

## Impact case study (REF3)

<b>Institution:</b> Royal Holloway, University of London		
<b>Unit of Assessment:</b> 4 Psychology, Psychiatry and Neuroscience		
<b>Title of case study:</b> Psychological research improves practice in the management of chronic pain		
<b>Period when the underpinning research was undertaken:</b> 2001-2016		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Tamar Pincus	Professor	1998 to date
<b>Period when the claimed impact occurred:</b> 2013-2020		
<b>Is this case study continued from a case study submitted in 2014?</b> N		
<b>1. Summary of the impact</b>		
<p>Low back pain is a leading global cause of disability, with wide-ranging consequences for productivity and the economy. Professor Pincus' research on the psychology of chronic pain has informed UK healthcare policy, including NICE guidelines, and has shaped projects by the Department of Work and Pensions aimed at returning people to work. It has also underpinned changes to UK and USA hospital triage and referral systems and informed clinical training to over 800 practitioners, reaching patients in nine countries. Pincus' research has improved patients' and practitioners' understanding of pain and wellbeing via online communities.</p>		
<b>2. Underpinning research</b>		
<p>Chronic musculoskeletal pain conditions are extremely common, with low back pain being a leading cause of disability worldwide. In addition to personal suffering and a high clinical burden, these conditions are also extremely costly to society. Back pain alone accounts for 40% of sickness absence in the NHS and costs the UK economy GBP10,000,000,000 per year. Professor Pincus contributes psychological research on the relationship between pain and depression within interdisciplinary teams that include doctors, physiotherapists and osteopaths from external institutions, including Bath University and Oxford Health Authority (<b>R1-6</b>). This research is award winning (2017; <i>Journal of Orthopaedic &amp; Sports Physical Therapy</i>). It combines interviews and questionnaires with experimental methods and randomised controlled trials to understand how psychological distress should be taken into account when treating chronic pain. It has been funded continuously since 2000. In 2019 alone, the research attracted GBP540,573 in funding from both NIHR and Versus Arthritis.</p> <p>Evidence from Professor Pincus' research suggests that psychosocial factors such as depression, fear and avoidance are robust predictors of the transition from the early stages of pain to chronic disability. Recognising and responding to these psychological risk factors can improve treatment and prognosis, and reduce healthcare costs. Two research streams underpin Pincus' impact: (a) a comprehensive understanding of the impact of mood and beliefs on the experience of pain; and (b) the development and testing of interventions to address these factors. The main messages from the research are:</p>		
<ol style="list-style-type: none"> <li>1. It is essential to identify which patients with pain are also experiencing psychological risk factors (such as depression, fear, and avoidance) to prevent the progression to chronic disability.</li> <li>2. For people living with pain who are also distressed, it is essential to treat the distress as part and parcel of the pain experience, rather than medicalising the distress into a psychiatric co-morbidity.</li> </ol>		

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In 2002, Professor Pincus led a systematic review in collaboration with colleagues from the Spinal Research Unit, University of Huddersfield, The British School of Osteopathy, London, and the University of Sussex (**R1**). This review was the first to quantify evidence showing that psychological factors are risk factors for the transition from new onsets of pain to chronic pain. The review found evidence that depression is a risk factor for long-term low back pain. Several experimental studies (including **R2**) have clarified that pain-related distress is qualitatively different from clinical depression. This resulted in the development of a reliable and valid measure called DAPOS, or the Depression, Anxiety, and Positive Outlook Scale (**R3**).

Professor Pincus' research on consultation-based reassurance (including **R4**) has resulted in a model and training programme for clinicians, including physiotherapists, osteopaths, chiropractors, and spine specialists. Pincus led the Multinational Musculoskeletal Inception Cohort Study (MMICS; **R5**), a large international consortium study. MMICS developed recommendations on the risk factors and outcomes that should be included in studies that assess the progression of low back pain to chronic disability.

Since 2001, Professor Pincus has been the lead researcher or senior psychologist on seven clinical trials in the UK and Israel (combined  $N = 3,177$ ). These trials have assessed interventions for musculoskeletal pain and other chronic health conditions. These trials show that psychological interventions improve quality of life and are cost-effective (**including R6**).

### 3. References to the research

The following are all published in peer-reviewed journals with high standing in the field, a clear indicator that the research is significant, and conducted with high levels of rigour and originality. We report citations from Google Scholar from the date of publication to 31.12.2020, along with other indicators of quality where relevant.

**R1. Pincus, T.,** Burton, K., Vogel, S., & Field, A. P. (2002). A systematic review of psychological factors as predictors of chronicity/disability in prospective cohorts of low back pain. *Spine*, 27(5), E109-E120. <https://doi.org/10.1097/00007632-200203010-00017>. 1720 citations. Full version available from HEI on Request.

**R2. Pincus, T.,** & Morley, S. (2001). Cognitive-processing bias in chronic pain: a review and integration. *Psychological Bulletin*, 127(5), 599-617. <https://doi.org/10.1037/0033-2909.127.5.599>. 548 citations, included in RAE 2008. Full version available from HEI on Request.

**R3. Pincus, T.,** de C Williams, A. C., Vogel, S., & Field, A. (2004). The development and testing of the depression, anxiety, and positive outlook scale (DAPOS). *Pain*, 109(1), 181-188. <https://doi.org/10.1016/j.pain.2004.02.004>. 73 citations, included in RAE 2008. Full version available from HEI on Request.

**R4. Pincus, T.,** Holt, N., Vogel, S., Underwood, M., Savage, R., Walsh, D. A., & Taylor, S. J. C. (2013). Cognitive and affective reassurance and patient outcomes in primary care: a systematic review. *Pain*, 154(11), 2407-2416. <https://doi.org/10.1016/j.pain.2013.07.019>. 136 citations. Full version available from HEI on Request.

**R5. Pincus, T.,** Santos, R., Breen, A., Burton, A. K., & Underwood, M. (2008). A review and proposal for a core set of factors for prospective cohorts in low back pain: a consensus statement. *Arthritis Care & Research: Official Journal of the American College of Rheumatology*, 59(1), 14-24. <https://doi.org/10.1002/art.23251>. 129 citations.

**R6. Taylor, S. J. C.,** & **Pincus, T.** (2016). Novel three-day, community-based, nonpharmacological group intervention for chronic musculoskeletal pain (COPERS): A randomised clinical trial. *PLOS medicine*, 13(6), 1-18. [e1002040]. <https://doi.org/10.1371/journal.pmed.1002040>. 39 citations, included in REF 2021. Full version available from HEI on Request.

### 4. Details of the impact

Professor Pincus' research on the psychological risk factors for musculoskeletal chronic pain has led to wide-ranging international change in the clinical treatment and wellbeing of patients

who suffer from, or are at risk of, chronic pain. There have been five key areas of impact: **(1) changes to UK health policy; (2) changes to NICE guidelines; (3) changes to hospital triage and screening systems; (4) benefits for patients via clinical practice; and (5) benefits for patients via online resources.**

### **Changes to UK health policy**

Professor Pincus has worked closely with the Work and Health Unit since it was established by the Cabinet Office in 2015 **(E1 to 2)**. The Work and Health Unit combines personnel from the Department for Work and Pensions, the Department of Health and Social Care, and NHS England. Since 2017, the Work and Health Unit has been running a ten-year programme to halve the discrepancy in employment status for healthy and disabled groups. This programme aims to support people with chronic musculoskeletal pain to return to work. It implements Pincus' research demonstrating that fear of returning to work is a risk factor for chronicity in low back pain.

By working with the Work and Health Unit, Professor Pincus has informed civil servants, researchers, senior NHS England staff and policymakers who are shaping the design of major new trials. For example, Pincus contributed to a 2017 Work and Health Unit project on barriers to staying in or returning to work with musculoskeletal pain. A former Policy Advisor for the Cabinet Office, states that Professor Pincus' advice *"significantly increased [their] knowledge of the psychological aspects of musculoskeletal pain"* and *"influenced [their] understanding of the ways in which [communication] barriers can prevent patients from returning to work"* **(E3)**.

Professor Pincus serves as an expert advisor on the Work and Health Unit's Individual Placement and Support Grow project (since 2018), which develops and tests return to work interventions with NHS England. Based on her recommendations, the Individual Placement and Support Grow team changed and improved their guidance. A toolkit was also developed as part of the project. The most important change was to include quality of life measures, which had been omitted from the initial toolkit. Other improvements included advice on staff recruitment and training. The programme lead states: *"[text removed for publication]."* **(E2)**.

### **Changes to NICE guidelines for chronic pain in adults**

Professor Pincus led interdisciplinary research to develop the Depression, Anxiety, and Positive Outlook Scale, or DAPOS. The DAPOS has been translated into eight languages (e.g., Russian and Afrikaans), and is used in routine practice in the NHS (e.g. UCH's INPUT programme). Pincus' work has motivated two recommendations in NICE guidelines **(E4.1)**: (a) that clinicians assess patients with chronic pain for levels of distress; and (b) that they refer patients with high levels of distress for Cognitive Behavioural Therapy. These changes to NICE guidelines have resulted in psychological screening being routinely carried out in primary care. Cognitive Behavioural Therapy continues to form part of the NICE guidelines for chronic pain in the latest consultation document **(E4.2)**.

### **Changes to hospital triage and screening systems in the UK and USA**

Professor Pincus has worked directly with two NHS trusts in the UK (Hampshire, Berkshire) and a hospital in the USA (the New York University Hospital for Joint Disease) to implement new care systems based on recommendations from the MMICS consortium that she led **(R5)**.

In the UK, the NHS has implemented a new triage system, and new training and referral procedures in Hampshire and Berkshire hospitals. For example, in Hampshire, Professor Pincus' research has contributed to the implementation of a new project to revise the spinal care service pathway. [text removed for publication], consultant spine surgeon, and a physiotherapist from NHS Hampshire state: *"[text removed for publication]"* Approximately [text removed for publication] patients per month have been receiving this improved service since 2015 **(E5)**.

In the USA, Professor Pincus collaborated with the Occupational and Industrial Orthopaedic Center at the NYU Hospital for Joint Disease who, as a result, now implement new screening, follow-up and discharge questionnaires. [text removed for publication] e Center, stated that her

*“[text removed for publication]”*. He noted that the Center uses the new data to monitor trends in patient outcomes and physical therapists use the scores to identify the best course of patient treatment and make referrals for cognitive-behavioural pain management **(E6)**. Around 700 patients per year benefit from this new evidence-based approach to triage and referral.

#### **Benefits for patients via clinical practice (professional training)**

Professor Pincus’ research has led to new interventions based on psychologically-informed models of chronic pain. These interventions informed the 2016 NICE guidelines for back pain **(E4.1)**. Across several clinical trials, these new interventions increased Quality-Adjusted Life Years compared to usual practice. Based on the success of these interventions, Pincus provides in-depth training courses in psychologically-informed practice for physiotherapists, surgeons and other spine practitioners. Since 2015, Pincus has trained over 800 practitioners in nine countries: the UK, USA, South Africa, Israel, Denmark, Norway, Sweden, Switzerland and France. The training has been shown to save GBP41.86 per patient per Quality-Adjusted Life Year through reduced use of medication and clinical appointments **(E7)**. Of the 264 attendees who have provided feedback **(E8)**, more than 90% of respondents indicated that the training increased their understanding of psychological factors, confidence in implementing this knowledge, and reported that they would change their clinical practice.

#### **Benefits for patients via online resources**

Pincus was the Chair of Patient Line between 2015 and 2018, a website developed by EuroSpine (an association of European spine clinicians from 29 nations). The Director of Education and Research at EuroSpine **(E9)** states that Patient Line delivers *“evidence-based information to patients in a language that can be understood. Prof. Pincus leads this committee and is the driver for creating the website and its content especially the sections on psychology which are directly based on her own research”*. Resources on the website include text, diagram and video explanations about psychological factors and all are informed by Pincus’ research. Patient Line has been translated into 14 languages, and is visited 11,000 times per month. The Director of Education and Research at EuroSpine states *“Since then [Oct 2017], the website was visited more than 11’000 times with hits of more than 25’000 from more than 25 countries around the world.”* **(E9)**.

Professor Pincus also engages with patients through online videos, interviews and webinars. Her YouTube video “Pain and Me”, which communicates a psychological model of pain through accessible metaphors, has been watched over 49,000 times **(E10)**, with one viewer noting *“this has been so helpful to me in helping my loved ones understand how my RSD/CRPS pain truly affects me”*. Subtitle translations have been added to the Pain and Me video (e.g. Czech, Turkish, Persian, Hebrew and, Afrikkans), other videos feature subtitle translations including French, German and Portuguese.

### **5. Sources to corroborate the impact**

#### **E1. Testimonial from [text removed for publication]**

Letter from [text removed for publication] Work & Health Unit, Department of Work and Pensions detailing Pincus’ involvement with IPS grow (02/2018)

#### **E2. Testimonial from [text removed for publication]**

Letter from [text removed for publication] in Health Trials, Department of Work and Pensions detailing Pincus’ involvement with IPS Grow (09/2018)

#### **E3. Feedback from the Cabinet Office (24/8/2017)**

#### **E4. Combined NICE guidelines**

- 1) NICE guidelines (2016) on low back pain and sciatica: this references Pincus’ publications (reference 1)
- 2) NICE draft consultation guidelines (2020) Chronic pain in over 16s: assessment and management

#### **E5. Testimonial from [text removed for publication] and colleague at NHS Hampshire**

Letter from a physiotherapist and [text removed for publication] (consultant spine surgeon) detailing how Pincus’ work has changed their practices (10/2015)

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**E6. Communication from [text removed for publication]**

Communication from [text removed for publication] Occupational & Industrial Orthopaedic Center, NYU Hospital for Joint Disease, detailing the changes to practise due to the MMICS Project (09/2015)

**E7. Cost-effectiveness of ETMI training**

Academic paper that details calculations for determining savings per Quality Adjusted Life Year.  
<https://bmjopen.bmj.com/content/bmjopen/8/4/e019928.full.pdf>

**E8. Feedback database**

PDF Spreadsheet data containing feedback from trainees

**E9. Testimonial from Julie-Lyn Noel**

Letter from Julie-Lyn Noel, Director of Education and Research at EUROSPINE detailing Pincus' work with EUROSPINE and Patient Line (11/2017).

**E10. Pain and Me video, hosted on YouTube – 47,521 views as of 14/12/2020**

Link and screenshot of YouTube video detailing view count <https://www.youtube.com/watch?v=ZUXPqphwp2U>