UCD Centre for Translational Pain Research

2nd Scientific Meeting

Wednesday 24th May 2017

Health Science Centre, University College Dublin
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Keynote Speakers

Professor Tim Flynn

Dr. Flynn is board certified in Orthopaedic Physical Therapy (OCS), a Fellow of the American Academy of Orthopaedic Manual Physical Therapists (FAAOMPT), and a frequent presenter at state, national, and international meetings. Dr. Flynn is widely published including 5 textbooks, 6 book chapters, over 75 peer-reviewed manuscripts on orthopaedics, biomechanics, and manual therapy issues. Awards include the James A. Gould Excellence in Teaching Orthopaedic Physical Therapy, Richard W. Bowling – Richard E. Erhard Orthopaedic Clinical Practice Award, the Steven J. Rose Excellence in Research (twice), the AAOMPT Outstanding Research Award (twice), and the Distinguished Alumnus- Marquette University Program in Physical Therapy. Dr. Flynn is a past President of the American Academy of Orthopaedic Manual Physical Therapists and an Associate Editor for the Journal of Orthopaedic & Sports Physical Therapy (JOSPT). Dr. Flynn is a principal in Evidence in Motion (EIM) an educational company dedicated to elevating the physical therapy profession. He is an owner and maintains an active clinical practice focusing on chronic pain disorders at Colorado Physical Therapy Specialists. Dr. Flynn is a Professor in the EIM School of Physical Therapy at South College in Knoxville, TN where he teaches in the area of musculoskeletal management, chronic pain, and evidence based practice.
Nóirín Nealon Lennox is a Practitioner Health Psychologist and ACT trainer. She has specialised in working with people with chronic pain for over a decade. She is a member of the British Psychological Society (BPS) and currently sits on the committee for the Division of Health Psychology (DHP) with the Psychological Society of Ireland (PSI). She is also a member of the Association for Contextual and Behavioural Science (ACBS).

Nóirín has been coordinating and delivering Pain Rehabilitation Programmes for Rheumatology Services in hospitals since 2006. She specialises in a combined Cognitive Behavioural Therapy (CBT) and Acceptance and Commitment Therapy (ACT) approach for patients with chronic pain. Having originally trained in ACT at the Royal National Hospital for Rheumatic Diseases (RNHRD) in Bath, UK, she continued to develop her practice and trained with the founding members of ACT. More recently, she was commissioned by the HSCP to deliver ACT training to healthcare professionals throughout Ireland. She is also certified in motivational interviewing (MI) and mindfulness based stress reduction (MBSR), and continues to develop and deepen her own personal mindfulness practice. She has carried out research examining the processes and outcomes of ACT rehabilitation for patients suffering with chronic pain and she has presented her research at Psychology and Rheumatology Conferences in Ireland and Europe. She holds a part time lecturing post at the Graduate Entry Medical School (GEMS) at University Limerick and is an Associate Fellow of the Higher Education Authority, UK.
Caroline Mitchell

Caroline Mitchell is a Registered Advanced nurse Practitioner in Chronic Pain Management working in Galway University Hospital.

Caroline completed a Higher Diploma in Clinical Practice Pain Management in University College Dublin and an MSc in Pain Management in University of Wales College of Medicine. She registered as an Advanced Nurse Practitioner in October 2015.

Caroline has been working in the area of Pain Management for the last 13 years. She specialized in Acute/Chronic pain for 10 years and then transferred to working specifically in chronic pain on a fulltime basis for the past 3 years.
Dr. Hugh Gallagher MB, BCh, NUI, FFA, FRCI

Dr Gallager is a consultant anaesthetist in St. Vincent’s University Hospital Dublin and St. Colmcille’s hospital, Louglinstown. He gained his title of Bachelor of Medicine and Bachelor of Surgery from National University of Ireland, followed by specialist training in Anaesthesia.

His clinical and research area of interest is in the field of pain medicine. Currently Dr. Gallagher is a Board Member of the College of Anaesthetists Faculty of Pain Medicine and Hon. Treasurer of the Irish Pain Society.
Oral Presentations

01

THE development of SPIRE: An internet delivered cognitive behavioural therapy management programme for people with chronic pain after spinal cord injury.

Dearbhla Burke, BSc1, Olive Lennon, PhD1,2, Brona M. Fullen, PhD1,2

UCD School of Public Health, Physiotherapy and Sports Science, Health Science Centre, University College Dublin, Belfield, Dublin 41

UCD Centre for Translational Pain Research, University College Dublin, Belfield, Dublin 42

Background: Cognitive behavioural therapy pain management programmes (CBT-PMPs) are considered optimal in treating chronic pain, a common sequela after spinal cord injury (SCI), with recommendations that specialised SCI programmes be developed. Due to the lack of availability of such programmes, and the promising efficacy of internet based CBT-PMPs [2,3] this warranted investigation for individuals with SCI.

Aims: To develop an internet-delivered CBT-PMP (SPIRE) using a co-design process.

Methods: Ethical approval was received. A tested CBT-PMP for SCI was adapted to an internet-delivered programme SPIRE, comprising six modules. Two modules were reviewed by key stakeholders (clinicians, researchers, those with SCI pain). Individual feedback was obtained from clinicians and researchers via email and telephone. Semi-structured interviews were conducted with participants with SCI pain by telephone or in focus groups. The battery of open-ended questions developed, investigated the overall impression of the programme. Interviews were analysed thematically. In addition those with SCI pain anonymously completed a system usability scale (SUS).

Results: Specialists in SCI (n=2), chronic pain (n=2) and e-learning reviewed SPIRE, and provided email (n=6) and telephone (n=1) feedback. Overall, feedback was positive and areas identified for improvement included i) sound and video quality ii) availability of printed support material and iv) further explanation of central pain mechanisms.

Nine adults with SCI pain reviewed SPIRE; three of whom had completed a CBT-PMP. Interviews took place by phone (n=4) or in focus groups (n=2 and n=3). Overall feedback was positive. Three major key themes emerged surrounding programme i) content, ii) mechanics and iii) improvements (emphasis on individuality of users and a helpline). Five participants completed the SUS with a total mean score of 86 (sd 17) indicating excellent usability.

Conclusions: This study collated feedback on a prototype internet-delivered CBT-PMP, from key stakeholders to inform the final SPIRE development phase.

Funding: This study was supported by an Irish Society of Chartered Physiotherapists research bursary and a Health Informatics Society of Ireland research bursary.

02

The Impact of a Health Literacy-Sensitive Intervention for Chronic Pain Patients attending a Cognitive Behavioral Pain Management Programme: A Pilot Study

Laura Mackey1, Catherine Blake5, Camillus Power2, Brona Fullen1,3

1. School of Public Health, Physiotherapy, and Sports Science, University College Dublin., 2. Department of Pain Medicine, Adelaide and Meath Hospital, Tallaght., 3. Centre for Translational Pain Research, University College Dublin.

Background: Given the modest long-term improvements observed in those attending a cognitive-behavioural pain management programme (CBT-PMP), researchers have called for further investigation regarding how and why such interventions are effective for some, and not for others. Health literacy (HL) is known to impact on self-management, an important component of long term pain management. Therefore, this pilot study aimed to explore the efficacy of embedding a HL-sensitive (HL-S) component to an existing CBT-PMP.

Methods: A mixed-methods approach was utilised: quantitative data collection involved a battery of validated questionnaires, and qualitative analysis was conducted via semi-structured interviews. Patients attending a CBT-PMP completed the questionnaires and interviews at two time points – at the beginning and end of the CBT-PMP. A HL-S component, which involved Plain English strategies and a HL workshop for CBT-PMP staff was implemented half way through the study.

Results: Overall, 28 patients took part, with one half (n=14) completing the usual care CBT-PMP, and the other half (n=14) a HL-S CBT-PMP. Quantitative findings showed that those attending the HL-S
CBT-PMP had improved SF-36 scores and beliefs about pain control, post intervention. Qualitative analysis revealed further improvements in those attending the HL-S CBT-PMP, including greater disease-related knowledge, reduced feelings of hopelessness, greater confidence in implementing new skills learnt, and more positive beliefs, regardless of prior HL level.

**Conclusions:** The implementation of a HL-S component to an existing CBT-PMP results in improved health outcomes for chronic pain patients of all HL levels. However, further research on the long term implications of this approach is necessary.

**Funding Source:** This research was supported by The Meath Foundation, Adelaide and Meath Hospital Tallaght.

### 03

**Physiotherapist-led triage of patients with thoracic spine pain in an orthopaedic and rheumatology musculoskeletal assessment clinic: a service evaluation of activity and outcomes.**

Smyth C1,2, Smart K3, Fitzpatrick M, Caffrey A3, McLoughlin C3, Doody C3

1Physiotherapy Department, Downe Hospital, Downpatrick, Co Down. 2School of Public Health, Physiotherapy & Population Science, University College Dublin, 3Allied Therapy Suite, St Vincent’s University Hospital, Dublin

**Background:** Thoracic spine pain and dysfunction (TSPD) has much received less attention in the published literature compared to the lumbar and cervical region, and it’s clinical profile is not as well defined, creating challenges for differential diagnosis of the region.

**Aims:** The purpose of this study was to investigate people referred to the Musculoskeletal Assessment Clinic in St Vincent’s University Hospital, Dublin with TSPD and to report on their (a) demographics, (b) categories of TSPD diagnoses (c) investigations ordered and (d) final management.

**Methods:** The SVUH Clinical Audit Board approved this retrospective service evaluation of TSPD patients triaged by clinical specialist physiotherapists (CSPs) between August 2012 and October 2015. Data were analyzed using descriptive statistics with SPSS version 20.

**Results:** 88 patients (1.7% of patient referrals), mean age 36.66 years (SD=16.51 years, 30 (34.1%) male) with TSPD were referred to the MAC over 37 months. The clinical diagnoses of the CSPs were subcategorized into 6 categories. The majority (69.3%) were categorized as non-specific thoracic spine pain (NSTSP), 18.2% as Structural, 4.5% as Fracture, 3.4% as Discogenic, 3.4% as Spondyloarthropathy and 1.1% as Syringomyelia. Investigations were ordered for 59.1%, X-Ray being most frequent (40.8%), followed by MRI (25%), Blood tests (19.1%), DEXA 7.9%, CT (3.9%) and Bone Scan (2.3%). Reasons for investigation included to ‘quantify structural deformity’ (26.9%), due to worsening / persisting symptoms (23.1%), and in 4.6% of cases to investigate the presence of Red Flags. 79.5% of patients were independently managed by the CSPs, and 15.9% were referred to specialist consultant care.

**Conclusion:** The results of this audit suggest that NSTSP may be as prevalent as in the lumbar region. Clinical caution related to TSPD needs to be further investigated in order to refine its clinical profile and help inform triage of these patients.

### 04

**Acceptance and Commitment Therapy (ACT) and Exercise for Chronic Pain: A Qualitative Study**

Maire-Brid Casey1,2, Louise Smyth3, Katie Farrell1, Aisling Feeley1, Deirdre Kearney1, Alexandra Hernan1, Catherine Doody3

1 School of Public Health, Physiotherapy and Sports Science, University College Dublin, 2Mater Misericordiae University Hospital, Dublin

**Background:** There is increasing evidence to support the use of ACT and also for physical activity, for people with chronic pain. The majority of studies in relation to ACT and physical activity have been quantitative in design, with only one qualitative study carried out to date.

**Aim:** The aim of this study was to explore the individual experiences of people with chronic pain who had completed 9-week group based multidisciplinary ACT Pain Management Programme (APMP) outpatient pain management programme, consisting of an ACT and physical activity multidisciplinary programme.

**Method:** Individual face to face semi-structured interviews were carried out with five participants who had attended the APMP by researchers with no connection to the programme. Interviews were
audio recorded and transcribed verbatim. The analysis of the interviews involved using a thematic analysis and the emerging themes were discussed and agreed by the research team.

**Results:** Six main themes were derived from the data which related to (1) The value of the group in terms of learning from one another and realising you are not alone with chronic pain (2) The lack of understanding from family, friends and some health professionals (3) A change in attitudes towards acceptance and a moving towards pain (4) Taking action towards greater alignment of personal values with activities of daily living (5) Improved pain management strategies (6) Barriers and facilitators to ongoing Physical Activity.

**Conclusion:** This study gives a unique insight into patients perspectives and experiences following completion of an APMP which included learning to accept chronic pain and moving towards action to live a valued life in the presence of persistent pain. Future qualitative studies are required to further investigate the in-depth experiences of APMP participants.

**05 Participation restrictions and limitations experienced by people with a disabling musculoskeletal condition in Ireland**

Conor Rothwell1, Andy Cochrane1, Anne Doyle2, Pamela Gallagher3, Oliver FitzGerald4, Deirdre Desmond1

1 Department of Psychology, Maynooth University, Ireland 2 National Health information Systems, Health Research Board, Ireland
3 School of Nursing and Human Sciences, Dublin City University, Ireland 4School of Medicine and Medical Sciences, University College Dublin, Ireland

**Background:** Individuals with musculoskeletal pain conditions experience many restrictions on daily living activities. There has been limited research on this in an Irish context.

**Aims:** To profile activity and participation restrictions among Irish adults with musculoskeletal pain disorders using measures based on the International Classification of Functioning, Disability and Health (ICF).

**Methods:** Secondary data sourced from the National Physical and Sensory Disability Database (NPSDD). Data on barriers and challenges, activity participation, and WHODAS scores extracted for 416 participants. Participants grouped according to musculoskeletal diagnosis (inflammatory vs. non-inflammatory) for comparison purposes.

**Results:** 244 (59%) participants had an inflammatory musculoskeletal diagnosis. 74% (n=306) of the sample were female and the mean age was 53.06yrs (SD=11.42). Both diagnostic groups reported high levels of restriction across the life activities measured. The non-inflammatory group reported significantly higher levels of participation restrictions for family life (p<0.001), living with dignity (p=0.003), and leisure/cultural activities (p=0.001). The most common environmental barriers and challenges across diagnostic categories were climate and weather, the physical environment, and income. The WHODAS total score for the whole group were relatively high (M=15.97, SD=9.26). There were no significant differences between diagnostic or gender groups for WHODAS domain, or total scores.

**Conclusion:** Musculoskeletal pain conditions are having a considerable impact on the ability of this group of individuals to participate and remain active in life activities. Social and environmental barriers exacerbate these restrictions further.

**06 The role of pain sensitization in young adults with shoulder pain**

M Clarke1, C Gilsenan1, H Mullett1 and C Doody2

Beaumont Hospital Dublin1, University College Dublin2

**Objectives:** The aim of this study was to investigate for the presence of pain sensitisation in young adults with non-traumatic shoulder pain compared to an age and gender matched control group.

**Methods:** 14 patients with shoulder pain and 14 age and gender matched pain-free controls were assessed by methods of quantitative sensory testing (pressure-pain thresholds, mechanical temporal summation), tests for neural mechanosensitivity and questionnaires (shoulder pain and disability index, central sensitisation inventory and beighton hypermobility score). Quantitative sensory testing was carried out at a local (acromian), distal (brachioradialis) and remote
(tibialis anterior) site. Pairwise comparisons using Wilcoxon signed-rank tests were used for within group and between group comparisons. Bivariate correlation analysis was conducted using Spearman’s rho analysis between questionnaires/quantitative sensory testing variables.

**Results:** Significantly reduced pressure-pain thresholds and enhanced temporal summation were observed between the symptomatic and asymptomatic side in the clinical group (p<0.021) and between the symptomatic side of the clinical group and the control group at both local, distal and remote sites (p<0.013). Significant differences for nerve palpation were observed between sides in the clinical group (p<0.003) and between the affected side of the clinical group and the control group (p<0.005). No significant associations were observed between hypermobility (using Beighton questionnaire) and any measures of pain sensitisation (p>0.05).

**Conclusion:** The results of this pilot study demonstrate features of both peripheral and central sensitisation in this population. Further research is required to make determinations about the association between hypermobility in this population and level of pain sensitisation. This research is novel in that these features have not been described in the younger population to date.

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**The importance of the clinician-patient interaction on outcomes in musculoskeletal pain: a systematic review.**

John Hurley¹, Dr. Helen Purtill², Dr. Karen McCreesh¹, Irene Leahy¹, Mary O’Keeffe¹, Aoife Synnott¹, Prof. Peter O’Sullivan³, Dr. Kieran O’Sullivan¹.

¹Clinical Therapies, University of Limerick, Limerick, Ireland. ²Department of Statistics, University of Limerick, Limerick, Ireland. ³School of Physiotherapy and Exercise Science, Curtin University of Technology, Perth, Australia.

**Background:** Clinicians and patients have commonly reported that the clinician-patient interaction is an important factor in the outcome of musculoskeletal pain. Numerous studies have shown that clinician-patient interaction has a positive effect on pain and disability after rehabilitation. However, it remains unclear the magnitude of effect of the clinician-patient interaction on pain and disability outcomes for musculoskeletal pain.

**Aim:** This systematic review aimed to determine the magnitude of effect of the clinician-patient interaction on musculoskeletal pain outcomes.

**Methods:** This review was registered on the Prospero register (CRD42015025440). Nine electronic databases were searched by two authors independently. The search strategy used keywords relating to; (i) interaction, (ii) clinicians, (iii) patients and (iv) pain or disability. Studies were included if they measured the clinician-patient interaction and its association with pain or disability outcomes for musculoskeletal pain. Data regarding patient characteristics, description of rehabilitation, sample size, data collection methods, study aims and key findings were extracted by two independent authors.

**Results:** Eight studies (1665 participants) met the inclusion criteria. Studies were not sufficiently homogeneous to conduct a meta-analysis. Participants who rated their interaction with the clinician as positive were more likely to rate their outcome as positive. Participants who engaged in more negative rapport building with their clinician were more likely to have a negative after three months.

**Conclusions:** The clinician-patient interaction has a small positive effect on pain and disability outcomes for musculoskeletal pain. Studies used a variety of tools and methods to measure the clinician-patient interaction making it difficult to draw comparisons between studies.

**Funding:** JH was funded by the Irish Research Council to carry out this study (PhD).
Changes in Physical Function following a Cognitive Behavioural Pain Management Programme in St Vincent’s University Hospital.

1 O. Mulkerrin, 1, 2 C. Blake, 3 P. Murphy, 3 H. Gallagher, 3 R. Victory, 3 R. Walsh, 3 M. Bailey, 3 B. Brennan & 1, 2 B.M Fullen.

1 UCD School of Public Health, Physiotherapy and Sports Science, Health Sciences Centre, University College Dublin, Dublin 4, Ireland. 2 UCD Centre for Translational Pain Research, University College Dublin, Dublin 4, Ireland. 3 Department of Pain Medicine, St. Vincent’s University Hospital, Elm Park, Dublin 4.

Background: Multi-disciplinary team led cognitive behavioural therapy pain management programmes (CBT PMPs) have become international best practice for the management of chronic pain with efficacy established in the literature (Taylor et al., 2016; Wilkinson and Whiteman, 2017) (Monticone et al., 2014). Programmes focus on self-management, cognitive restructuring, mindfulness, progressive muscle relaxation, pain education, coping skills, skill acquisition, maintenance techniques and goal setting.

Aims: To establish changes in physical and psychological function in patients attending the CBT-PMP at a Dublin Teaching Hospital.

Methods: Consenting patients attending PMPs completed a battery of questionnaires; the British Pain Society Questionnaire (BPS), the Hospital Anxiety and Depression Scale (HADS), the Fear Avoidance Belief Questionnaire (FABQ), the Oswestry Disability Index (ODI), Visual Analog Scale (VAS) and the Tampa Scale of Kinesiophobia (TSK).

Physical function tests included the 6 minute walk test (6MWT), the 360 roll, 5 x Sit to Stand test (5 x STS), and the one minute Step test (ST). All measures were issued pre and post-PMP and at the six week follow up review.

Results: Preliminary results on 16 participants; male (n=4, female n=12) with a mean age of 46.62 (SD ±13.25, range 25-75 years). Statistically significant changes were found in the 360 roll (p=0.006), and ST(p=0.001). However, no significant improvements were found for FABQ physical scale (p=0.39), FABQ work scale (p=.180), ODI (p=1.25),6MWT (p=0.22) HADS anxiety (p=1.000), depression (p=0.754),VAS (p=0.135),BPS pain relief (p=1.000),TSK (p=0.668) and 5 x STS.

Conclusion: Preliminary results show promising improvement in objective physical function measures. However they also highlight the difference between self-report and objective physical function measures underlining the importance of including both in CBT-PMPs.

Continuing to work with chronic musculoskeletal pain – a qualitative study of workers’ experiences

Andy Cochrane1, Conor Rothwell1 Oliver FitzGerald2, Pamela Gallagher3, Jennifer Ashton4, Roisin Breen5, Aisling Brennan6, Oriel Corcoran7, Deirdre Desmond1.

1 Department of Psychology, Maynooth University, Ireland 2 School of Medicine and Medical Sciences, University College Dublin, Ireland 3 School of Nursing and Human Sciences, Dublin City University, Ireland 4 Physiotherapy Services, Beaumont Hospital, Ireland 5 Royal College of Physicians in Ireland 6 Physiotherapy Services, AMNCH, Ireland 7 Rheumatology Services, Waterford Regional Hospital, Ireland

Background: Many adults experience musculoskeletal pain at some point in their lives. While the majority are able to remain at work or return after a short period of sick leave, less is known about the experience of those with chronic musculoskeletal pain who remain occupationally active relative to those who are on long-term sick leave.

Aims: To explore the enablers and possible barriers to staying at work amongst people experiencing musculoskeletal pain.

Methods: Semi-structured interviews conducted with 18 individuals who had attended musculoskeletal assessment clinics in three Irish hospitals within the last year. The interviews were audio-recorded and transcribed verbatim. Data was analysed using thematic analysis.

Results: The workers ranged in age from 27 to 64 years, the majority were female (n = 13). A third of the participants (n= 12) had pain-related symptoms for over three years. All but three were continuing to work, even though they were experiencing pain and some functional limitations. The
value of work, both personally and financially, motivated people to continue to work. Being able to organise workload and make modifications to their work practices enabled people to maintain an acceptable level of work performance. Not all co-workers and supervisors understood their needs, and some interviewees were concerned about their job security if they asked for assistance or took sick leave. Pain and the associated fatigue had a considerable impact on life outside of work, with interviewees reporting negative effects on family life and reduced participation in social activities.

**Conclusion:** While continuing to work is undoubtedly beneficial in some respects, maintaining work performance may have potentially negative outcomes for life outside of work. Workers with musculoskeletal conditions may benefit from interventions that focus on pain and fatigue management, as well as those that raise awareness of their needs amongst employers.

**Declarations:** This research is funded by the Health Research Board [RCQPS-2014-2].

**Changes in physical function following a cognitive behavioural pain management programme : A systematic review.**

O. Mulkerrin, 1,2 C. Blake, 3 P. Murphy, 3 H. Gallagher, 3 R. Victory, 3 R. Walsh, 3 M. Bailey, 3 B. Brennan & J.2 B.M Fullen.

1 UCD School of Public Health, Physiotherapy and Sports Science, Health Sciences Centre, University College Dublin, Dublin 4, Ireland. 2 UCD Centre for Translational Pain Research, University College Dublin, Dublin 4, Ireland. 3 Department of Pain Medicine, St. Vincent's University Hospital, Elm Park, Dublin 4.

**Aim:** This systematic review aimed to determine the changes in patients level of physical function following participation in a cognitive behavioural therapy pain management programme (CBT PMP).

**Methods:** The review comprised three phases: a methodological assessment of the databases (Medline, EMBASE, Psych INFO, BIOSIS, PubMed and CINAHL) identified potential papers for inclusion based on a battery of key words and pre-determined criteria (randomised controlled trials, adults >18 years and PMP’s with a CBT PMP’s). Phase 2 and 3 involved screening and data extraction. The Cochrane Risk of Bias tool categorised papers as having a low, medium or high risk of bias.

**Results:** The search generated 30 papers with CBT PMP’s ranging from two to 10 weeks with follow-up sessions at two to 24 months. A wide variety of outcome measures were used to assess physical function; self-report (n=4) and objective (n=8). Self-report measures assessing disability, pain, physical ability, and pain interference with daily activities were included. Objective measures included spinal range of motion, ability to lift, shuttle walk and a range of fitness tests. There was consistent evidence that physical function in both self-reported and objective measures improved immediately following CBT PMP with gains sustained at follow-up in the majority of CBT PMP’s.

**Conclusion:** Physical function is significantly improved following participation in CBT-PMPs. However, given the broad range of measures used across the studies a standardised battery of physical function outcome measures is required, as recommended by the IMMPACT 2016 recommendations.

**Efficacy of a 6 Week Exercise and Education Self-Management Intervention for Fibromyalgia- A Pilot Study**

Lauren Whelan ***, Dervilla Danaher*, Catherine Doody^*

***Mater Misericordiae University Hospital, ^Public Health, Physiotherapy and Sports Science, University College Dublin

**Background:** Recent guidelines recommend exercise and multi-component therapy in the management of Fibromyalgia Syndrome (FMS), however there is limited research investigating a combination of multimodal treatments (aerobic exercise, hydrotherapy, self-management education and psychological intervention).

**Aims:** To investigate the effectiveness of a 6 week education and exercise intervention for patients with FMS.

**Methods:** 20 patients with a diagnosis of FMS were recruited from a Hospital out-patient physiotherapy waiting list. All patients received a 6-week intervention consisting of education sessions on self-management, sleep hygiene, pacing, stress management, communication, medication, exercise and practical sessions including relaxation, land-based and hydrotherapy exercise sessions 3 hours per week. Assessments at baseline, post intervention and at 3 months included The McGill Pain Questionnaire (MPQ), Fatigue Severity Scale (FSS), Fibromyalgia Impact
Questionnaire-Revised (FIQR), SF-36, Arthritis Self-Efficacy Scale (ASES) and 6 minute walk test (6MWT) which were analysed using Wilcoxon Signed-Rank Tests with SPSS v10. A patient satisfaction questionnaire completed at 6 weeks included opened ended questions and was analysed using a qualitative thematic analysis.

Results: ASES Function scores improved from 6.04 (sd=0.47) at baseline to 8.27 (sd=0.51) at 3 month follow up (p<0.05). The FIQR function scores improved significantly from baseline 14.27, (sd= 2.00), to follow-up 7.44, (sd=2.19), p<0.026 and overall impact subscale from baseline 14.67, (sd = 1.44) to follow-up 9.42, (sd = 2.36), p<0.026. There were no significant changes in the SF-36, 6MWT and pain. The main themes identified included the value of the group, the benefits of exercise including the usefulness of pacing increased acceptance of FMS , (v) and increased self-efficacy.

Conclusions: The results of this small scale pilot study demonstrated improvements in self-efficacy and the overall impact of FMS.. Further fully powered RCTs including a longer term follow up are required to investigate the effects of this type of intervention.

The introduction of an innovative module in Pain Medicine into the undergraduate medical curriculum
Crowe A.M., CUH; Mitchell C., Slevin L., Department of Anaesthesia and Pain, GUH; Registrar in Anaesthesia, Galway University Hospital

Background: Pain is a frequent presenting complaint to most medical specialists, yet current pain education within undergraduate medical studies is limited. Indeed, 5 out of 6 Irish universities teach pain only in other compulsory non-pain modules, and no university has a dedicated pain module, either compulsory or optional.

Objectives: The main objective was to formally incorporate a dedicated module in pain medicine into the undergraduate curriculum at NUIG.

Method: Collaborative interdisciplinary meetings were held over several weeks and a core curriculum was designed, overall module expectations outlined and examination methods agreed upon. Following proposal to the School of Medicine at NUIG in June 2016, Pain Medicine was accepted as an optional Special Studies Module (SSM) for 4th year students.

Results: The Pain Medicine SSM was delivered to 6 students over 15 weeks. The cost-neutral module was co-ordinated by the Advanced Nurse Practitioner and delivered by consultant anaesthetists, specialist anaesthesia trainees, senior nurses in pain medicine, and a clinical psychologist specialising in chronic pain. It was delivered in the form of interactive seminars and pre-recorded video tutorials, with time at chronic pain clinics, theatre block bay, and acute pain ward rounds. In total, 30h were dedicated to the 5-credit module. Alterations to the module will be made to improve the content and delivery of the module in 2018 following qualitative analysis of feedback questionnaires, acknowledging criticisms and closing the feedback loop.

Conclusion: Through collaborative interdisciplinary work, this module in Pain Medicine was successfully delivered to undergraduate students at NUIG. The module is remarkable as it is a first step in the formal incorporation of the subspecialty into the core curriculum in a medical school in Ireland. The Pain Medicine SSM will remain as an ongoing optional module and the possibility of delivering the module as a mandatory module rather than an optional one will be explored.

THE ROLE OF PERCEIVED INJUSTICE IN CHRONIC PAIN: A FOCUS GROUP STUDY
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Aims: This research aimed to add multiple patient perspectives on the role of perceived injustice in adjusting to chronic pain.

Method: The study design was qualitative observational focus groups. Two groups of participants were recruited in two hospitals in Ireland. Participants were 18 years or older and had a non-fatal chronic pain condition for at least 3 months. 12 participants took part across the locations. Participants were asked a selection of questions about their degree of injustice associated with having chronic pain and the role they feel injustice plays in their pain experience.

Results: Five key themes emerged from the groups, which were as follows:
1. Perceived injustice associated with health care professionals and systems
2. Perceived injustice over losses
3. A lack of understating and acknowledgment of pain from society/family
4. Perceived injustice and its negative impact on emotion
5. Variance in the personal experience of injustice.

**Conclusions:** Perceptions of injustice appear to play a strong role in physical and psychological adjustment to pain and in perception of systemic responses to an individuals pain. High levels of perceived injustice had a strong link to comorbidities associated with pain. Research should be conducted into understanding and treating perceptions of injustice.

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**Stress Reduction Therapy Improves Symptoms of Pregnancy-related Pelvic Girdle Pain and Reduces Salivary Cortisol**

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**Background:** Pregnancy related pelvic girdle pain (PRPGP) is a multifactorial condition, which affects women both mentally and physically during and after pregnancy. The prevalence of PRPGP is about 20% and causes significant maternal morbidity. Clinically persistent pelvic girdle pain from the post-partum stage to two years after childbirth is reported at 5% to 8.5% with some women reporting persistent pain for up to 11 years. The aetiology of PRPGP is poorly understood, yet the interaction and cyclical relationship of stress and other types of pain is well known.

**Aims:** To determine the impact of stress reduction therapy on both pain and stress-related symptoms of PRPGP.

**Methods:** Ethical approval was obtained from the National Maternity Hospital and ten pregnant women with PRPGP consented to take part. Each participant received two one-hour treatment sessions with a qualified stress illness practitioner. A combination of education about the physiology of stress and gentle physical exercise was used. Prior to each session each participant answered a modified Roland Morris questionnaire, the Cohen perceived stress questionnaire, and the State Trait Anxiety Inventory (STAI) questionnaire. Saliva samples were collected before and after each of the treatment for measurement of the cortisol by ELISA.

**Results:** Treatment significantly increased the number of steps participants were able to take. Also a significant reduction in pain was seen with an average 52% improvement noted. There was a reduction in anxiety as measured by STAI. Moreover, a significant decrease in salivary cortisol was seen after the two treatment sessions compared to the baseline measure prior to the before treatment.

**Conclusion:** This pilot study suggests a role for stress reducing therapy in the treatment of PRPGP. A larger study is planned, but the findings are promising as an option for treatment of PRPGP both as an alternative and complement to conventional treatment.

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**Protocol for SPARKS: Social and Psychological Aspects of Replacement Knee Surgery**

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**Background:** Total Knee Replacement (TKR) surgery is typically performed to relieve pain due to advanced osteoarthritis of the knee. Psychological factors can influence patient recovery including pain, function and satisfaction following TKR surgery. A greater understanding of which psychological factors influence post-surgical outcomes offers the potential to improve patient outcomes and the quality of care.

**Aims:** This project aims to assess pre-operative psychological and social factors and investigate whether these factors affect clinical and patient reported outcomes 6-, 12- and 24 months following TKR.
Methods: This study adopts a prospective cohort design. Patients scheduled for TKR surgery are eligible to take part. Participation involves completing a questionnaire 2-6 weeks preoperatively and 6-, 12- and 24-months postoperatively. The questionnaire assesses pre-operative pain and function of the knee, pain catastrophising, general health, self-efficacy, expectations and participation restriction. Post-operative assessments will also address patient satisfaction. Information gathered from patients will be supplemented by clinical data and healthcare professionals' ratings of the patient's level of engagement with rehabilitation.

Conclusion: The results of this study can add meaningfully to the evidence-base regarding which factors are important to target pre-operatively to help to decrease pain, increase functional ability and increase satisfaction for this patient group following TKR.

To investigate patient beliefs regarding low back pain (LBP) following conservative physical rehabilitation: a systematic review.

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Background: Several studies have demonstrated that negative patient beliefs are closely related to current and future LBP disability. Therefore, it is proposed that a key component of rehabilitation should be targeting unhelpful inaccurate beliefs about LBP. Studies have discovered that healthcare professionals sometimes struggle with the challenge of positively altering patients’ beliefs. Therefore, it is unclear if negative beliefs are altered following conservative physical rehabilitation.

Aim: This systematic review aimed to examine patients LBP beliefs following conservative physical rehabilitation and determine if they were positive or negative.

Methods: Six electronic databases were searched by two authors independently using keywords relating to; (i) qualitative research, (ii) LBP, (iii) beliefs and (iv) rehabilitation. Studies were included where the beliefs of patients with non-specific LBP were examined qualitatively after physical rehabilitation. Themes were identified using a three-stage inductive thematic analytic process by two authors independently and cross-checked to ensure accuracy.

Results: Three themes emerged; (1) Beliefs about exercise and activity – most patients believed that exercise was helpful. However, most moved more carefully than normal, and some activities were still deemed unsafe; (2) Beliefs about nature of the condition – while not as focused on finding a “cure”, LBP was still mostly considered to reflect spinal tissue damage; (3) Beliefs about future of the condition – patients were quite pessimistic about their future prognosis.

Conclusions: Patient beliefs regarding the benefit of activity over rest are positive after physical rehabilitation. However, many patients are still fearful of normal movement, the extent of damage to their spine and their future prognosis, which may be important targets for rehabilitation.

PARTICIPANT PERSPECTIVES OF A COGNITIVE BEHAVIOURAL THERAPY PAIN MANAGEMENT PROGRAMME POST SPINAL CORD INJURY.

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Background: Growing evidence supports the use of multi-disciplinary cognitive behavioural therapy pain management programmes (CBT-PMP) for the management of pain post spinal cord injury (SCI) [1-3]. Limited studies have investigated the patient experience of this intervention.

Aims: This study aims to explore patients’ perspectives following participation in a multi-disciplinary CBT-PMP for neuropathic pain (NP) post SCI, and the impact of the programme on their ability to manage their pain

Methods: Six participants participated in semi-structured audio-taped telephone interviews. A question schedule was devised to explore their experience of the CBT-PMP and its impact on how
they now managed their pain. Interviews were transcribed, coded and analysed using thematic analysis. Ethical approval was obtained.

**Results:** Four positive themes were identified relating to i) the positive impact of support (peer support and the multidisciplinary team), mindfulness, and physiotherapy exercise classes ii) an acceptance of pain due to changes in pain understanding, iii) self-efficacy in relation to pain management iv) wider benefits on mood, sleep and personal relationships. One negative theme identified logistical and transport related barriers to attendance at a centre-based programme of this nature with an online programme identified as a viable alternative by a number of participants.

**Conclusions:** The benefits of a dedicated CBT-PMP for people with SCI reflect the literature regarding CBT-PMPs in non-SCI populations. With positive effects of a CBT-PMP clearly established from participants’ perspectives but barriers to attendance potentially limiting greater uptake, an internet-delivered programme warrants consideration.

**DEVELOPING AND IMPLEMENTING A SPINAL CORD INJURY COGNITIVE BEHAVIOURAL THERAPY PAIN MANAGEMENT PROGRAMME FROM THE CLINICIAN’S PERSPECTIVE.**

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**Background:** Following spinal cord injury (SCI), neuropathic pain (NP) is common and largely refractory to current management strategies. Multi-disciplinary, cognitive behavioural therapy pain management programmes (CBT-PMP) can significantly improve mood, pain coping and life participation post SCI [1-3]. No study has investigated the development and running a SCI CBT-PMP from a clinician perspective.

**Aims:** This qualitative study explored perspectives of a multidisciplinary team of implementing a pilot CBT-PMP for NP post SCI.

**Methods:** Five clinicians (clinical psychologist, two physiotherapists, occupational therapist and a rehabilitation consultant) participated in a semi-structured audio-taped focus group. A question schedule was devised to explore their experience of developing a SCI CBT-PMP in the national SCI rehabilitation centre. Interviews were transcribed, coded and analysed using thematic analysis. Ethical approval was obtained.

**Results:** Five key themes emerged: i) The CBT-PMP provided a supportive environment created by peer support and the multidisciplinary team in which patients learned how to self-manage their pain ii) the complexity of chronic pain management in SCI, iii) operational barriers to implementation e.g. patient accommodation iv) lessons learned included ring-fenced time for staff, dedicated staff training in chronic pain management and increased application of programme material through community activities, v) unexpected benefits for daily clinical practice were noted by clinicians involved in the programme.

**Conclusions:** Implementing a new initiative such as a SCI CBT-PMP can benefit patients and staff but needs to be adequately resourced.

**Impact of multidisciplinary weight management service on musculoskeletal pain in obese individuals.”**

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Background: Musculoskeletal (MSK) pain is prevalent in obesity, especially in weight-bearing joints. Multidisciplinary weight management services (WMS) are effective in reducing weight; however, MSK pain as an outcome is not routinely investigated.

Aims: The aims of this study were to assess changes in anthropometric and pain outcomes from pre-post WMS, and investigate variables associated with achieving clinically significant changes (CSC) in pain scores.

Methods: The retrospective-design study utilized patient measures from the national WMS database. Ethical approval was granted and anonymized data were entered into the Statistical Packages for the Social Sciences (V.20). Interferential statistics analyzed pre-post WMS changes in anthropometric and pain outcomes, and regression models were developed to evaluate variables associated with achieving CSC in pain scores.

Results: In total, 806 patients attended the WMS [male, 35% (n=279; CI=31–38); female, 65% (n=527; CI=62–69); mean age of 44.7]. Baseline mean weight was 145.6 kg and mean BMI was 50.7 kg/m^2; most patients reported MSK pain (91%, n=628; CI=89–93). Only 59% (n=476; CI=56–62) attended their reassessments. Overall, 72.2% (n=343) lost weight; with significant reductions in weight and BMI (p<0.05). Reports of low back pain (LBP) and knee pain reduced significantly; significant differences were found between weight loss categories (p<0.05). Measures of CSC were reported for pain scores: LBP 32% (n=77); and knee pain 23.2% (n=46). Regression models illustrated variables associated with CSC in LBP and knee pain scores post-WMS (p<0.05).

Conclusions: Musculoskeletal pain prevalence and severity is high in this obese cohort. Overall, there were significant reductions in weight, reports of LBP and knee pain, and respective LBP scores post-WMS. Improvements in pain reports increased in patients who lost weight. These services are effective for clinical weight loss and MSK pain symptom reduction. The inclusion of pain management strategies within the WMS may provide a more holistic approach to obesity management.

Musculoskeletal pain profile of obese individuals attending a multidisciplinary weight management service

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Background: Obesity is associated with numerous chronic diseases, including musculoskeletal (MSK) pain, which impacts on quality of life (QoL). There is, however, limited research providing a comprehensive MSK pain profile of an obese cohort.

Aims: The aims of this study were to develop a pain profile, investigate relationships between pain, sleep, and function, and explore baseline variables associated with having low back pain (LBP) and knee pain.

Methods: This retrospective study utilized a patient database at a national weight management service (WMS). Following ethical approval, anonymized patient data were statistically analyzed to develop a pain profile, explore relationships between pain and continuous measures, and determine variables associated with having LBP and knee pain.

Results: Overall, 915 individuals attended the WMS from January 2011 to September 2015 [male, 35% (n=318; CI=32–38); female, 65% (n=597; CI=62–68); mean age 44.6]. Mean BMI was 50.7 kg/m^2 [Class III obese (BMI ≥40 kg/m^2), 92% (n=835; CI=91–94)]. Approximately 91% reported MSK pain: LBP, 69% (n=539; CI=65–72) [mean NRS 7.4]; knee pain, 58% (n=447; CI=55–61) [mean NRS 6.8]. Class III obese and multi-site pain patients had lower QoL and physical activity levels, reduced sleep, and poorer physical function than less obese patients and those without pain (p<0.05). Relationships were found between demographic, pain, self-report, psychological, and functional measures (p<0.05). Patients who slept fewer hours and had poorer functional outcomes were more likely to have LBP; patients who were divorced, had lower QoL, and more frequent nocturia were more likely to have knee pain (p<0.05).

Conclusion: Multi-site MSK pain is prevalent and severe in obese patients and is negatively associated with most self-report and functional outcomes. This high prevalence suggests pain management strategies must be considered when treating obesity.
Exercise combined with Acceptance and Commitment Therapy (ExACT) compared with a standalone supervised exercise intervention for adults with chronic pain: Study protocol for a Randomised Controlled Trial

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Background: Chronic pain is a worldwide health problem associated with substantial emotional distress, physical disability and reduced quality of life. Acceptance and Commitment Therapy (ACT) is a form of cognitive behavioural therapy which is showing promise for people with chronic pain. The approach aims to enhance psychological flexibility and engagement in valued activity. While the construct of ACT appears well suited for chronic pain, there is a need for further research, particularly with regards to combining ACT with a physical intervention.

Aims: This prospective two-armed, parallel group, single-centre RCT will assess the effectiveness of a combined Exercise and ACT programme in comparison to a standalone supervised exercise intervention for chronic pain.

Methods: 160 patients aged 18 years and over, who have been diagnosed with a chronic pain condition by a consultant in pain medicine will be recruited to the trial. Participants will be individually randomised to one of two group interventions. The combined group will take part in weekly psychology sessions based on the ACT approach, in addition to supervised exercise classes led by a physiotherapist. The control group will also attend weekly supervised exercise classes but will not take part in psychology sessions. The primary outcome will be pain interference at six month follow up measured using the pain interference subscale of the Brief Pain Inventory. Secondary outcomes will include pain severity, pain related self-efficacy, depression, anxiety, pain catastrophizing, pain acceptance, committed action, quality of life, fear avoidance and health care resource utilisation. Physical activity patterns will be measured objectively using FitBit Zip activity trackers. Both groups will be followed up post intervention and again after six months. Estimates of treatment effects at follow up will be based on an intention-to-treat framework, implemented using a linear mixed effects model. A qualitative study will be embedded within the RCT to explore the experiences of participants of both interventions.

Conclusion: This will be the first RCT to examine whether combining exercise with ACT produces has greater benefit for patients with chronic pain compared to a standalone supervised exercise intervention for chronic pain.

Title: Clinical Signs of Nervous System Sensitisation in People with Knee Osteoarthritis

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Background: Recent evidence has pointed to the presence of nervous system sensitisation in people with knee osteoarthritis (OA) (Fingleton et al 2015, Lluch et al 2014). However there is a dearth of literature investigating sensitisation in this cohort using clinically reproducible assessment techniques and no study to date has investigated sensitivity of the peripheral nerve trunks (neural mechanosensitivity) in people with knee OA.

Aims: The aims of this case-control study were to investigate for signs of nervous system sensitisation in people with knee OA compared to pain-free controls using clinically reproducible quantitative sensory testing (QST) measures and to investigate for signs of neural mechanosensitivity (NM) by means of manual nerve palpation.

Methods: 52 people diagnosed with knee OA according to the American College of Rheumatology classification and 38 age and sex-matched pain-free controls underwent QST testing which measured pressure-pain thresholds, vibration and mechanical-detection sense, dynamic touch and thermal sensitivity and temporal summation (TS) using a set of simple and portable measurement tools suitable for a clinical setting. Assessment of NM was performed via manual digital palpation of the
Sciatic, femoral, tibial and common peroneal nerves. Between-group differences were assessed using Mann-whitney U and Chi-Square tests.

**Results:** Significant differences were found between knee OA participants and controls for all QST measures ($P < 0.05$), including cold sensitivity which has not previously been demonstrated ($P < 0.001$). Knee OA participants also showed a significantly greater frequency of sensitivity to nerve palpation compared to controls ($P < 0.01$).

**Conclusion:** Findings suggestive of nervous system sensitisation were demonstrated in people with knee OA using clinically reproducible QST measures. Preliminary findings of sensitivity to nerve palpation may be suggestive of the presence of NM in people with knee OA.

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**THE DEVELOPMENT OF AN ONLINE SUPPORT PROGRAMME FOR PATIENTS WHO HAVE COMPLETED THE ULYSSES PAIN MANAGEMENT PROGRAMME: A QUALITATIVE STUDY**


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**Background:** The efficacy of cognitive behavioural pain management programmes (CBT-PMPs) is well-established. However, maintaining gains and attending follow-up sessions is challenging. An online support programme (OSP) for patients who have completed a CBT-PMP may improve long-term adherence to pain management strategies.

**Aims:** The aim of this study was to obtain opinions from patients and staff on the content, structure, duration and frequency of an OSP for patients who have completed a CBT-PMP.

**Methods:** Two focus groups were held with CBT-PMP patients at routine two- and six-month reviews. The CBT-PMP multidisciplinary staff participated in separate focus groups. Two batteries of questions were developed based on the current literature. Following ethical approval, the focus groups were audiotaped and transcribed verbatim. The data collected was analysed using basic content analysis and separate emerging themes were developed for the patient and staff focus groups.

**Results:** Thirteen participants attended four focus groups. Nine emergent themes were identified. Patients and staff agreed that an OSP would be a useful resource. Both groups discussed implementing skills learned during the CBT-PMP in everyday life, and highlighted the importance of peer support. Staff deliberated potential barriers, such as computer literacy, while patients disclosed their current internet usage. Recommendations included that the OSP should be a short weekly email containing reminders of key CBT-PMP principles and allowing the opportunity to interact with other patients.

**Conclusion:** Both staff and patients would welcome an OSP after the completion of a CBT-PMP. Future analysis of long-term CBT-PMP outcome measures will determine the efficacy of an OSP.

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**Sociodemographic influences on Quality of Life in the Irish Spinal Cord Injury Population: A secondary analysis of a cross-sectional study**

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**Background:** The incidence of spinal cord injury (SCI) in Ireland is approximately 13.1 per million, with estimates of 120 new SCIs per year. People with SCI experience numerous comorbidities such as cardiovascular complications, psychiatric disorders and pressure sores. The quality of life (QOL) of people with SCI is lower than that of a non-disabled person. Factors impacting QOL have been established in the USA, Brazil and Israel among others. To date, no study has established QOL of those with SCI in Ireland.

**Methods:** A secondary analysis of a questionnaire study involving participants recruited from Spinal Injuries Ireland. All participants over 18 years of age were sent a questionnaire pack including the WHOQOL-BREF and demographic questions. The WHOQOL-BREF examined factors affecting physical, psychological, social & environmental QOL. Data were analysed using SPSS version 20 to explore relationships and the effect of the factors on each domain of QOL.

**Results:** Of the 1,574 questionnaires posted, the response rate was 41% (n=643); 183 female (27.7%), and 455 male (68.8%). The mean age of respondents was 52.39 (± 14.42) years. Higher QOL scores
were found for those who were older, married, independently walking, employed, and did not report having pain in the last 7 days (29%, n= 185). Those who were unable to identify the completeness of their injury (17.2%, n=114) reported the lowest QOL scores in all domains. Similarly, the majority of the population did not know their ASIA score (88.7%, n= 502).

**Conclusion:** Presence of pain and lack of knowledge of own condition were associated with poorer QOL. Further investigation is warranted to explore the impact of other factors such as health literacy and pain management programmes on QOL among the SCI population.

**Declarations:** The authors declare no conflict of interest. An unrestricted educational grant from Pfizer Healthcare Ireland supported the study.