



How does arthritis affect employment in the UK?

Evidence from data on 20,000 people with arthritis compared to people without arthritis

A two-year, big data project led by the Academic Unit of Health Economics, Leeds Institute of Health Sciences, University of Leeds, with expert oversight from people living with arthritis and external advisors

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Executive Summary

1. Background

A quarter of the UK's working age population live with arthritis or a similar condition. Women and men of all ages can be affected, from teenagers and young adults who are starting their first jobs or apprenticeships, through to older people who are transitioning towards retirement.

There are various types of arthritis and some are more common in particular age groups. But all forms of arthritis can make life difficult for people because of the pain, swelling or stiffness in a joint or joints, and because of difficulties in getting about. This can affect people's ability to do their job, to find work they enjoy, to pursue their preferred career paths and to achieve their ambitions.

Arthritis isn't curable and it's important that people use suitable treatments and strategies for managing their symptoms in their daily routines. Having appropriate support from employers and policy makers can give people a better chance of leading a fulfilling working life, which is important for people's long-term physical and mental health. This is not only because of the financial benefits of work. It's also due to the opportunities that good quality, appropriate work can provide in terms of learning, social interaction, nurturing personal identity and self-esteem, and for ensuring that people with arthritis can stay mobile for longer.

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“Being in good quality work can be really important for people's health as well as the wider economy. Since the prevalence of arthritis among the working population is rising, enabling people to remain in work if they want to do so could have many potential benefits in terms of tackling labour market shortages, supporting healthy ageing and boosting economic growth.”

Adam Martin, Associate Professor in Health Economics



2. Aims of the project

We wanted to find out how arthritis affects people's working lives. We expected that some people who live with arthritis might experience poor work outcomes (e.g. job loss or slower career progression) when compared to people who do not live with arthritis. However, very few studies had looked at this before and those that have usually relied on small sample sizes and datasets that were unrepresentative of the general population. We sought to find out how large these differences in work outcomes are and if there are certain individuals (e.g. particular age groups or genders) in particular types of jobs who are especially prone to experiencing poor work outcomes. This understanding is needed to ensure that any support that is provided by employers and policy makers is carefully designed and targeted towards those people who would benefit most.

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I was pleased to be involved in this research project from start to finish. It's the sort of project that people like me who have lived with arthritis for many years are really interested in. This is because if it can help someone maintain their job or help employers to understand what they can do to help then it will have a really beneficial impact on people's lives. Having worked in various different organisations, there is in my experience quite a lot of variation in how understanding employers are of people living with arthritis. For me, some of the biggest issues I had to deal with were pain, fatigue, tiredness and the side effects of treatments. But just because I had arthritis didn't mean that I necessarily had lots more time off sick than anyone else. With appropriate support, I think a lot of people would be able to lead a more fulfilling career without having to leave their job. In fact, in some cases, quite small changes can make a huge difference. For instance, in one customer-facing role, I needed a chair to sit on from time to time; and in another I needed help carrying heavy bags. I've got rheumatoid arthritis, but one thing I think the researchers really must look at more is how people living with different types of arthritis have different needs.”

Gill Bowskill





3. The data we used

We used a large sample of data that had already been collected between 2001 and 2021 on people of all ages who live in a large, representative sample of UK households. In some ways, the data is similar to the UK Census in that people complete questionnaires about various aspects of their lives and the resulting material is then made available to researchers who can decide what to do with it.

The data we used comes from three sources, these were Understanding Society, the British Household Panel Survey and the English Longitudinal Study of Ageing. It is usually collected every one or two years. As well as enabling comparisons between different people, we can also see how the lives of particular individuals progress over time.

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The three datasets used in this study are a great resource. Although not as detailed as health care records in terms of what it can tell us about people's health, this data captures richer, broader information about people's lives, including their education, work, relationships and opinions. Working with this data has enabled us to learn more about the lives of people living with arthritis and to understand where, or to whom, support should be targeted.”

Sarah Kingsbury, Associate Professor of Musculoskeletal Health



4. What we did

We first identified a group of around 20,000 people aged 18-80 in the data who said they had been diagnosed with arthritis at some point in their lives. Of the remaining people in the data (approximately 80,000) who said they had never been diagnosed with arthritis, we chose a second group of around 20,000 people who were the most similar to the first group in terms of various characteristics. These characteristics included age, gender, level of education, ethnicity and where they lived.

We then used statistical models to compare these two groups in terms of things like the probability that they had a job and, if they did, their earnings and how many hours they usually worked each week. We did this for all individuals and then looked at differences between age groups, genders, the person's degree status and occupation (e.g. professional, administrative, technical or routine) and their employer's characteristics (e.g. the organisation's size and whether it's in the private or public sector).

We did separate analyses for data collected before the COVID-19 pandemic (upto early 2020) and during the COVID-19 pandemic (March 2020 onwards) because we thought that workers who live with arthritis had a particularly challenging time during the pandemic, not least as many were given stricter advice on staying at home. For the data collected during COVID-19, we additionally looked at work outcomes for people living with arthritis compared to people living with other long-term conditions (e.g. asthma or epilepsy).

Whilst we were doing our statistical analyses, we shared emerging findings with a group of people whose arthritis has caused disruption to their careers and representatives of a large UK employer and a major charity that supports people with arthritis. An expert advisory group also met quarterly. These groups provided valuable insight into things that are not recorded in the datasets and aided the interpretation of our results. This included providing reasons why arthritis might have a different impact on people of different ages and explanations as to why some people are able to remain in work after an arthritis diagnosis whilst others cannot.

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The matching approach we used means that we have looked at differences in employment between a large group of people with arthritis and a second group of people without arthritis who are otherwise very similar to each other. So essentially we have compared apples with apples, rather than apples with pears. This means we are more confident that our results were not driven by other differences between those with and without arthritis, in terms of their age or education background, for instance.”

Nasir Rajah, Research Fellow in Health Economics



5. Our findings

We found that, on average:

- Arthritis was associated with a 3 percentage point reduction in the probability of being in work when compared to people without arthritis

The effect varied according to people's age and was larger for women and people who did not have a degree-level education. For example, when compared to people without arthritis, our statistical models indicated that the percentage point reduction in the probability of being in work that is associated with having arthritis varies as follows:

- 2 percentage points for 50 year-old men with a degree
- 5 percentage points for 50 year-old men without a degree
- 6 percentage points for 50 year-old women with a degree
- 11 percentage points for 50 year-old women without a degree
- 17 percentage points for 60 year-old women without a degree

People with arthritis are less likely to be in work than matched individuals without arthritis:



When we looked at where people work and the type of job they have, we found:

- People with arthritis who had previously worked in small private companies were typically less likely to be in work when compared to people with arthritis who previously worked in larger companies or in the public sector. Our discussions with people living with arthritis indicated that this might be due to such firms having fewer resources available and/or there being less scope to enable people with arthritis to adjust their work patterns or take on alternative roles.
- People with arthritis who had previously worked in ‘routine’ (e.g. lorry drivers or bar staff) and ‘intermediate’ (e.g. paramedics or bank staff) occupational groups were 8 percentage points less likely to be in work when compared with those who do not live with arthritis. This contrasts with people in ‘professional’ work (e.g. lawyers or architects) who typically were as likely to be in work as people without arthritis, at all stages of their working lives. However, some people with arthritis who had a ‘professional’ occupation worked reduced hours and had lower earnings, and this was particularly true for women aged over 40 years.

When we looked at people who had a job in Jan-Feb 2020, our analyses involving the data collected during COVID-19 showed that:

- Arthritis was one of numerous long-term conditions that was associated with an increased chance of job loss during the pandemic: by September 2021, people with arthritis were 3.4% less likely to be in employment compared to people without a health condition.

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Based on my own experience, I’m not surprised by these findings. I was in a senior position at work, but there was a lack of flexibility in accommodating my arthritis symptoms. No way could I do my job without making adjustments, but I found the whole process of accessing occupational health to be bureaucratic, unsympathetic and impersonal. For me it felt like I had to sort out my own problems. So I ended up taking a huge demotion, which impacted my mental health, and then eventually early retirement at a young age. I’m sure that more can be done to help people like me to stay in fulfilled work and surely that’d benefit everyone – including employers and the Treasury. I hope this research will help to highlight this issue. More work is surely needed in terms of providing employers with guidance on practical things they can do to support their workers.”

Christopher McIlveen



6. Policy implications

We already know that arthritis is more common amongst women and people from lower socio-economic backgrounds. When combined with our new findings that show substantial inequalities also exist in how the work outcomes of these groups are affected by arthritis, it seems clear that interventions to better support people living with arthritis could help address inequalities in both health and employment. This need for better support represents a substantial and growing challenge for society, given the increasing prevalence of arthritis, the trend towards older retirement ages and our own finding that people with arthritis had worse than average work outcomes during COVID-19.

Our engagement with stakeholders provided an early indication that potential interventions could involve making appropriate adjustments to the working environment, tackling workplace discrimination and supporting changes in people's roles. Existing evidence suggests that providing personalised case management by an occupational health practitioner could help to encourage constructive dialogue between employees, healthcare practitioners and employers. More evidence is needed on the value for money, or return on investment, of those interventions from the perspective of employers as well as society. Our study indicates that such support could be especially cost-effective if it is designed for and targeted for the people we identified who are most at risk of poor work outcomes.

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We've got evidence about what effect arthritis has on objective outcomes, such as whether people have a job or not, or whether they work full or part-time, but we don't know how these changes affect people's wellbeing. The next steps should be looking at wellbeing, since that's what really matters. Wellbeing is also vital for knowing who is most in need of support, and what kind of support they need. For example, for some people, an arthritis diagnosis might change their priorities. Their decision to leave the labour market could be positive: an opportunity to spend more time with family or other interests including leisure activities or voluntary work, for example. On the other hand, just because people with arthritis do keep working doesn't mean they don't need support. They might be really struggling in their job, and only keep going because they have to.”

Edward Webb, Senior Research Fellow in Health Economics





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We already know there are complex multi-directional relationships between arthritis, work, mental health, obesity and other long-term conditions. This study is important because of the additional details it provides about how different individual risk factors (age, gender, education, type of occupation, type of employer) combine to impact on the work outcomes of people living with arthritis. Optimising the work outcomes of people living with arthritis is good for individuals, employers and wider society. Policy-makers should assist smaller organisations (who employ more than 3 in 5 people) to provide the levels of support available in larger organisations, whilst all employers should look carefully at who they employ to ensure they create the best possible environment for everyone to contribute to, and therefore benefit from, the work they do.”

Max Henderson, Professor of Psychological Medicine & Occupational Psychiatry





The lead researchers for this project at the University of Leeds were:

- **Adam Martin** (project lead), Associate Professor (Health Economics)
- **Nasir Rajah** (lead analyst for the pre-pandemic data), Research Fellow (Health Economics)
- **Edward JD Webb** (lead analyst for the data collected immediately before and during the pandemic), Senior Research Fellow (Health Economics)

The project team also consisted:

- **Philip G Conaghan**, Professor (Musculoskeletal Medicine), University of Leeds
- **Claire Hulme**, Professor (Health Economics), University of Exeter
- **Sarah R Kingsbury**, Associate Professor (Musculoskeletal Health), University of Leeds
- **Theresa Munyombwe**, Lecturer (Medical Statistics), University of Leeds
- **Robert West**, Professor (Medical Statistics), University of Leeds

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- Members of our project advisory group
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Full details of the statistical methods and results can be found in two academic journal articles which are available online or by contacting the authors directly (a.martin@leeds.ac.uk +44(0)113 343 0822):

- Rajah N et al. (anticipated 2022) How does arthritis affect employment? Longitudinal evidence on 18,000 British adults with arthritis compared to matched controls.
- Webb EJD et al. (anticipated 2023) Long-term health conditions and labour market outcomes during the COVID-19 pandemic.



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