participation and mitigating the influence of mental health conditions, which Sabella (2021) also found. Their research indicates that education acts as a protective factor, reducing the influence of severe mental illness on economic activity by providing individuals with the skills and qualifications needed to access better employment opportunities.

It is important to note that the relationship between demographic factors and economic activity is complex and shaped by a number of social, cultural, economic, and political factors (Taylor et al., 2017). For instance, changes in the labour market and the availability of support and resources for individuals with mental illnesses can influence the relationship between different demographic factors and economic activity. Furthermore, the relationship between demographic factors and economic activity is also shaped by the broader social context, including the prevalence of mental health conditions, the type and source of support and resources, and the level of stigma and discrimination faced by individuals living with mental illnesses.

Overall, the data analysed in this work highlights the significant relationships that demographic factors have on economic activity in England, particularly in the context of poor mental health. The findings suggest that older individuals and women are more likely to face barriers to employment and that education has a positive association with economic activity. These findings show that it is crucial for society to invest in holistic policies and programs that support individuals with mental illnesses in finding and keeping employment if able to. This includes addressing the barriers faced by older individuals and women and providing support and resources that are tailored to their specific needs (Rinaldi et al., 2010). Additionally, it is important to invest in education and training programs that support individuals in gaining the

skills and qualifications needed to access employment opportunities (Pilling, 2022). Furthermore, addressing the social determinants of mental health such as poverty, housing, and discrimination will play a crucial role in improving the economic activity of individuals living with common mental health disorders and severe mental illness long term (Recovery in the Bin, 2022).

To give one example, the Westminster government implemented the New Deal for Disabled People in 2001, which aimed to support individuals with disabilities in finding and maintaining employment. Additionally, the introduction of the Disability Discrimination Act, implemented in 1995, aimed to prevent discrimination against individuals with disabilities in the workplace. These policies were in place during the time period in which the data from the APMS was collected and would have likely had an influence on the relationship between the demographic factors and economic activity. Furthermore, it is also important to consider the broader social and economic context of the time, such as changes in the labour market and the availability of support and resources for individuals with mental illnesses.

One specific example of a policy response that was implemented between 2000 and 2007 that aimed to address the barriers faced by older women in the workforce was the "Women and Work Commission" established in 2006. The Commission aimed to address the issues faced by women in the workplace, including discrimination, lack of flexible working options, and the gender pay gap. The Commission also focused on addressing the specific challenges faced by older women, such as age discrimination and lack of opportunities for career development. One of the key recommendations from the Commission was to increase the availability of flexible working options for older women, in order to enable them to continue working while balancing care giving responsibilities. Additionally, the Commission recommended initiatives to tackle age discrimination in the workplace and increase opportunities for older women to access training and development programs. This policy aimed to improve the economic activity of older women in the UK, by addressing the barriers they faced in the workforce.

7.6. Moving Beyond Previous Research

This thesis explored of the intricate relationship between common mental disorders (CMD), severe mental illnesses (SMI), and their associations with economic activity, a realm that

previous research has approached broadly but not with the specificity and depth pursued here. This analysis stands apart for several reasons, including the granularity of the disorders examined and the consideration of evolving labour market contexts. Drawing from the comprehensive national APMS cross-sectional surveys at two time points, logistic regression models were employed to dissect the odds of being economically active while adjusting for demographic, health, and educational variables among others. This methodological approach allowed contribution of fresh insights into the complex tapestry of mental health and economic activity.

A pivotal finding of the investigation is the differentiated relationships of various CMD and SMI on economic activity. It discovered that all surveyed types of CMD significantly reduced the likelihood of economic activity, with depression, generalized anxiety, and mixed anxiety-depression conditions showing a particularly strong association in the year 2000. Moreover, the research underscored the profound economic inactivity linked with psychosis and personality disorders, with psychosis demonstrating a more severe influence. These insights enrich the existing literature by pinpointing the specific mental health conditions that most starkly influence economic participation, suggesting a more targeted approach in policy and support services might be warranted.

While previous studies, such as those by Spiers et al. (2012) and Weich et al. (2011), have acknowledged the importance of demographic factors like age and co-morbidity patterns, they often do not fully explore the interplay between these factors and economic outcomes. This thesis contributes an intersectional analysis, meticulously examining how gender, age, education, and socioeconomic status interact with mental health conditions to affect employment. This approach not only aligns with but significantly extends existing knowledge by providing a more nuanced understanding of how various demographic and socioeconomic factors mediate the relationship between mental health conditions and economic activity.

This research diverges from the existing body of research by not only affirming the negative correlation between mental health disorders and economic activity, recognized in works such as Kromydas and colleagues (2021), but by also identifying the escalation of these challenges over time, especially from 2000 to 2007. This period, marked by significant labour market evolution in the UK, potentially intensified the employment barriers for individuals with CMD

and SMI, suggesting that economic and social policies need to be responsive to both the changing nature of work and the specific needs of those with mental health conditions. Earlier studies have also tended to focus on static analyses of mental health conditions and their treatment or implications at single time points. For instance, the treatment analysis by Cooper et al. (2010) and the exploration of subclinical psychosis by Koyanagi et al. (2015) offer valuable insights but do not delve into changes over time. By comparing APMS waves from 2000 and 2007, this thesis sheds light on the evolving relationships between CMD and SMI on employment, highlighting not only the persistent challenges but also how these relationships have shifted within the labour market's changing context. This longitudinal perspective is a significant leap forward, offering insights into temporal changes and stability in the nexus of mental health and economic activity.

In comparison to previous research, this work looked deeper into the specifics of how different mental health disorders associations with economic activity. For instance, while Hansen, Bourgois, and Drucker (2014), and Bouwmans and colleagues (2015) have highlighted the stigma and discrimination faced by individuals with mental health conditions in the workplace, this research provided a nuanced analysis of how specific conditions like depression and psychosis more acutely affect employment outcomes. This distinction is critical for developing finely tuned support mechanisms and interventions. This work also operationalised the conditions in a robust way. Previous work by Singleton et al. (2003) set a precedent by detailing psychiatric morbidity among adults, emphasizing prevalence and comparison with earlier surveys. Subsequent studies, such as Weich et al. (2011) and Spiers et al. (2012), built upon this by exploring psychiatric co-morbidity and depression trends, respectively, using classical statistical methods. This thesis advances beyond these methodologies by adopting a more robust operationalization of mental illness, employing both common mental disorders (CMD) and severe mental illness (SMI) categories, coupled with logistic regression models enhanced with interaction terms. This nuanced approach allows for a detailed examination of how specific mental health conditions differentially influence economic activity over time, providing a richer, more granular analysis than previously achieved.

Additionally, the findings on the negative association of treatment use with economic activity contribute a new dimension to the discourse, suggesting that those undergoing treatment often

face greater barriers to employment. This challenges the narrative that treatment alone is sufficient for improving employment outcomes for individuals with CMD and SMI, advocating instead for comprehensive support that addresses both health and socioeconomic factors. This research underscores the significance of considering the interactions of mental health conditions with demographic factors such as gender, age, and ethnicity in shaping economic outcomes. This aligns with and expands upon previous findings by Marwaha and Johnson (2004) and Ralston et al. (2022), advocating for policies that not only address mental health but also tackle structural inequalities.

Prior research has also primarily focused on direct quantitative analyses of APMS data, as seen in Cooper et al. (2010), Koyanagi et al. (2015), and Stickley et al. (2016), exploring various aspects of mental health without integrating reflexive methodologies. This thesis significantly departs from traditional quantitative analyses by incorporating reflexivity and an autoethnographic approach, particularly in Chapter 4. This innovative methodological fusion, detailed in a published article, provides a more comprehensive understanding of the data, merging quantitative precision with qualitative depth. It not only enriches the findings but also sets a new standard for interdisciplinary research in mental health and economics.

In sum, this thesis offers new insights into the specific relationships of various common mental disorders and severe mental illnesses on economic activity, framed within the context of an evolving labour market. By identifying the nuanced challenges faced by individuals with specific mental health conditions, our work underscores the need for targeted, intersectional approaches in policymaking and service provision, setting a new course for research and action that acknowledges the complex interplay between mental health and economic engagement.

7.7. Strengths and Limitations of This Thesis

In the exploration of the relationships between common mental disorders (CMD), severe mental illnesses (SMI), and their relationships with economic activity, this research has navigated a complex landscape shaped by the inherent characteristics of the utilized data, the

methodological choices made, and the broader context in which the study was conducted.

One of the most salient strengths of this research lies in its remarkable adaptability in response to the unforeseen challenges presented by the COVID-19 pandemic. The pandemic, a global crisis of unprecedented scale, imposed significant barriers to traditional research methodologies, particularly in terms of accessing originally planned data sources. The restrictions necessitated by the pandemic made it impossible to proceed as planned, demanding a strategic pivot to alternative datasets that could be accessed remotely, as detailed in Chapter 3. This shift not only demonstrated the flexibility of the research approach but also highlighted the resilience and robustness of the methodology employed.

This adaptability is particularly commendable given the complexity and sensitivity of the research subject. Exploring the relationships between common mental disorders (CMD), severe mental illnesses (SMI), and their associations with economic activity requires access to comprehensive and reliable data. The ability to pivot to alternative datasets ensured that the research could continue without significant delays, maintaining the study's relevance and continuity at a time when the relevance of mental health research has never been more critical.

Moreover, this adaptability underscores a deep commitment to the study's objectives, showcasing the research team's dedication to overcoming obstacles to contribute valuable insights into the field. It reflects an understanding that in the rapidly changing world, the ability to adapt and find solutions to unexpected problems is as crucial as the research itself. The successful navigation of these challenges ensured that the exploration of CMD, SMI, and economic activity could proceed, offering a testament to the resilience of the research methodology and the perseverance of the researchers involved.

In doing so, this research not only contributes to the academic discourse on mental health and economic activity but also sets a precedent for future studies in terms of methodology and adaptability. The lessons learned from this experience highlight the importance of flexibility in research design and execution, especially in times of global crisis, ensuring that critical research can continue to advance knowledge and inform policy and practice, despite external disruptions. This adaptability, therefore, stands as a beacon of innovation and resilience in scientific research, underlining the project's significance and the team's unwavering

commitment to advancing understanding in this vital area.

The methodological rigor evident in the data analysis represents a cornerstone strength of this research, exemplifying the approach to understanding complex social phenomena. By employing logistic regression models, the study not only harnessed a robust statistical tool but further enhanced its analytical power through the incorporation of interaction terms. This methodological decision was pivotal in dissecting the nuanced interplay between mental health conditions and economic activity. Moreover, the strategy of pooling data from different time points provided a unique opportunity to examine the temporal dynamics of these relationships, offering a window into how they may have shifted or remained stable over time. This approach to data analysis enabled the research to uncover significant associations that illuminate the intricate ways in which mental health conditions influence individuals' participation in the economy. The inclusion of interaction terms in the logistic regression models was particularly insightful, allowing the study to explore how various factors may interact with mental health conditions to influence economic activity. This level of detail in the analysis has not only enriched the study's findings but has also underscored the complexity of mental health's relationship with economic outcomes.

Furthermore, the decision to pool data across survey waves underscored the study's commitment to capturing a more comprehensive picture of the evolving landscape of mental health and economic participation. This methodological choice facilitated a longitudinal perspective, albeit indirectly, enabling the research to speculate on trends and changes over the study period. Such depth and sophistication in the analytical approach significantly bolster the research's contributions, laying a strong foundation for future inquiries into the field. The study's methodological rigor, therefore, not only enhances its own findings but also sets a precedent for methodological excellence in research exploring the intersections of mental health and economic activity.

The utilization of measures for assessing common mental disorders (CMD) and severe mental illnesses (SMI) that have undergone rigorous validation in prior research significantly elevates the credibility of this study's findings. The employment of validated measures, as outlined by Singleton et al. (2003) and McManus et al. (2020), confers a robust layer of reliability, ensuring that the constructs of CMD and SMI are accurately represented and measured within

the dataset. This meticulous selection of measurement tools is pivotal, as it underpins the study's ability to draw meaningful conclusions from the data, reinforcing the integrity and trustworthiness of its outcomes.

The Clinical Interview Schedule-Revised (CIS-R), Schedule for Clinical Assessment in Neuropsychiatry (SCAN), and the Standardised Assessment of Personality – Abbreviated Scale (SAPAS) are key examples of such validated measures used in this research. They have demonstrated high internal consistency and external validity, showing strong agreement with clinical diagnoses and providing a reliable assessment of psychiatric conditions. The CIS-R, for instance, is particularly noted for its effectiveness in identifying common mental disorders like depression and anxiety disorders, while the SCAN and SAPAS are instrumental in diagnosing more complex conditions such as psychotic disorders and personality disorders, respectively.

Moreover, the reliance on these validated measures allows for a more confident interpretation of the relationships explored within the study. The proven reliability of these tools in capturing the nuanced aspects of mental health conditions provides a solid foundation upon which the study builds its analysis. It not only assures the accuracy of the mental health assessments but also enhances the comparability of the study's findings with existing literature, facilitating a deeper understanding of the intricate dynamics between mental health and economic activity.

The significance of using validated measures cannot be overstated, as it directly influences the works contribution to the broader discourse on mental health and its economic implications. By grounding the research in reliable and credible methodological practices, the study not only fortifies its own findings but also contributes to the ongoing development of a rigorous, evidence-based understanding of mental health conditions in the context of economic participation. This commitment to methodological integrity thereby enriches the study's overall contribution to the field, offering insights that are both trustworthy and influential.

Chapter 4's integration of reflexivity stands out as a pivotal strength in this thesis, introducing a unique methodological insight into the study of severe mental illness (SMI) and employment. This innovative approach enriches the research by weaving a reflexive, autoethnographic thread through a quantitative analysis framework, effectively melding

quantitative precision with qualitative depth. It challenges traditional research dichotomies, fostering a richer, more nuanced understanding of the data by acknowledging the researcher's influence on their work. This not only enhances the research's credibility but also positions the thesis as a pioneering example of interdisciplinary methodology in academic discourse. The chapter showcases how personal experiences inform and deepen the research process, offering a holistic view of SMI's relationship with employment. This methodological fusion marks a significant contribution to broader debates on the integration of diverse epistemological perspectives, enriching both scientific inquiry and policy development.

A notable limitation revolves around the cross-sectional nature of the data, which inherently restricts the ability to establish causality. While the research has identified significant correlations between mental health conditions and economic activity, it is imperative to interpret these associations with caution. These findings should be understood as indicative of potential relationships rather than definitive causal links. This recognition necessitates a careful framing of interpretations, emphasizing the correlational nature of the data and advocating for future longitudinal research to explore causality more thoroughly.
The reliance on self-reported data introduces an element of subjectivity, with potential biases stemming from individuals' perceptions and recollections potentially skewing the accuracy of the information provided. This limitation is acknowledged within the research, with an understanding that while self-reported data can offer valuable insights, it is susceptible to influences such as social desirability or recall bias (Tourangeau & Yan, 2007). This acknowledgment underlines the importance of interpreting self-reported data with an awareness of its inherent limitations, reinforcing the need for corroborative objective measures where feasible.

The method of sampling and the size of the sample pose limitations regarding the generalizability of the findings. The research draws upon the APMS data, which, while robust, excludes certain populations, such as those institutionalized, and may limit the extrapolation of results to the broader population in specific subgroup analyses. This limitation informs the discussion on variable operationalization and the interpretation of findings, highlighting the need for a nuanced consideration of the study's representativeness.

By addressing these aspects, the research not only contributes significantly to the

understanding of CMD, SMI, and economic activity but also lays the groundwork for future studies to build upon, with an awareness of the complexities inherent in this field of inquiry.

7.8. Recommendations for Future Research

Building upon the findings of this thesis, which analysed data from the Adult Psychiatric Morbidity Survey (APMS) to explore the dynamics between common mental disorders (CMD), serious mental illness (SMI), and economic activity in England over the years of 2000 and 2007. This exploration, grounded in a critical social justice lens, not only distinguishes this study within the academic field but also underscores the significance of contextualizing mental health within broader socio-economic frameworks.

A paramount recommendation is the continued adoption of a critical social justice perspective in future inquiries into the nexus of CMD, SMI, and economic activity. The unique lens through which this study examined the UK's social fabric during the early 2000s underscores the imperative to consider wider structural and societal influences affecting the workforce participation of individuals grappling with mental health challenges.

Furthermore, an avenue for subsequent research is the pursuit of longitudinal datasets that enable a deeper, temporal analysis of the evolving relationship between mental health disorders and economic activity. While this thesis made headway by leveraging two survey waves, its scope was inherently limited by the static nature of cross-sectional data. Future research could benefit from employing linked administrative datasets, potentially offering richer longitudinal insights and facilitating a nuanced understanding of changes over time.

The imperative for larger and more robust sample sizes cannot be overstated. The present study's reliance on relatively small cohorts underscores a critical limitation in generalizing findings. Future research should aim to harness data sources that offer greater sample sizes, thereby enhancing the representativeness and validity of the results.

Looking further into the specifics of CMD and SMI types is another recommendation, aiming to unearth a more nuanced comprehension of how various mental health conditions uniquely influence employment outcomes. This study's emphasis on distinct mental health disorders

paved the way for a refined understanding; however, there is a wealth of potential in expanding this inquiry to include a broader array of conditions.

Additionally, the exploration of mental health service utilization and medication as predictors of employment outcomes represents an underexplored terrain warranting further investigation. This thesis touched upon the critical role of treatment in shaping employment trajectories for those with CMD and SMI, presenting a promising foundation for more detailed future research.

Beyond these focal points, several broader areas beckon attention to enrich our grasp of CMD, SMI, and economic activity's interplay. Investigating the barriers and facilitators to employment for individuals with mental health disorders could shed light on the complex interplay of stigma, discrimination, and systemic factors influencing job market participation. Moreover, expanding this research to diverse international contexts could offer invaluable insights into the global ramifications of mental health on economic engagement.

A crucial aspect that future research should address is the intersectionality of various demographic factors and their influence on the CMD, SMI, and economic activity relationship. Understanding how race, ethnicity, socioeconomic status, gender, and gender identity intersect with mental health challenges in the employment sphere could unravel the multifaceted barriers and opportunities faced by diverse populations.

In summary, this thesis lays a foundational understanding of the relationship between CMD, SMI, and economic activity in England during a transformative period. Yet, it also highlights the need for expanded research efforts that build on its strengths and address its limitations. Future studies, enriched by larger sample sizes, longitudinal data, and a deeper dive into the specifics of mental health disorders, alongside a broader examination of demographic intersectionality and international contexts, are pivotal. Such comprehensive research endeavours hold the promise of informing more inclusive, effective policies and practices that foster social justice and equality for individuals with CMD and SMI in the workforce.

7.9. Chapter Summary

Chapter 7 delves into the key findings of the thesis, linking them to existing research and outlining implications for policy. It stresses the influence of demographic factors like age, gender, and education on economic activity, especially in the context of mental health. The chapter highlights the employment challenges faced by older individuals and women with mental health conditions, advocating for holistic policies and programs to support them.

The discussion further examines how common mental health disorders (CMD) and severe mental illness (SMI) negatively affect employment, with certain conditions like depression significantly reducing economic activity. Education emerges as a crucial protective factor, suggesting that improving access to education and training could enhance employment outcomes for those with mental health issues.
Treatment and mental health service use are shown to create barriers to employment, indicating the need for support that addresses both health and socioeconomic factors. The chapter acknowledges the adaptability of the research in response to challenges like the COVID-19 pandemic and the methodological rigor of the data analysis. However, it also points out limitations such as the cross-sectional data nature and reliance on self-reported information.

Concluding with recommendations for future research, Chapter 7 advocates for a continued focus on social justice perspectives and the exploration of longitudinal datasets to understand better the relationship between mental health conditions and economic activity. It calls for larger sample sizes, a deeper understanding of CMD and SMI types, and an investigation into the barriers and facilitators to employment for those with mental health disorders.

Overall, Chapter 7 synthesizes the thesis findings within the broader research context, identifying implications for policy and practice and emphasizing the need for targeted approaches to address the complex interplay between mental health, demographics, and economic activity.

End

Every Wednesday since the start of 2018 I go to counselling. At first, I was resistant. I didn't know what I would talk about. I realised some things had maybe been bad growing up and leading to the start of my psychosis, but not that bad. At first, I thought it would fix me or at least make the voices go away like the medication promised to do. It did provide me with the first unfiltered space where I didn't have to mask emotions or the voices or how I felt.

It included everything and anything from childhood to doing this PhD. Sessions were often, and still are tearful. We've worked on imposter syndrome a lot over the years. I've laughed many times and said she must be dying for me to hand this thing in. In contrast with the many psychiatrists, I've seen in ten-minute slots over the years, she has not shied away from me, my life, and especially my lows. She was the first to not discharge me for non-compliance after disclosing self-harm and suicidal thoughts. Many times, we've spoken about the people in the data used here. I've become emotional over the fact I have the chance to access counselling outside of the NHS and so many with SMI in the data don't. I thought I was weird for thinking this, she didn't. We've spoken about employment and SMI when I've voiced I don't feel like an anomaly, when the statistics say that I am. This was also refreshing as the only time a psychiatrist asked about my employment situation and I said I was doing a PhD; he was in such disbelief he goggled my supervisor to see if they were real. His words. He then turned round in his chair and said,

> *"You know people like you die 20 years younger".*

We would talk a lot about family. This often left that horrible sinking feeling in my stomach. It felt like betraying them to talk about them in that way. The subject of counselling, much like doing the PhD, has only been discussed a few times. It Is something "people like us don't do".

Despite hearing from others, especially neighbours on my mum's street, that I must be doing so well, they're so proud of you, my family has, at times, expressed what I think is resentment at this PhD. I was the first to go to Uni in a family that places high value on "real" employment – this has never actually been defined, but does not include the PhD, being a lecturer or a researcher – and children. On one hand they ask for advice and on the other they say I know nothing. And maybe I don't. Have they asked when I'll be finishing this work? Yes. Someone even asked for the title, but on being told, exclaimed,

"Oh no, no, no, Shell. That's too depressing, you need to think positive thoughts".

(December 2022 – taken from a longer reflexive piece)

Chapter 8

Conclusion

8.1. Chapter Overview

This thesis aimed to explore the relationships between severe mental illness (SMI), and to a lesser extent - common mental disorders (CMD) - and economic activity in England. Drawing upon the rich dataset provided by the Adult Psychiatric Morbidity Survey (APMS), this investigation sought to illuminate the nuanced ways in which mental health conditions are associated individuals' engagement with the labour market. Through diligent analysis and methodological rigor, this work has made several significant contributions to the existing body of knowledge, each shedding new light on the complex dynamics at play.

8.2. Data Recap

The Adult Psychiatric Morbidity Survey (APMS), a nationally representative survey conducted by the National Centre for Social Research and commissioned by NHS Digital, gathers detailed data on adult mental health disorders in England, including depression, anxiety, schizophrenia, and bipolar disorder. It also collects socio-demographic information, such as age, gender, education, and employment status, with its latest data wave from 2014. Essential for researchers and policymakers, the APMS offers insights into the prevalence and characteristics of mental health conditions, facilitating the study of their relationships with employment. Despite the growing global concern over mental health, research on severe mental illness and its effect on employment has been limited, partly due to its complexity, stigma, and the challenges in collecting employment data for this group. The APMS addresses these gaps, providing a rich data source to understand employment patterns among individuals with common and severe mental disorders in England since 2000, with the 2000 and 2007 waves including 7,247 and 6,453 individuals, respectively, after adjusting for analysis criteria.

8.3. Results Recap

The work also aimed to address the following research questions:

1. How do employment status patterns for individuals with common mental health disorders and severe mental illness compared to the rest of the population in England?
2. Is the relationship of severe mental illness to employment status different from the relationship of common mental health disorders to employment status in England?
3. How did the relationships of common mental health disorders and severe mental illness on employment status changed between 2000 and 2007 in England?
4. How does living with common mental health disorders and severe mental illness affect the entrance of young adults (16-35 years old) to the labour force, in comparison to young adults without common mental health disorders and severe mental illness?
5. Are the effects of common mental health disorders and severe mental illness on employment status mitigated or exacerbated by other barriers or enablers, such as socioeconomic status, ethnicity, education, physical health, involvement in services?

The analysis of the Adult Psychiatric Morbidity Survey (APMS) data from 2000 and 2007 reveals evolving relationships of common mental health disorders (CMD) and severe mental illness (SMI) on employment in England. Findings indicate a noticeable rise in unemployment and economic inactivity among individuals with CMD and SMI, emphasizing a complex interaction between mental health conditions and employment influenced by demographic, social, and economic factors such as age, gender, education, and socioeconomic status.

Chapters 5 and 6 introduce nuanced insights, showing that the negative association between SMI and employment has intensified over time. This dynamic relationship is affected by broader labour market changes and the accessibility of mental health support and resources. Notably, the employment gap between individuals with mental health conditions and the general population widened by 2007, with logistic regression analyses confirming the statistically significant negative influence of CMD and SMI on employment outcomes. This effect was compounded by the use of mental health services and medication, suggesting the influence of treatment choices on employment prospects. Specifically, psychosis and

personality disorders demonstrated a more detrimental association with economic activity compared to other types of CMD and SMI.

The longitudinal perspective provided by comparing the 2000 and 2007 survey waves highlights that the relationship between mental health and employment remained consistently negative, with certain conditions, notably psychosis, exerting a more substantial negative effect across both time points. This consistency suggests that despite varying interventions and policy shifts, the barriers to employment for individuals with mental health conditions have persisted.

For young adults with CMD or SMI, the transition into the labour force is markedly challenging, with a greater likelihood of being unemployed compared to their peers without such conditions. This highlights the critical period of early adulthood as a time when mental health conditions can significantly derail career paths and economic independence.

Furthermore, the multifaceted effects of CMD and SMI on employment status are further influenced by intersecting factors such as socioeconomic status, ethnicity, education, physical health, and service involvement. These additional layers of complexity underscore the need for targeted support and interventions that address not only the mental health conditions themselves but also the broader socio-economic context in which individuals operate.

The analysis further highlighted important interactions between mental health conditions and demographic as well as socio-economic factors, revealing how these interactions exacerbate employment challenges for individuals with CMD and SMI. Specifically, the negative association with mental health conditions on employment outcomes was found to be more pronounced for certain demographic groups, notably younger adults and females, indicating that these populations face additional barriers in the labour market.

An interaction of particular note involves the relationship between mental health conditions and age, where younger individuals with CMD or SMI were significantly less likely to be employed compared to their older counterparts. Gender also played a critical role, with females diagnosed with CMD or SMI facing greater challenges in securing employment than males. Education emerged as another key interactive factor, with higher educational

attainment acting as a buffer against the negative influence of CMD and SMI on employment. Socioeconomic status further complicated the employment landscape for those with mental health conditions, with individuals from lower socioeconomic backgrounds experiencing more significant challenges in finding and maintaining employment.

These pertinent interactions between mental health conditions and demographic as well as socio-economic factors emphasize the complexity of the challenges at hand. They highlight the necessity for targeted and nuanced policy and program development that considers the multifaceted nature of mental health's associations with employment. Addressing these intersecting barriers requires a concerted effort to ensure that individuals with CMD and SMI have equitable access to employment opportunities, reinforcing the call for comprehensive and inclusive strategies in supporting this vulnerable population within the labour market.

8.4. Original Contribution

At the heart of this thesis lies its original contributions to the field. First and foremost, this study offers an in-depth exploration of how specific types of CMD and SMI differentially influence economic activity. By applying logistic regression models enhanced with interaction terms, it was revealed that conditions such as depression and generalized anxiety disorder, and psychosis and personality conditions have notably profound negative associations with individuals' employment outcomes. This level of specificity in understanding the effects of individual disorders marks a substantial advancement from previous research endeavours, which often considered mental health conditions in broader, more generalized terms. Another significant achievement of this thesis is the highlighting of the evolving nature of the relationship between mental health conditions and economic activity over time, particularly across the years 2000 to 2007. This analysis not only underscores the enduring challenges faced by individuals with CMD and SMI in securing and maintaining employment but also emphasizes the critical need to account for temporal shifts in this relationship. Such shifts may be driven by changes in the labour market landscape, evolving social policies, and shifts in societal attitudes towards mental health.

Furthermore, this work distinguishes itself through its comprehensive examination of demographic factors and their interplay with mental health conditions in relation to economic

activity. The nuanced dissection of how gender, age, education, and social class, alongside other factors such as mental health treatment and service use influence the employment prospects of individuals with CMD and SMI advocates for a more intersectional approach in both research and policy formulation.

Moreover, while the thesis has indeed emphasized employment as a desirable outcome for individuals with CMD and SMI, it fully recognizes that for some, opting out of paid employment is a valid and sometimes necessary choice. This recognition underscores the broader challenge society faces in creating inclusive spaces that respect individual life choices and offer support that is tailored to the diverse needs of those with mental health issues, including those who may opt for pathways other than employment due to their conditions.

An original contribution of this thesis emerges from Chapter 4, which ventured beyond traditional quantitative analyses to incorporate reflexivity and an autoethnographic approach within the framework of examining the relationships of severe mental illness (SMI) on economic activity. This methodological innovation represents a new attempt to intertwine quantitative precision with qualitative depth, enhancing the research with a richer, more nuanced understanding of mental health's relationship with employment. The decision to integrate these methodologies not only signifies a methodological advancement in the field but also highlights the thesis's commitment to capturing the complex, lived experiences of individuals with SMI.

The significance of this approach was further recognized through the publication of a paper derived from Chapter 4, marking a notable achievement for this thesis. The paper's acceptance and publication underscore the research community's recognition of the value and novelty of integrating reflexivity and autoethnographic methods with quantitative research. This publication serves as a testament to the thesis's originality and its contribution to advancing methodological approaches in the study of mental health and employment.

The inclusion of Chapter 4's innovative methodologies alongside traditional quantitative methods is not merely a methodological exercise but a deliberate attempt to bridge the gap between objective data analysis and subjective human experiences. This dual approach allows for a more comprehensive exploration of how SMI affects individuals' economic participation,

considering not just the statistical correlations but also the personal, subjective experiences that underlie these data points. By doing so, the thesis challenges conventional research paradigms and advocates for a more inclusive, interdisciplinary approach to understanding complex social phenomena like the interplay between mental health and economic activity.

Furthermore, this methodological innovation opens new pathways for future research, encouraging scholars to consider diverse methodological frameworks that can capture the multifaceted nature of mental health issues. It sets a precedent for future studies to explore the value of combining quantitative and qualitative methods, promoting a more holistic understanding of the subjects under investigation. This approach not only enriches the academic discourse but also has practical implications for policymaking and intervention development, ensuring that strategies to support individuals with SMI in the labour market are grounded in both empirical evidence and a deep understanding of personal experiences.

For future directions, this thesis lays a solid groundwork for subsequent research in this domain. It particularly underscores the value of longitudinal studies capable of elucidating the causal mechanisms underpinning the relationship between mental health conditions and economic activity. Furthermore, future investigations should aim to assess the efficacy of various support mechanisms and interventions in not only facilitating employment but ensuring that engagement in work is meaningful and fulfilling for individuals with CMD and SMI.

8.5. Chapter Summary

Chapter 8 concludes the thesis by summarizing its aim to explore the relationship between severe mental illness (SMI), common mental disorders (CMD), and economic activity in England using data from the Adult Psychiatric Morbidity Survey (APMS). The study reveals a complex interaction between mental health conditions and employment, influenced by demographic, social, and economic factors. It finds a rise in unemployment among individuals with CMD and SMI, emphasizing the need for targeted support and interventions. The research also highlights the evolving relationships with mental health conditions on employment between 2000 and 2007, with a widened employment gap for those with mental health conditions by 2007.

The thesis makes original contributions by detailing the differential associations with specific types of CMD and SMI on economic activity and noting the enduring challenges in securing employment for those affected by mental health issues over time. It advocates for an intersectional approach in research and policy, considering the nuanced effects of demographic factors and mental health treatment on employment prospects. The integration of reflexivity and an autoethnographic approach in Chapter 4 marks a methodological innovation, emphasizing the importance of subjective experiences alongside quantitative data.

This work acknowledges limitations such as its cross-sectional nature and reliance on self-reported data. Recommendations for future research include pursuing longitudinal studies, exploring the effectiveness of support mechanisms, and integrating diverse methodological approaches to capture the multifaceted nature of mental health issues and their relationships with employment. This thesis sets a foundation for future studies, highlighting the need for comprehensive and inclusive strategies to support individuals with mental health conditions in the labour market.

Appendix A ICD-11 Condition Codes

Severe Mental Illness Codes

Code	Condition
6A20	Schizophrenia
6A21	Schizoaffective disorder
6A22	Schizotypal disorder
6A23	Acute and transient psychotic disorder
6A24	Delusional disorder
6A25	Symptomatic manifestations of primary psychotic disorders
6A2Y	Other specified primary psychotic disorder
6A2Z	Schizophrenia or other primary psychotic disorders, unspecified
6B00	Generalized Anxiety Disorder
6B01	Panic Disorder
6B03	Specific Phobia
6B04	Social Anxiety Disorder
6B05	Separation Anxiety Disorder
6B20	Obsessive-Compulsive Disorder
6B21	Body Dysmorphic Disorder
6B23	Hypochondriasis (Health Anxiety Disorder)
6B24	Hoarding Disorder
6B25	Body-Focused Repetitive Behaviour Disorders
6B25.0	Trichotillomania (Hair Pulling Disorder)
6B25.1	Excoriation (Skin Picking) Disorder
6B2Y	Other Specified Obsessive-Compulsive or Related Disorders
6B40	Post traumatic stress disorder
6B41	Complex post-traumatic stress disorder
6B80	Anorexia Nervosa
6B81	Bulimia Nervosa
6B82	Binge Eating Disorder
6B0Y	Other Specified Anxiety or Fear-Related Disorders
6D10	Personality disorder

6D11 Prominent personality traits or patterns

6E61 Secondary psychotic syndrome

6E68 Secondary personality change

6A70 Single Episode Depressive Disorder

6A71 Recurrent Depressive Disorder

6A72 Dysthymic Disorder

6A7Y Other Specified Depressive Disorders

Appendix B Code and Analysis

Accessing the Analysis Code

All analysis code can be accessed via the dedicated GitHub repository: github.com/themichjam/apms_analysis_phd

Packages Used

Packages used can be seen here.

```
# if needed
if (! require(pacman)) {install. packages("pacman") library(pacman)
}
p_load (
apyramid, # population pyramids aggregated by age
collapse, # C/C++ based package for advanced data transformation
#  statistical computing
DataExplorer, # automated data exploration process for analytic # tasks and predictive modeling
dataReporter, # generates a custom data report with a # thorough summary of the checks
ggpubr, # creating publication ready plots
ggstats, # suite of functions to plot regression model coefficients
gt, # presentation ready tables
gtExtras, # extend gt
gtsummary, # publication-ready analytical and summary tables
haven, # read and write various data formats used by # other statistical packages
here, # constructs paths to project's files
janitor, # examines and cleans dirty data
jtools, # a collection of tools for more efficiently # understanding and sharing the results of
# (primarily) regression analyses.
```

knitr, # facilitate complex data transformation marginaleffects, # Compute and plot adjusted predictions, # contrasts, marginal effects, and marginal means margins, # R port of Stata's 'margins' command

MetBrewer, # colour palettes of the met gallery

modelsummary, # publication ready model summaries

naniar, # allows missing data dependencies to be explored with # minimal deviation

pacman, # conveniently wraps library and package related functions

patchwork, # plot composer

performance, # Utilities for computing measures to assess # model quality

psych, # general purpose toolbox for personality, psychometric theory

questionr, # make the processing and analysis of surveys easier

readxl, # read in excel files
report, # produces reports of models and data frames according to # best practices
reprex, # sharing of small, reproducible, and runnable examples skimr, # simple to use summary function that can be used with pipes srvyr, # ‘dplyr’ tidy-like syntax for summary statistics
# of survey data
formatting intent
summarytools, # data frame summaries etc.
survey, # analysing data from complex surveys surveyCV, # K-fold cross validation on complex surveys tidymodels, # tidy modelling "verse" of packages for
modelling and statistical analysis
tidyverse, # opinionated collection of R packages designed # for data science
vip, # variable importance plots from models
)

Regression Code

Code for the regression model sets can be seen here.

```
# Model for economic activity in the 2000 survey wave
mod_econ_act_00 <- svyglm (
econ_act ~ # DV measuring economic activity
gender + # IV gender
age_col + # IV collapsed age group ethnic_col + # IV collapsed ethnicity sc_col + # IV collapsed social class edqual_col + # IV collapsed education
phys_health + # IV derived presence of physical condition
cmd_pres + # IV derived presence of CMD
smi_comp, # IV derived presence of SMI comparable # to 2007 survey wave
design = weighted_00, # takes into account weighted # complex survey object
family = binomial # logistic regression
)
# Model for economic activity in the 2007 survey wave
mod_econ_act_07 <- svyglm (econ_act ~
```

```
gender + age_col + ethnic_col + sc_col + edqual_col + phys_health + cmd_pres + smi_comp,
design = weighted_07, family = binomial
)

# Model for employment status of those indicated as economically # active only in the 2000
survey wave
mod_emp_stat_00 <- svyglm (
emp_act_status ~ # DV measuring employment status
gender + # IV gender
age_col + # IV collapsed age groups ethnic_col + # IV collapsed ethnicity sc_col + # IV
collapsed social class edqual_col + # IV collapsed education
phys_health + # IV derived presence of a physical  condition
cmd_pres + # IV derived presence of CMD
smi_comp, # IV derived presence of SMI comparable # to 2007 survey wave
design = weighted_00, # takes into account weighted # complex survey object
family = binomial # logistic regression
)
# Model for employment status of those indicated as economically # active only in the 2007
survey wave
mod_emp_stat_07 <- svyglm (emp_act_status ~
gender + age_col + ethnic_col + sc_col + edqual_col + phys_health + cmd_pres + smi_comp,
design = weighted_07, family = binomial
)

# Model for economic activity in the 2000 survey wave focusing on # the presence of CMD
mod_cmd_00 <- svyglm (
econ_act ~ # DV measuring economic activity cmd_pres + # IV derived presence of CMD
gender + # IV gender
age_col + # IV collapsed age group
ethnic_col + # IV collapsed ethnicity sc_col + # IV collapsed social class edqual_col + # IV
collapsed education
phys_health + # IV derived presence of physical condition
trtment + # IV derived indication of having treatment
```

```
anyhlca, # IV derived indication of  using  mental  health  services
design = weighted_00, # takes into account weighted # complex survey object
family = binomial # logistic regression
)
# Model for economic activity in the 2007 survey wave focusing on the # presence of CMD
mod_cmd_07 <- svyglm (econ_act ~
cmd_pres + gender + age_col + ethnic_col + sc_col + edqual_col + phys_health + trtment +
anyhlca,
design = weighted_07, family = binomial
)

# Model for economic activity in the 2000 survey wave # focusing on type of CMD
mod_cmdt_00 <- svyglm (
econ_act ~ # DV measuring economic activity
cmd_type + # IV derived indication of type of CMD
gender + # IV gender
age_col + # IV collapsed age group ethnic_col + # IV collapsed ethnicity sc_col + # IV
collapsed social class edqual_col + # IV collapsed education
phys_health, # IV derived presence of physical condition
design = weighted_00, # takes into account weighted # complex survey object
family = binomial # logistic regression
)
# Model for economic activity in the 2007 survey wave # focusing on type of CMD
mod_cmdt_07 <- svyglm (econ_act ~
cmd_type + gender + age_col + ethnic_col + sc_col + edqual_col + phys_health,
design = weighted_07, family = binomial
)

# Model for economic activity in the 2000 survey wave # focusing on the presence of SMI
mod_smi_00 <- svyglm (
econ_act ~ # DV measuring economic activity
smi_comp + # IV derived presence of SMI  comparable
```

```
# to 2007 survey wave
gender + # IV gender
age_col + # IV collapsed age group ethnic_col + # IV collapsed ethnicity sc_col + # IV
collapsed social class edqual_col + # IV collapsed education
phys_health + # IV derived presence of physical condition
trtment + # IV derived indication of having treatment
anyhlca, # IV derived indication of using  mental  health  services
design = weighted_00, # takes into account weighted # complex survey object
family = binomial # logistic regression
)
# Model for economic activity in the 2007 survey wave # focusing on the presence of SMI
mod_smi_07 <- svyglm (econ_act ~
smi_comp + gender + age_col + ethnic_col + sc_col + edqual_col + phys_health + trtment +
anyhlca,
design = weighted_07, family = binomial
)

# Model for economic activity in the 2000 survey wave
# focusing on type of  SMI
mod_smit_00 <- svyglm (
econ_act ~ # DV measuring economic activity smi_type + # IV derived indication of type of
SMI gender + # IV gender
age_col + # IV collapsed age group ethnic_col + # IV collapsed ethnicity sc_col + # IV
collapsed social class edqual_col + # IV collapsed education
phys_health, # IV derived presence of physical condition
design = weighted_00, # takes into account weighted # complex survey object
family = binomial # logistic regression
)
# Model for economic activity in the 2007 survey wave # focusing on type of SMI
mod_smit_07 <- svyglm (econ_act ~
smi_type + gender + age_col + ethnic_col + sc_col + edqual_col + phys_health,
design = weighted_07, family = binomial
)
```

Appendix C Reflexivity Prompts

More information, including workshop and creative reflexive writing materials can be found on the maintained OSF repository:

https://osf.io/h2f4t/

Prompt questions for embedding reflexivity in all stages of the research process are provided here. Note that these prompts may be engaged with on an individual level (i.e., by individual researchers) but can also be beneficial to work through as a research team and sharing as much or as little as any member of the team would feel comfortable with, given the diversity of experiences that members of a collaboration will bring. Making space for honest, structured conversations around positionality within a research team may lead to useful insights. Some of the questions here will have relatively clear-cut answers, whereas others will be more complex and nuanced. For example, the question of identifying as occupying an insider/outsider position is not a clear binary and researchers may align themselves along a spectrum of "insider/outsider-ness".

Beginner Prompts

These can be split into several research stages.

Research Question and Design Stage

Questions:

Why do I want to research this group?
To what extent am I "within" the participant group that I am researching? Am I an "insider" or "outsider" researcher (or do I occupy both positions?)
What can I give to this group? Who is represented within the research team?
Should I be the one to research this group, or am I taking space away from someone else?

Data Collection Stage

Questions:

Am I intruding on this group? How can I make this as non-coercive as possible?
How can I make this research accessible to the population?
Do participants understand what their data will be used for?
Have I thought beyond traditional ethics? Am I acting ethically?
Could my collection methods be problematic?

Data Analysis and Interpretation Stage

Questions:

Am I aware that people have given me this data and that they may not know me (e.g., survey, health, or admin data)?
Who are these people behind the data?
If I am using existing datasets, are there any silent assumptions in this dataset?

Could my analysis of the dataset reproduce existing inequalities?

Conclusions and Framing Stage

Questions:

How does my use of evidence reflect my biases (or the biases of the research team) as researchers and as individuals with their own life, wants, emotions, needs?
What do I gain from this research? What does the population I have studied gain?
Is there a disconnect between the two questions above? If so, consider the first few questions in this table again.

An indepth discussion can be read at (Jamieson, Pownall and Govaart, 2022).

Appendix D Supplementary Materials

Supplementary plots and tables can be accessed via the dedicated GitHub repository:

Github.com/themichjam

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