



FINAL REPORT

The Pain-at-Work Trial: Feasibility and
acceptability of the Pain-at-Work Toolkit

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About the Nuffield Foundation:

The Nuffield Foundation is an independent charitable trust with a mission to advance social well-being. It funds and undertakes rigorous research, encourages innovation and supports the use of sound evidence to inform social and economic policy, and improve people's lives. The Nuffield Foundation is the founder and co-funder of the Nuffield Council on Bioethics, the Ada Lovelace Institute and the Nuffield Family Justice Observatory. This project has been funded by the Nuffield Foundation, but the views expressed are those of the authors and not necessarily the Foundation. Find out more at: www.nuffieldfoundation.org. Bluesky: @nuffieldfoundation.org, LinkedIn: Nuffield Foundation

About Arthritis UK:

Arthritis UK is the leading arthritis charity, changing lives through research, campaigning and support.

Over 10 million adults, young people and children in the UK live with arthritis. That's one in six of us living with the pain, fatigue, disability, mental and financial strain it can cause. Many more live with arthritis but remain undiagnosed, untreated and unsupported. We know the impact of arthritis can be huge, affecting the ability to work, care for family, move free from pain and live independently. Yet for a condition affecting so many, it's poorly understood and far too little is done. That's why we invest in life-changing research into better treatments, support people through the daily challenges of life with arthritis, and campaign on the issues that matter most to people living with it. At Arthritis UK, we won't rest until everyone with arthritis has access to the treatments and support they need to live the life they choose, with real hope of a cure in the future. Find out more at: www.arthritis-uk.org

Arthritis UK. For a future free from arthritis.





Acknowledgements

We would like to thank:

- All organisations and employees who took part in the Pain-at-Work feasibility trial.
- Our Patient and Public Involvement and Engagement (PPIE) partners, members and contributors, and our Trial Advisory Group (TAG) members who offered support and advice throughout the study.
- Our Trial Steering Group (TSG) who provided oversight of the trial progress and processes and monitored our adherence to project milestones.
- Our professional networks for supporting with study promotion during recruitment.

Who is this report intended for?

This report is intended for anyone with an interest in supporting people who experience chronic or persistent pain in the workplace. It may be particularly relevant to people living with chronic pain, employers, policymakers, professional bodies, charities, trade unions, healthcare professionals, and researchers who are involved in shaping, delivering, or evaluating workplace health and wellbeing initiatives. Whether you are looking to improve support for employees, inform policy decisions, develop professional guidance, or explore new areas of research, the findings from this study offer valuable insights into the feasibility and acceptability of the Pain-at-Work Toolkit.

Where can I find more detail?

We intend to publish 3 more scientific journal articles from this study. The main feasibility trial outcomes and the findings from the employee interviews will be published in a single scientific paper. The stakeholder interviews (within the trial, outside the trial) will be published in two separate papers. We have created two study infographics which will be publicly available, one showcasing the main study findings, and one reporting on our public involvement and engagement work. Findings will also be shared in a free webinar in December 2025, jointly hosted by the University of Nottingham and the Institute for Health Promotion and Education (IHPE).

Project team and information

Chief Investigator

Professor Holly Blake, Professor of Behavioural Medicine, University of Nottingham.

Co-Investigators

- Victoria Abbott-Fleming MBE, Chair of the Expert Patient and Carers Committee, British Pain Society and our PPIE-partner.
- Professor Karen Walker-Bone, Professor in Occupational Rheumatology, Monash University, Australia.
- Professor Paul McNamee, Professor of Health Economics, University of Aberdeen.
- Professor Gordon Taylor, Professor of Medical Statistics, University of Exeter.
- Dr Daniel McWilliams, Research Fellow, University of Nottingham.
- Professor David A Walsh, Professor of Rheumatology, University of Nottingham.

Project Staff

- Dr Wendy Chaplin, Research Fellow, University of Nottingham.
- Dr Angela Thornton, Research Fellow, University of Nottingham.
- Dr Melanie Narayanasamy, Research Fellow, University of Nottingham.
- Dr Jain Holmes, Occupational Therapist/Senior Research Fellow, University of Nottingham.
- Aaron Fecowycz, Learning Technologist, University of Nottingham.

Trial Advisory Group (TAG)

- Dr Catherine Dennison, Programme Head – Welfare, The Nuffield Foundation
- Dr Anna Durrans, Research Programme Manager, Arthritis UK
- Maureen McAllister, Workplace Health Development Manager, Arthritis UK
- Susannah Goh, Patient & Public Involvement representative
- Sarah Greaves, Patient & Public Involvement representative / Pain-at-Work Toolkit co-author.
- Laura Adelman, Analytical Division, DWP and DHSC Joint Work and Health Directorate.
- Tony Wilson, Director, Institute for Employment Studies
- Nick Pahl, Chief Executive Officer, Society of Occupational Medicine.
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- Deanne Hewson, Senior HealthTech Strategy Manager, Centre for Healthcare Technologies, University of Nottingham.
- Dr Elaine Wainwright, Advanced Research Fellow (Work/Pain), University of Aberdeen.
- Dr Benjamin Ellis MBE, Consultant Rheumatologist, Imperial College Healthcare NHS Trust
- Caroline Lee, Senior Economic Adviser–Health Analysis, Work and Health Analytical Division (WoHAD), DWP & DHSC Joint Work and Health Directorate.
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- Sean Russell MBE, COO and European Lead, Global Leadership Exchange (GLE)
- Professor Gwenllian Wynne-Jones, Professor of Nursing, Keele University.

Trial Steering Group (TSG)

- Professor Roger Knaggs, President of the British Pain Society and Professor of Pain Management, University of Nottingham.
- Dr Stefan Rennick-Egglestone, Principal Research Fellow (Trials/Digital), University of Nottingham.
- Dr Sarah Somerset, Research Fellow (Health/Work), University of Nottingham.

Trial representatives on TSG:

- Dr Wendy J Chaplin, Research Fellow, University of Nottingham.
- Professor Holly Blake, Professor of Behavioural Medicine, University of Nottingham.

Partner Organisations

Burning Nights CRPS Support
The British Pain Society

 University of Nottingham UK CHINA MALAYSIA	 University of Exeter	 BURNING NIGHTS
 MONASH University	 UNIVERSITY OF ABERDEEN	 THE BRITISH PAIN SOCIETY EXPERTISE WHERE IT MATTERS

How to cite our work

Final Project Report (this report)

- Blake H, Chaplin, WJ, Abbott-Fleming V, Thornton A, McNamee P, Taylor G, McWilliams D, Holmes J, Narayanasamy M, Wainwright E, Fecowycz A, Walsh DA, Walker-Bone K. The Pain-at-Work Trial: Feasibility and acceptability of the Pain-at-Work Toolkit. November 2025. Final Project Report, University of Nottingham, UK.

Our Patient and Public Involvement and Engagement (PPIE)

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Research Papers

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Conference Proceedings

- Blake H, Abbott-Fleming V, Chaplin WJ, Wainwright E, Taylor G, McNamee P, McWilliams D, Walsh D, Walker-Bone K. (2025) Establishing proof-of-concept for the Pain-at-Work Toolkit: a digital intervention to support people at work with chronic pain. *EDULEARN25 Proceedings*, pp. 522-526. doi: 10.21125/edulearn.2025.0218.
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Glossary and abbreviations

CHERRIES:	Checklist for Reporting Results of Internet E-Surveys
COM-B:	Capability, Opportunity, Motivation–Behaviour
CONSORT:	Consolidated Standards of Reporting Trials
cRCT:	Cluster randomised controlled trial
MRC:	Medical Research Council
OT:	Occupational therapist
PROM:	Participant-reported outcome measure
SPIRIT:	Standard Protocol Items: Recommendations for Interventional Trials
SMS:	Short messaging service
TAU:	Treatment-as-usual
TIDieR:	Template for Intervention Description and Replication

Trial Registration:

ClinicalTrials.gov: NCT05838677; <https://clinicaltrials.gov/study/NCT05838677>

International Registered Report Identifier (IRRID): DERR1-10.2196/51474

Ethical Considerations

The University of Nottingham Faculty of Medicine and Health Sciences Research Ethics Committee granted ethics approval on March 31, 2023 (FMHS 237-0323). Minor amendments were noted to file on 12.04.2023, 27.06.2023, 14.11.2023, 25.10.2024, 19.03.2025, 08.04.2025, and 04.08.2025. Our study protocol was reviewed and approved by HRA and Health and Care Research Wales (HCRW) on July 4, 2024 (IRAS 336655).

Why focus on chronic pain at work?

Chronic pain affects a significant portion of the UK workforce, with an estimated 43% of adults - nearly 28 million people - living with some degree of chronic pain. As the population ages, that number is expected to grow. Chronic pain isn't just a personal struggle; it's a major societal and economic challenge. In England alone, the NHS spends around £580 million each year on pain-related treatments and GP visits. But the broader costs - lost productivity, sick days, early retirement - are staggering, estimated at over £100 billion annually.

For those affected, chronic pain can take a serious toll on both physical and mental health. It often leads to a lower quality of life compared to people with other long-term conditions. The COVID-19 pandemic exacerbated this problem, triggering new cases and worsening existing ones.

Managing chronic pain effectively is crucial, and clinical guidelines increasingly emphasise the importance of self-management. By that, we mean helping people take control of their condition through lifestyle changes, mental health support, and practical strategies. These approaches can improve pain levels, emotional wellbeing, and overall quality of life. However, many self-management programmes focus on specific conditions like back pain or arthritis, which means people with other types of chronic pain, or those without a formal diagnosis, can be left out.

Most research and treatment strategies tend to focus on medical or psychological care, with little attention paid to how chronic pain affects people at work. Yet work is a huge part of life for many people, and chronic pain can make it difficult to stay productive, feel fulfilled, or even remain employed. This can lead to social inequalities, widening the disability pay gap. Staying in work is important, not just financially, but because employment is linked to better health outcomes. Being out of work, on the other hand, is associated with poorer physical and mental health, and social isolation.

Unfortunately, access to work-related support like occupational therapy is patchy. Occupational therapists can help people manage pain and stay in work, but referrals and resources are limited. Some promising research-led programmes exist, such as vocational rehabilitation, but they often focus on specific conditions and recruit participants from clinical settings, leaving out those who manage their pain independently.

Workplace interventions also tend to be narrow in scope - targeting specific types of pain, job roles, or treatments (like exercise or ergonomic adjustments). This means many people with chronic pain don't get the support they need and often don't know where to find it. Employers rarely offer consistent advice or resources, and only a fraction of the UK workforce has access to specialised occupational health services. Even when these services are available, not all professionals are well-informed about chronic pain.

What is needed, and how can digital approaches help?

What's needed now is a more inclusive approach. Workplace interventions that help people with any type of chronic pain, in any job, build the skills and confidence to manage their condition. This includes knowing how to seek help, adjust their work environment, advocate for their working rights, access support, and maintain healthy habits.

Digital tools are starting to fill some of these gaps (see our systematic review, page 6). Mobile apps, virtual reality programs, and online platforms offer therapy, education, and coaching for people with various pain conditions. These tools are flexible, scalable, and can reach people wherever they are. This is especially useful in today's world of hybrid and remote work. However, most digital interventions still focus on pain relief, symptom management and mental health, without addressing the challenges people face at work. This led to the development of the Pain-at-Work Toolkit (see our research paper reporting on the development process, page 6).

What is The Pain-at-Work Toolkit?

This is an online resource created to help people who live with ongoing pain manage their condition while working. It's designed for anyone with chronic pain who is currently employed - no matter what type of job they do or where they work.

The toolkit provides practical, research-backed advice on pain management, disability rights, workplace adjustments, and where to find support. It also helps users learn strategies to cope with pain and stay well at work. You can read more about how this toolkit was developed and evaluated in our publications (see page 6 for details).

The toolkit is built on the idea that giving employees the right information and tools can improve their confidence, health, and ability to work. Importantly, the toolkit was built with accessibility in mind. It's easy to use, even for people who aren't confident with technology, and it's inclusive of people with disabilities. It was developed and tested with input from workers across different sectors (public, private, and nonprofit) throughout the UK.

The toolkit design, structure and content are detailed in our publications. The toolkit showed promise in our early evaluations but needed to be fully tested to see how well it worked across different types of workplaces or whether it could be used in formal research trials.

The toolkit was designed to be used as a stand-alone resource. However, to ensure that participants felt supported to use it, we offered them up to three optional phone calls (or other form of communication such as text messages) with an occupational therapist who could explain the guidance offered to them in the toolkit.

What was the focus of our study?

The main goal of this study was to find out how the toolkit is perceived by employees with chronic pain, and whether it's practical to run a large-scale trial to test how well the Pain-at-Work Toolkit helps working adults to manage chronic or persistent pain.

This was a 'feasibility study' and an important step toward establishing the Pain-at-Work Toolkit as an appropriate workplace intervention to support employees with chronic pain.

To achieve this, we focused on seven key objectives:

1. **Recruitment and Retention:** To see if we could successfully recruit employers ('organisations') and workers ('participants') and keep them engaged throughout the study.
2. **Reach and Representation:** To test whether we could involve a diverse range of employees - different ages, genders, ethnic backgrounds, job roles, sectors (public, private, and nonprofit), and organisation sizes.
3. **Acceptability:** To understand whether participants and employers found the toolkit and the study approach suitable and useful.
4. **Trial Planning:** To gather data that would help us to design a future full-scale trial.
5. **Outcome Measures:** To collect different types of data to help us choose the most meaningful measure of success for the future trial.
6. **Economic Evaluation:** To explore whether we could effectively gather information on costs and benefits for a future economic analysis.
7. **Future Planning:** To consider how the toolkit could be up scaled and rolled out, if a future large-scale ('definitive') trial found it to be effective and cost-effective.

What was our approach?

The study was conducted across a range of employment settings in England. Organisations - rather than individual participants - were assigned to either receive the Pain-at-Work Toolkit (the intervention) or continue with their usual workplace provisions without access to the toolkit (the control). We gathered data from organisations, employees, and individuals who played a key role in supporting staff wellbeing. This enabled us to explore participants' experiences of the research process and, for those with access to the toolkit, their perceptions of its usefulness. Additionally, we gained insights from managers and other organisational representatives regarding their involvement in the study and how well the toolkit complemented existing workplace support systems. The research adhered to established guidelines for developing complex health interventions and was conducted in accordance with best-practice standards for pilot and feasibility trials.

Who was eligible to take part?

Organisations: We invited organisations based in England to take part, regardless of whether they were public, private, or nonprofit. To be eligible, each organisation needed to have at least 10 employees. This included small businesses (10–49 staff), medium-sized businesses (50–249 staff), and large organisations (250+ staff).

Employees: We welcomed adults aged 18 and over who were currently working and living with chronic pain that affected their ability to do or enjoy their job. To take part, they needed to understand written English and be able to give informed consent. We included people from all backgrounds - gender, ethnicity, income level, job type and employment status. For simplicity, we referred to all study participants as “employees”. Because the toolkit and surveys were delivered online, participants needed internet access. We tracked how many people needed help by phone or had difficulty using the toolkit to understand their comfort with technology.

We aimed to recruit at least 120 employees from a minimum of 8 organisations.

How members of the public helped to shape this work

The Pain-at-Work Toolkit was developed with the voices and experiences of the people it’s designed to support. From the earliest stages of development through to this feasibility trial, we actively involved people with lived experience through a process known as *patient and public involvement and engagement* (PPIE). Their input shaped every part of the project.

We worked with people in three key ways:

- **PPIE partners:** Individuals with lived experience who were equal members of the research team, helping to shape decisions and guide the project throughout.
- **PPIE members:** Lived experience representatives who sat on our advisory and steering groups, keeping the research focused on what matters most.
- **PPIE contributors:** People who shared their experiences or expertise at key points — including patients, employers, and healthcare professionals — helping to make the Toolkit inclusive and practical.

Before the trial began, we engaged 472 PPIE contributors through surveys (with 274 employees, 107 employers), workshops (with 27 stakeholders), and expert reviews (by 40 reviewers). The Toolkit was co-created with PPIE partners and shaped by input from *Burning Nights* (a UK pain charity), people living with chronic pain, healthcare professionals, occupational health experts, trade union advisers, and employers. Their insights helped ensure the content was relevant, inclusive, and useful in real-world settings. We also consulted with PPIE contributors from two national pain centres to review our trial plans.

During the feasibility trial, people with lived experience continued to play an active role in our management, steering, and advisory groups. Importantly, the Pain-at-Work Toolkit, this report, and our published findings are coauthored by a PPIE partner, reflecting our commitment to meaningful collaboration and shared leadership. Read more in our publications under ‘Patient and Public Involvement and Engagement’ (page 6).

How did we keep people engaged?

All participating employees received text message reminders to help improve response rates to online surveys. Those in the intervention group also received messages encouraging them to use the Pain-at-Work Toolkit and access occupational therapy support. The messages were shaped by behaviour change theory and developed with input from people with lived experience and expert reviewers. We also included a prize draw as an incentive to complete all the research measures.

What did we measure?

We looked at three types of outcomes:

1. Whether it's practical and acceptable to run a larger trial.
2. Feedback and data from employers (about their organisations and usual support offers).
3. Survey responses from employees, collected at the start, then at 3 months and 6 months, to help us choose the most useful measures for future research.

We used a range of questionnaires to assess how chronic pain affects work and wellbeing.

- **Work-Related Measures.** These included tools to measure productivity, absenteeism, ability to work, confidence at work, job satisfaction, stress, intention to leave work, and workplace support.
- **Mental Health and Quality of Life.** We assessed symptoms of depression and anxiety, and overall health-related quality of life using well-established scales.
- **Health Resource Use.** We tested a questionnaire to track employees' use of health services, including GP visits, hospital care, social care, private treatment, and medication.
- **Technology Engagement.** Employees in the intervention group completed questions about their experience using the toolkit, including ease of use, understanding, and attitudes. This helped us understand how well the toolkit was received and used.

How did we analyse the data?

We used averages and percentages to summarise the data. We tracked how many organisations and participants joined and stayed in the study to see if the Pain-at-Work Toolkit and research process were appealing. Surveys at the start, 3 months, and 6 months showed whether scores changed over time, helping us assess questionnaire engagement and choose measures for future research. We also examined healthcare costs and quality of life.

Key Finding: The trial processes were feasible and acceptable

We looked at whether the trial achieved the goals we set at the beginning. Because this was a feasibility study, our main focus was on whether we could successfully recruit participants and keep them involved throughout. We also aimed to recruit at least one organisation from each sector - public, private, and third (voluntary or nonprofit) - as well as include both a small or medium-sized enterprise (SME) and a large organisation.

Study Goals	Target	Outcome	Achieved (A) or exceeded (E)
Number of organisations recruited	8	18 Int 10 Cont 8 [#]	✓ (E)
Minimum 1 from each of public, private and third sector	1 each	Public 11 Private 5 Third 2	✓ (E)
Minimum 1 from each of SME and large organisations	1 each	SME 1 Large 17 [*]	✓ (A)
Number of employees recruited	120	380	✓ (E)
Proportion of organisations retained to 6 months	>80%	100%	✓ (E)
Proportion of employees completing baseline survey	>75%	82%	✓ (E)
Proportion of employees completing 3-month survey	>50%	55%	✓ (E)
Proportion of employees completing 6-month survey	>50%	52%	✓ (E)

* Note: one large organisation had 271 employees (marginally exceeding 250 for a medium-sized company). #Int=Intervention organisations, Cont=Control organisations.

What does this mean?

Trial feasibility and participation: The trial processes were both practical and well-received. We successfully recruited 18 organisations and 380 employees between June 2023 and August 2024 - exceeding our original targets by 125% for organisations and 217% for employees.

Diversity of organisations and employees: We worked with a wide range of organisations, including healthcare providers, local government, higher education, government services, and sectors such as charity, construction, consulting, utilities, and the arts. These varied in size from 14 to 30,000 employees, including one SME and 17 large organisations. Among the 380 employees, the majority (91%) were White, but participants represented 17 different ethnicities. Most identified as women (82%), with others identifying as men or non-binary. Ages ranged from 21 to 69, with an average age of 46. Participants reported a broad mix of health conditions linked to chronic pain, often affecting both physical and mental wellbeing.

Survey completion and group allocation Survey participation was strong. Of those who consented, 310 employees (82%) completed the baseline survey and were assigned to either the intervention group (171 people) or the control group (139 people). All participants provided information about their work, health, and mood.

Follow-up survey completion Follow-up survey rates were also high: 171 employees completed the 3-month survey (55% of baseline completers), and 162 completed the 6-month survey (52%).

We exceeded our targets of 75% for baseline, and 50% for both 3- and 6-month follow-ups.

Over six months, people who used the Pain-at-Work Toolkit reported being more productive at work, finding it easier to do their jobs, feeling in a better mood, and experiencing fewer limitations in the workplace. These results suggest that our questionnaires are effective at tracking changes over time. However, because this was a small study, we need to test the Toolkit with more people to confirm how well it works.

Key Finding: The intervention was feasible and acceptable

The toolkit was well accessed and easy to use. All five sections of the Pain-at-Work Toolkit were accessed by employees across the 10 intervention sites. The three most accessed sections were 'Advice about chronic or persistent pain' (74%), 'Pain self-management strategies' (71%) and 'Work capacity and reasonable adjustments' (68%). The toolkit was described as easy to use, clear, and understandable. There were very few technical issues reported. The average 'interactions' with the toolkit per person ranged from 25 to 538 across 10 sites. Interactions refer to button clicks, downloads, playing videos or audio, outbound link clicks.

The content was valued and led to action. Content was perceived to be relevant (68%). Over half (56%) found the toolkit increased their knowledge about managing chronic pain. Over one third agreed that their attitude and motivation towards taking actions to manage their pain at work had increased since they used the toolkit (38% and 48%, respectively). Many felt encouraged to seek help or support to manage their condition at work (45%). Actions taken by participants included asking for help, pacing activity, and proactively managing their pain. Two thirds of the respondents thought they would use the toolkit again (66%) and 72% would recommend it to other employees.

The toolkit is appropriate for use as a stand-alone resource. While the occupational therapists' support calls were delivered as intended (i.e. the 'fidelity' was satisfactory) this offering had very low take-up (11 of 171 offers made) confirming that the toolkit is appropriate for use as a stand-alone resource.

Learning from our health economics analysis

An exploratory health economics analysis was undertaken, which was focused on the type and volume of health care resources used and their costs, alongside measurement of health-related quality of life.

We found that employees used a mix of health care resources, with primary care services (e.g., GP consultation) used much more frequently than secondary health care (e.g., outpatient appointments). Including the purchase of over-the-counter medicines and complementary therapies, around one-third of respondents reported paying for treatment privately.

Health-related quality of life was relatively stable over time, between baseline and 6 months. Neither quality of life nor health care costs showed significant links with individual characteristics such as age, sex, or socio-economic factors such as income. However, people who were already using more prescribed medicines at baseline continued to do so. Importantly, those in the intervention group appeared to use fewer prescribed medicines (a 50% reduction) at follow-up than those in the control group. These relationships need to be tested in a larger trial.

What did we learn from listening to key stakeholders?

At the 6-month mark, we undertook interviews where we focused on people's experiences and views ('qualitative interviews') with three sets of stakeholders. These included:

- Employees from intervention organisations who had received access to the Toolkit.
- Employer representatives from intervention and control organisations.
- External stakeholders who were not involved in the feasibility trial but could share their views about the future implementation of the Pain-at-Work Toolkit.

1. Interviews with employees

Overall, the Pain-at-Work Toolkit was perceived positively by employees.

It was seen to raise awareness about chronic pain in the workplace and helped people to access the support they needed.



"It's given me a voice...the toolkit has empowerment"

All employees from the 10 intervention organisations who had access to the Pain-at-Work Toolkit were invited to share their views in more depth. The interviews focused on both their views towards the toolkit, and their views towards the trial processes. Twelve employees agreed to be interviewed - 10 women and 2 men, aged between 22 and 65 years. Of these, four worked for a local authority, two in higher education, and six for the NHS across multiple locations.

Interviews were conducted by phone or video call, lasted 45–60 minutes, and were recorded and anonymised with consent. Participation was voluntary, and employees were informed that taking part would not affect their job. The interviews explored how the toolkit influenced individuals and workplaces, what supported or hindered its use, and how confident employees felt about managing their pain at work.

We analysed the interviews using a structured approach to identify common themes. This helped us understand how employee behaviour aligned with two key models: the Technology Acceptance Model (TAM), which explains how people adopt new tools, and the COM-B model, which explores what drives behaviour.

Almost all employees responded positively to the Pain-at-Work Toolkit and said they would recommend it to others. Only one employee did not find it useful, noting that they were already using the self-management strategies it promotes. However, they still recognised its value for others who may be less familiar with these approaches or not yet actively managing their pain.

All sections of the toolkit were seen as useful. While some information was new to certain individuals and familiar to others, having everything gathered in one place was widely appreciated. The toolkit offered a range of practical strategies that employees could use independently (such as pacing work, taking breaks, and managing mental wellbeing) or raise with managers when seeking support (such as requesting equipment, adjusting tasks, or changing working hours or location).

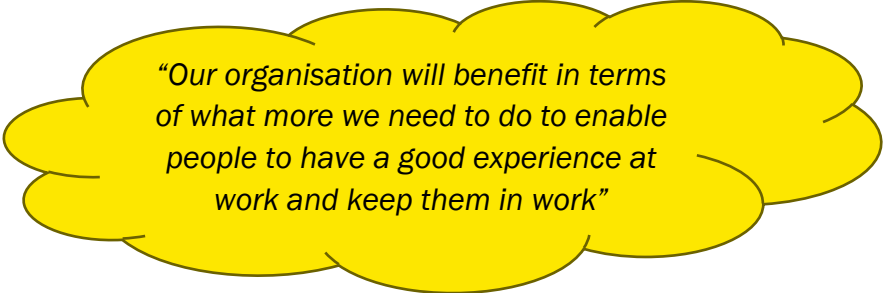
Many participants were surprised to learn that disability is protected by law. Most had disclosed their condition to line managers and colleagues, though some described mixed responses to this. Several employees had shared toolkit resources with others by forwarding video links or printing pages. Most felt that pain is under-recognised in the workplace and appreciated feeling part of a community, which helped reduce feelings of isolation.

Employees found the trial processes acceptable. There were no concerns raised about recruitment processes or completing survey measures. However, it was noted that some employees may have been unable to complete follow-up surveys if they changed jobs (i.e., moved to another organisation) during the trial period.

2. Interviews with employer representatives

All the stakeholders believed that the Pain-at-Work Toolkit could be a valuable resource to incorporate within their organisations.

They also reported positive experiences relating to their organisation's participation in the trial.



"Our organisation will benefit in terms of what more we need to do to enable people to have a good experience at work and keep them in work"

Across all 18 organisations in the trial, key stakeholders were invited to take part in an interview with a researcher who had not been involved in recruitment. These interviews aimed to explore stakeholders' views on the trial processes. For those based at the 10 intervention sites, we also asked about their opinions on the Pain-at-Work Toolkit and how it was implemented within their organisation.

Stakeholders were typically our main point of contact and had played a central role in making the case for their organisation's participation. All held positions that involved supporting employee health and wellbeing. In total, 15 stakeholders from 12 organisations (one SME and 11 large) agreed to be interviewed. This included 8 individuals from 7 intervention organisations and 7 individuals from 5 control organisations.

Stakeholders highlighted gaps in workplace support for employees with disabilities, especially for those with conditions that are not visible to others. They also stressed how important line managers are in putting company values into practice, such as making sure staff can get the support they need. The findings illuminated three key themes: (1) not all disabilities are visible; (2) not all line managers are equal; and (3) it raises the question of how much control employees feel they have over managing their chronic pain at work.

These themes suggest that invisible disabilities such as chronic pain are underestimated, poorly understood, and inconsistently provisioned for in organisational policies. These interviews highlight the key role that line managers play in employee disclosure and access to support but demonstrate that line managers vary in their delivery of support to employees. This aspect of the study shed light on how employers and employees see their roles when it comes to managing chronic pain at work.

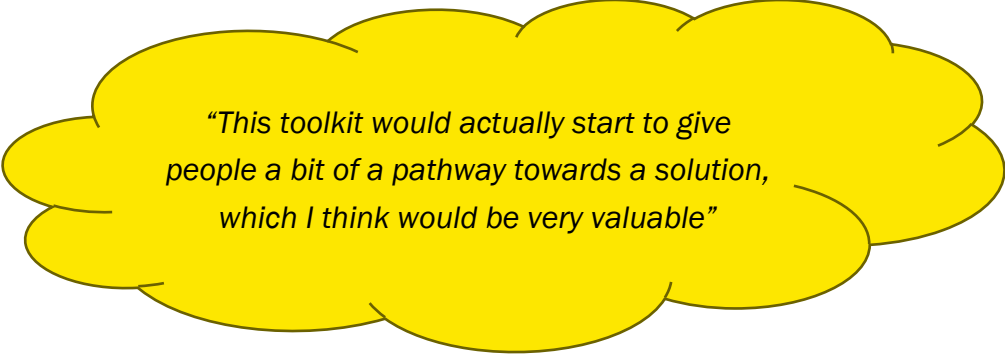
Stakeholders agreed that more resources are needed to fill gaps in workplace support and to give staff practical tools to manage their pain at work.

Organisations in the intervention group were overwhelmingly positive towards the Pain-at-Work Toolkit, feeling it offered a comprehensive resource to enable employees to self-manage chronic pain at work. Stakeholders also reacted positively to the idea of producing resources specifically for line managers, which would complement the existing employee-facing Pain-at-Work Toolkit. They thought that giving the employer and employee access to complementary guidance and resources may provide a mechanism that benefits both parties.

3. Interviews with external stakeholders

Overall, external stakeholders were overwhelmingly positive about the need for intervention and towards the Pain-at-Work Toolkit as an appropriate intervention to address this need.

Stakeholders have highlighted key considerations for future implementation of the toolkit.



“This toolkit would actually start to give people a bit of a pathway towards a solution, which I think would be very valuable”

The final stage of our project was to explore how the toolkit could be scaled up and rolled out in the future. We spoke with 41 external stakeholders who were not participating in the trial, recruited through professional networks. They included employer representatives, managers, human resources staff, wellbeing and safety leads, occupational health professionals, trade union representatives, and healthcare workers from across the UK. Eight of the stakeholders worked in SMEs. They were provided with a summary of the purpose of the Pain-at-Work Toolkit and its content. We talked to them about how the Pain-at-Work Toolkit could potentially be introduced and used across different types of workplaces.

This provided additional insights into how the Pain-at-Work Toolkit could be used effectively to reach and support employees living with chronic or persistent pain, to identify what would help or hinder the successful use of the toolkit in diverse employment settings, and to explore ways of measuring how well the toolkit could be implemented. Detailed findings will be published separately in a scientific journal article, but key considerations include:

- **Finding key supporters:** Identify people or groups who can promote the Pain-at-Work Toolkit and help bring it into workplaces across the UK.
- **Clear employer messaging:** Share information with employers that highlights how chronic pain affects productivity, and how the Toolkit can help.
- **Trusted endorsements:** Gain backing from respected organisations such as charities, trade unions, professional associations, regulators, and healthcare professionals to show the Toolkit is credible.
- **Supporting activities:** Think about the wider package — for example, adding campaigns, initiatives, or other programs alongside the Toolkit to strengthen its impact.
- **Integration with existing resources:** Make the Toolkit easy to use by linking it with health and wellbeing services that organisations and professional bodies already provide.
- **Making it part of everyday work:** Ensure the Toolkit is available, accessible, and seen as a normal part of workplace support.

These findings give us useful lessons that will guide how we design and carry out the larger trial in the future. Detailed findings will be published separately.

Key challenges and learning points

We met or exceeded all our goals in this feasibility trial.

However, the process also revealed several important challenges and learning points that will help shape a future full-scale trial. Importantly, the study confirmed that the Pain-at-Work Toolkit can be used as a stand-alone resource, and that additional calls from an occupational therapist will not be necessary in a future definitive trial.

Through discussion with our PPIE partner and members of the public living with chronic pain, we agreed that queries raised by the small number of employees that accessed this opt-in provision can be answered through a ‘frequently asked questions’ section on the study website.

Reaching more SMEs

We used incentives and worked with a range of professional networks to engage small and medium-sized enterprises (SMEs). We met our feasibility criteria by recruiting one SME, although we would have liked more SMEs to have been sites in our trial. Nonetheless, we did engage with representatives from a further 8 SMEs as part of our external stakeholder interview study. The study therefore involved us working with 9 SMEs in total.

To reach more SMEs for participation in a future trial, we'll need tailored strategies that reflect their specific needs, limitations, and communication styles. This could include partnering with SME-focused groups such as local Chambers of Commerce, business improvement districts, and regional growth hubs. We could also collaborate with membership organisations like the Federation of Small Businesses (FSB), Make UK, or sector-specific trade associations, and work more closely with local enterprise partnerships (LEPs) and innovation networks.

During recruitment, we can better tailor our messaging to highlight practical benefits of the toolkit - such as improved employee wellbeing, reduced absenteeism, and increased productivity - while emphasising the low time and resource demands of participation.

Sharing case studies or testimonials from SMEs may also help build trust and relevance. Targeted outreach could include advertising in local business newsletters, LinkedIn groups, SME-focused podcasts, and presenting at regional business expos, breakfast briefings, or webinars. Social media campaigns with tailored content could further extend our reach.

Reaching diverse ethnic groups, men and non-binary individuals

Although most of our employees were White, we recruited individuals from 17 ethnic groups, although there were small numbers identifying with other ethnicities. We used gender-inclusive language in our recruitment and survey materials and targeted male-dominated sectors like construction and transport. Despite these efforts, most participants identified as women.

In a future trial, we could include testimonials or case studies featuring individuals from diverse ethnicities, men and non-binary individuals to make the trial feel more relatable. We could also partner with trusted organisations such as LGBTQ+ advocacy groups and men's health organisations. There may be opportunities to work more closely with diversity and inclusion leads within participating organisations to help promote the trial internally and encourage broader participation.

Improving follow-up survey completion

We used several strategies to encourage survey completion, including prize draw incentives and reminders via text and email. While our completion rates were strong, there's room to improve follow-up participation in future trials.

This could include shortening the surveys, sharing interim findings or participant stories to build trust and show impact, and updating participants directly rather than only organisational stakeholders. We could also involve stakeholders more actively in promoting survey completion. For example, by asking them to include reminders in team meetings or internal newsletters. In the feasibility trial, stakeholders helped with recruitment but were less involved in encouraging follow-up participation, so this is an area we could strengthen.

Conclusion for the feasibility trial

The Pain-at-Work Toolkit is the first evidence-based digital health intervention aimed at supporting the self-management of chronic or persistent pain at work.

The Pain-at-Work feasibility trial provides evidence for the feasibility and acceptability of both the intervention and the trial processes.

This study looked at whether it's practical to run a full-scale research trial to test how effective and cost-effective the Pain-at-Work Toolkit is for working adults who live with ongoing pain. The toolkit is designed to help people manage chronic pain in the workplace, with the goal of reducing health and social inequalities.

We found that it's possible to recruit and keep both organisations and employees involved in a cluster randomised trial. Employers and employees found both the toolkit and the trial process acceptable. The study also showed that we can successfully involve workplaces from the public, private, and third sectors, and reach a wide range of employee groups.

Although measuring changes in outcomes wasn't the main aim of this feasibility study, we saw early signs of improvement in work productivity, ability to work, and mood among those using the Pain-at-Work Toolkit after six months.

Overall, this trial helped us improve our research methods and understand how to use the Pain-at-Work Toolkit in real-world workplaces. The toolkit offers broad support for self-managing pain and has proven suitable for employees with different types of chronic pain across a variety of work settings in England.

Why Pain-at-Work is timely

The Keep Britain Working Review (2025), led by Sir Charlie Mayfield, examines the rise in economic inactivity due to ill health and sets out a strategy to help more people stay in, return to, and thrive at work.

It calls for a “healthy working life” approach, emphasising prevention, early intervention, better occupational health access, and shared responsibility between employers, government, and individuals to improve national productivity and wellbeing.

The Pain-at-Work Toolkit directly aligns in the following ways:

- Preventing deterioration and supporting work retention
- Promoting inclusive work and facilitated participation
- Supporting shared responsibility between employee, employer and system
- Making evidence-based, cost-effective provision
- Leveraging technological/digital pathways as enablers
- Improving occupational health accessibility and culture change

What comes next in our research plan?

A larger, full-scale trial is now needed to test how effective and cost-effective the Pain-at-Work Toolkit is in workplaces across the UK. Interest in taking part is already high - 18 organisations that weren't involved in the feasibility trial are currently on a waiting list to join our next study. The feasibility trial gave us valuable insights that will help shape the next phase. We now have a better understanding of how many participants are needed, how to work with different types of workplaces, which outcomes to measure, and how to assess costs and benefits.

In the next trial, we'll use new strategies to reach more SMEs and increase the diversity in our sample in terms of ethnicity and gender identification. We'll also use case studies, testimonials, and persona profiles (simple, fictional characters that represent the kinds of people who might take part) to help us connect with under-served organisations and employee groups.

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Authors' Contributions

HB conceived the study and HB and VA-F developed the intervention. HB, EW, PM, GT, DM, DAW, and KW-B contributed to the study design and secured funding for this research. HB and WJC secured the ethics approval. JH provided therapist advice. HB and VA-F oversaw PPIE activity. AF provided technical support for the intervention amendments. PM led the economics analysis, and WC, HB, DM and GT drafted the data analysis plan. WJC collected quantitative data, GT oversaw quantitative data analysis. WJC, AT and MN collected qualitative data, EW and HB oversaw qualitative analysis. HB drafted the final report with input from WJC, PM and VA-F. All authors read and approved the final version of the report.

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