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PP-001

Acute Pain

Improving the management of children's acute pain in hospital

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Background: Two million children are admitted to hospital every year in the UK and between 59 and 94% will experience pain, with 27–40% of them experiencing moderate to severe pain. Acute postoperative pain that is poorly assessed and controlled can heighten pain intensity and lengthen the period of surgical recovery for the child. Poor pain experiences during childhood may also contribute to adverse pain behaviour to subsequent pain events and to development of chronic pain in later life (Twycross, Dowden, and Bruce, 2009). Parents are keen to be involved in their child's pain management and have been found to use pain relief strategies when nurses share them (Chng et al. 2015; Lim et al. 2012) however, when their child is in pain parents either hesitate or delay in asking for help from nurses (Simons et al. 2020; Valizadeh, 2016) but to date there is little evidence of nurses proactively engaging parents in managing their children's pain whilst in hospital. There is no apparent explanation for this lack of engagement in the literature. Although a study by Twycross (2013) found that nurses may not take as active a role as they could do in managing children's pain, seeing it as the parents and child's responsibility to inform them when their child is experiencing pain.

Aims: the aim of this work has been to better understand what factors contribute to children experiencing unnecessary pain during hospitalization and to make suggestions to address those factors.

Method: Four interpretive qualitative research studies all linked to one theme of improving the management of children's pain in hospital.

Result: the first study was an international appreciative inquiry study focusing on effective pain management, which identified five key elements of effective pain management: Distributed pain management with vision; Effective pain management with less stress; Delivered with confidence; Individual approach to child and parent; Raising parents' expectations of effective pain management. The second study involved interviews with 42 pain practitioners across the UK and Ireland and resulted in devising a pain framework for the effective management of children's pain in hospital. A key area for development identified in this second study was the empowerment of parents in relation to their involvement in the management of their child's pain whilst in hospital. The third study involved interviews with 8 experienced parents on their perspectives as well as advice on empowering parents to become more involved in the management of their child's pain. This study culminated in a freely available short animation for parents. The fourth study involved undertaking cognitive interviews with parents, nurses and children on how pain is managed during a child's hospitalization. The findings clearly identify contradictory positions that nurses and parents have, which contribute to the ongoing situation of children experiencing unnecessary pain in hospital. The findings have been used to develop a short four hour free course for nurses to address the communication barriers that persist between nurses and parents.

Conclusion: The experience of pain in children can have long-term negative consequences, so there is a need to, where possible, reduce the prevalence of children's acute pain in hospital. Parents want to be involved in the management of their child's pain, but nurses who appear busy act as a deterrent to parents approaching them for help when their child is in pain. Nurses need to proactively engage with parents and children to reduce the incidence of unnecessary acute pain in children in hospital.

PP-002

Acute Pain

Discharge analgesia following elective surgery: The importance of patient factors

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Background: Post-operative pain is a key cause of morbidity following surgery, causing suffering to patients. Patient factors may play a part in predicting post-operative pain. A number of studies have recently suggested levels of post-operative pain are not exclusively linked to the type of surgery, but rather to patient factors. In this study we explore the patient factors that underpin additional analgesia requirements after discharge from hospital following elective surgery.

Aims: We aimed to evaluate the percentage of patients requiring additional analgesia prescriptions in the first 4 weeks after discharge, for those taking opioids preoperatively [OE] versus opioid naïve patients [ON]. Additionally we aimed to establish if a relationship between patient complexity score and additional analgesia requirements exists. Finally, we also investigated whether or not the proportion of discharge letters outlining the analgesic plan meets current national guidelines.

Method: Data was collected from 45 patients undergoing elective, inpatient orthopaedic, general, urological, gynaecological, breast and vascular surgical procedures during a 14 day period at Raigmore Hospital, Inverness, after Caldicott guardian approval. Demographic

and health data were collected using the NHS electronic health record and by members of the acute pain nursing team, and used to calculate the modified chronic pain complexity score (Peppin et al. 2015). Discharge analgesia data was gathered from immediate discharge letters (IDLs). The Emergency Care Summary (ECS) was accessed 4 weeks post-discharge in order to identify any additional analgesic medications prescribed since discharge. The percentage of patients requiring additional analgesia was calculated, for opioid naïve patients and those with prior exposure. Statistical analysis was carried out to compare the number of additional analgesia prescriptions between these groups, and establish whether there is a relationship between patient complexity score and the prescription of additional analgesics. The percentage of IDLs adequately outlining the post-operative analgesic plan was also analysed.

Result: 78 patients were initially eligible for inclusion. After exclusions, 45 patients were included, of which 31 were female and 14 male. 25 patients underwent orthopaedic surgery, 11 general, and 3 each underwent urological, gynaecological and breast surgery. 27/45 patients were classed as opioid naïve, and 18/45 were taking opioids prior to surgery. Of the 18/45 patients with prior opioid exposure [OE], 14 were orthopaedic patients, 2 general surgery and 2 breast surgery. 50 % (n = 9) of patients taking opioids prior to surgery [OE] were prescribed additional analgesia in the 4 weeks following discharge. Of the 27/45 ON patients, 37% (n = 10) of opioid naïve patients were prescribed additional analgesia in the 4 weeks post discharge. Though there was a difference in post discharge analgesic prescriptions between the ON [37%] and OE [50%], there was no significant difference in the mean number of additional analgesia prescriptions between the ON and OE prior to surgery group ($p = 0.52$). The mean complexity score of all patients was 5.6. The mean complexity score of patients with chronic pain preoperatively [CP] was 7.1, and 3.7 in patients without chronic pain [No CP]. There was a small but non-significant positive correlation between complexity score and additional analgesia prescriptions in the cohort as a whole, and when looking specifically at patients with chronic pain ($p = 0.21$ and $p = 0.90$ respectively). All IDLs adequately outlined the analgesic plan at discharge.

Conclusion: Patients with prior opioid exposure [OE] are prescribed more analgesia in the 4 weeks following discharge than opioid naïve patients. There does not appear to be a correlation between patient complexity score and being prescribed additional analgesia in the 4 weeks after discharge. All IDLs did comply with guidelines, but opportunities to highlight potential opioid weaning in some patients were not taken.

Keywords: acute pain, surgery, analgesia, postoperative, opioid

PP-003

Acute Pain

The psychology of visceral pains: Exploring with qualitative methods

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Background: Visceral pain tends to be framed using the same psychological concepts as in musculoskeletal pain: fear of pain/injury and avoidance of valued activities. We were not convinced this was justified.

Aims: Exploring accounts of visceral pains by direct data collection and by metasynthesis of published qualitative studies.

Method: We ran systematic reviews and thematic metasyntheses of qualitative studies in endometriosis, pelvic mesh complications, inflammatory bowel disorder, and polycycstic kidney disease to elicit themes within each and across all. We also collected data on pain from 15 women and 15 men (where applicable) with each of the disorders using free-association-based methods, minimising researcher influence. Data were thematically analysed with help from experts by experience and clinicians.

Result: We have found broad themes about impact of pain and disease on life, particularly in the social domain, and about relationships with healthcare. Descriptions of meaning and management of pain better fit a sense-making model than a fear and avoidance model, despite real threats to health of some diseases. Pain was rarely assumed to indicate damage, nor were many triggers avoidable. There was little evidence of catastrophic thinking or disabling generalised avoidance in clinical or community populations.

Conclusion: At present there is little basis for extending fear and avoidance models of pain to visceral pains. We need to understand better the psychology of visceral pains, and use unconstrained methods to investigate them.

Keywords: chronic pain, health beliefs

PP-004

Acute Pain

Effects of intraplantar administration of Complete Freund's Adjuvant (CFA) on rotarod performance in mice

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Background: Preclinical animal models are crucial to study pain mechanisms and assess antinociceptive effects of medications. One major problem with current animal behavioral models is their lack of face validity with human nociception and the vulnerability for false-positive results

Aims: To evaluated the usefulness of rotarod as a new way to assess inflammatory nociception in rodents.

Method: Adult male mice were injected with saline or Complete Freund's Adjuvant (CFA) in the left hindpaws. Mechanical allodynia and rotarod performance were evaluated before and after the administration of CFA. Mechanical allodynia was measured using von Frey filaments. Long-term effect of CFA on rotarod performance was also assessed for 2 weeks.

Result: Our results showed that CFA administration decreased pain threshold and increased sensitivity to von Frey filaments compared to control group. In rotarod experiments, the starting speed of the rod rotation started at four RPM, and accelerated until it reached 40 RPM in 5 min. Rotarod performance was enhanced from day to day in the control group. However, rotarod performance in CFA group was attenuated after CFA administration, which was significant after 24 h compared to vehicle. This attenuation was blocked by ibuprofen. Haloperidol administration (positive control) produced similar results to CFA administration. CFA did not produce significant attenuation of rotarod performance after 1 week post-injection.

Conclusion: Collectively, our findings could encourage the use of rotarod assay to measure acute (but not chronic) inflammatory nociception as a useful tool in rodents.

Keywords: mic, pain, rotarod

PP-005

Acute Pain

Erector spinae plane catheter rescue analgesia after thoracotomy for single lung transplant

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Background: Lung transplantation is a life-extending procedure for patients with end-stage pulmonary disease, significantly improving survival and quality of life. Effective postoperative pain management is critical for facilitating ventilator weaning, deep breathing, and graft expansion to prevent complications such as atelectasis, pneumonia, and graft failure. Long term, effective acute pain management also reduces the incidence of chronic postsurgical pain. Thoracic epidural analgesia (TEA) is traditionally considered the gold standard for postoperative pain control in thoracic surgery. However, TEA may fail due to anatomical, technical, or patient-related factors, necessitating alternative analgesic approaches. The erector spinae plane (ESP) block is a relatively novel technique that may serve as an effective rescue analgesia option when TEA fails.

Aims: To evaluate the efficacy of an ESP block and catheter as a rescue analgesia technique for managing severe acute postoperative pain in a patient who had undergone a single lung transplant, following failed thoracic epidural attempts.

Method: A 50-year-old female patient with familial idiopathic pulmonary fibrosis underwent a right-sided thoracotomy for a single lung transplant. Postoperatively, a TEA was placed at T4/5 and infused with levobupivacaine 0.1% and fentanyl; however, it provided analgesia only to the contralateral, non-operative side. A repeat TEA at T5/6 also failed to achieve effective analgesia. Subsequently, an ESP block was performed as rescue analgesia, and a catheter was sited to provide continuous analgesia. The patient's pain scores, ability to engage in physiotherapy, and clinical outcomes were monitored over five postoperative days.

Result: The ESP block significantly reduced the patient's pain intensity from 10/10 to 4/10. Continuous ESP catheter infusions maintained manageable pain levels, enabling the patient to deep breathe, cough, and participate in physiotherapy. The patient avoided re-intubation and demonstrated improved respiratory mechanics. ESP catheter analgesia was administered twice daily for five days, after which the patient successfully transitioned to oral analgesics. She was discharged to the ward and subsequently discharged home a week later.

Conclusion: This case highlights the efficacy of the ESP block and catheter as a rescue analgesia technique for thoracotomy-related pain following failed TEA. ESP blocks are relatively safe, technically straightforward, and effective for managing postoperative pain when epidurals are contraindicated or unsuccessful. This technique can support optimal respiratory mechanics, reduce opioid requirements, and facilitate early mobilisation. Based on this case, a protocol for ESP catheters in thoracic surgery to standardise their use in similar clinical scenarios should be developed.

Keywords: erector spinae plane, thoracotomy, acute pain

PP-006

Acute Pain

Synchronized inhibition of both nociceptive and neuropathic pain signals with XG005 for acute pain

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Background: Post-operative opioid use is 68%, and acute pain severity is associated with poor recovery, low satisfaction and high incidence of chronic pain. Opioid abuse causes high incidences of mortality and social and economic burden. Safer and more efficacious analgesics for acute pain remains high unmet medical needs.

Aims: To study the safety and efficacy of XG005, a non-opioid novel chemical entity targeting both nociceptive and neuropathic pain, in an acute pain model consisting of both inflammatory and neuropathic pain components.

Method: A phase 2b, multicenter, double-blind, placebo-controlled, randomized trial was conducted in subjects undergoing bunionectomy. Qualified subjects were randomized (1:1:1) to receive either 1250 mg or 750 mg of XG005 tablets, or placebo. The study drug was administered one hour before surgery and every 12 hours for 72 hours. The primary efficacy end point was pain intensity over a 48-hour period (SPI48) for the 1250 mg XG005 versus placebo, measured on the Numeric Pain Rating Scale (NPRS, 0–10, higher score indicates greater pain) at 16 time points post-surgery. The key secondary efficacy end point was SPI48 for the 750 mg XG005 versus placebo. Rescue analgesics use, sleep interference and safety were monitored. Serial gatekeeping multiple adjustments were used for the analysis of the primary and the key secondary efficacy endpoints.

Result: A total of 450 participants were randomized. The least-squares mean (LSM) difference in SPI48 between the 1250 mg XG005 and placebo groups was -153.4 (95% CI, -173.8 to -132.9; $p < 0.0001$). The LSM difference for the 750 mg XG005 versus placebo was -131.6 (95% CI, -153.1 to -110.2; $p < 0.0001$). The difference between 1250 mg and 750 mg XG005 in SPI48 was -22.2 (95% CI, -43.5 to -1.3; $p = 0.037$). The pain intensity score was statistically lower in both active arms than placebo from hour 1 to hour 72 post-surgery ($p < 0.0001$); the maximum pain was mild (< 4.0 NPRS) in severity in the high dose arm, in contrast to severe pain (> 7.0 NPRS) in the placebo arm. The amounts of rescue medication use over 72 hours for tramadol and acetaminophen were significantly less ($p < 0.0001$) in the 1250 mg XG005 (LSM ± SE 4.94 ± 1.47 mg morphine

equivalent dose; 1586.03 ± 214.82 mg) and 750 mg XG005 (7.16 ± 1.52 mg; 1975.89 ± 214.41 mg) groups than in the placebo group (21.16 ± 1.54 mg, 4892.74 ± 217.84 mg), respectively. Patient sleep was moderately affected in the placebo group (4.95 ± 0.33), while it was barely interfered in the XG005 groups (1.49 ± 0.25, 1.98 ± 0.26) within 24 hours post-surgery. Mild somnolence, dizziness and constipation were the most common adverse events with XG005.

Conclusion: Both the 1250 mg and 750 mg doses of XG005 significantly reduced acute post-operative pain with large effect size (1.55 and 1.28, respectively), in a dose-dependent manner. This clinical effect was accompanied by significant less consumption of rescue medications including opioid and bare disturbance in sleep. Mild adverse events were reported. XG005 as a non-opioid, safe and strong analgesics could potentially revolutionize the perioperative pain management.

Keywords: acute pain, bunionectomy, XG005, opioid, nociceptive, neuropathic pain, nociceptive pain

PP-007

Assessment and Measurement

Quantitative sensory testing for persistent complex regional pain syndrome in a real-world setting

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Background: Complex Regional Pain Syndrome (CRPS) features severe limb pain, autonomic and sensory phenomena. Objective measure of sensory dysfunction might help in characterising disease severity as well as possibly support the diagnosis. Quantitative Sensory Testing (QST) is a method of measuring sensory thresholds to a variety of touch and nociceptive sensory stimuli. This involves recording the response to a standardised battery of stimuli such as thermal, touch, pinprick, vibration and pressure. In neuropathic pain conditions, QST has been shown to provide insights into the mechanisms of pain.

Aims: The aim is to describe the results and tolerability of quantitative sensory testing in referred patients with persistent Complex Regional Pain Syndrome and observe the sensory profiles of this group of patients with persistent neuropathic pain.

Method: We identified 24 patients diagnosed with a diagnosis of persistent (>18 months since onset) Complex regional pain syndrome between 2017 to 2024, and who had received QST as part of their care using a standardised methodology as tolerated (Medoc TSA and AlgoMed). Measures were compared to DFNS (German Research Network on Neuropathic Pain) reference data as a gain or loss of function.

Result: Results 8 and 16 patients had upper and lower limb CRPS. The mean age was 48 years (Male/Female ratio 9:15). All patients completed the thermal testing, mechanical detection and pinprick but mechanical pain sensitivity was completed only by 20 out of 24, wind up by 10 out of 24, and pressure pain threshold (PPT) by 9 out 24 patients. The remaining patients were unable to tolerate these respective tests. Cold and heat detection thresholds were increased (indicating reduced sensitivity) in 6 and 5 patients respectively (mean z-score -0.4 and -0.1) out of 24, and cold and heat pain thresholds were decreased in 3 and 4 patients respectively (mean z-score 0.9 and 0.8) out of 24. Mechanical Touch sensitivity was more commonly decreased with increased touch thresholds in 10 patients and decreased thresholds in 2 patients (Mean z-score -0.06). Regarding mechanical threshold response to nociceptive stimuli, 8/24 patients had a decreased threshold (increased sensitivity) to mechanical pinprick (mean z-score -0.2) and 12/24 had decreased thresholds (Increased sensitivity) for mechanical pain sensitivity using multiple pinpricks of different weights (mean z-score MPS 1.68). 12/20 patients had increased sensitivity to dynamic mechanical allodynia. Wind up ratio which measures temporal summation was poorly tolerated which would suggest a high level of central sensitisation. Pressure pain threshold was also only partially tolerated in 9 out of 24 patients due to the severe allodynia and in others a measurement was not technically feasible due to limb withdrawal during the testing process.

Conclusion: Observed alterations in somatosensory function in persistent CRPS patients include decreased sensitivity to non-painful stimuli (stimulus detection is poorer) but with a corresponding increased painfulness of thermal and mechanical stimuli. Most patients did not tolerate pressure pain threshold (PPT) testing and wind up (WUR) which would suggest profound deep tissue and central sensitisation. The PPT values throw up questions about the accuracy of published PPT sensory profiles for this group, where missing values are rarely reported.

Keywords: neuropathic pain, biomarker, quantitative sensory testing, crps, pain measurement, complex regional pain syndrome

PP-008

Assessment and Measurement

SenseCheQ: New frontiers in self-administered quantitative sensory testing

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Background: Advances in chemotherapy regimes have significantly improved cancer outcomes over the past 20 years. However, many chemotherapy agents cause neurotoxicity (e.g. taxanes or platins). Meta-analyses show around 30% of patients will develop chronic CIPN lasting >6 months after treatment. Symptoms include distal pain in limbs, numbness, and impaired co-ordination. There is currently no standard treatment or preventative strategy other than chemotherapy dose reduction/agent switching. CIPN is often detected late as the symptoms tend to be unusual and insidious. Quantitative sensory testing (QST) has shown promise in revealing changes in sensory function due to CIPN – particularly in vibration and thermal detection. To determine the utility of QST for early detection of CIPN, it needs to be more accessible and potentially suitable for home use. To address this challenge we have, while closely collaborating with patient partners, developed SenseCheQ equipment to allow self-test of sensory function using Peltier thermal and haptic mechanical stimulation.

Aims: The aim of this study was to gather preliminary evidence on how SenseCheQ performs in different self-test circumstances. In Experiment 1 we compared cold, warm and vibration detection thresholds (CDT, WDT, and VDT) between groups self-administering the measurements in different environments. In

Experiment 2 we tested whether SenseCheQ can detect the impact of capsaicin sensitization on heat pain thresholds (HPT).

Method: Group 1 were healthy undergraduate students (N = 8, 6 female, ages 20-22) and Group 2 were healthy University researchers (N = 7, 4 females, ages 20-36) conducted thermal and vibration threshold testing using SenseCheQ. Thermal testing delivers cooling and heating ramps at 1°C/s from a 32°C baseline, stimulating a 2.25 cm^2 area of skin. Vibration testing involves calibrated haptic stimuli with a ramping amplitude at 128 Hz and skin temperature clamped at 32°C. Thresholds are computed as medians of three trials. In Experiment 1 thresholds were measured at the thenar eminence. Group 1 did so with everyone (and three staff members) present in the same room of a clinical research facility. Tests were self-administered with only on-screen instructions being provided via SenseCheQ. Group 2 tested themselves at home. Each test session lasted around 10 minutes. In Experiment 2, Group 1 measured HPT at the volar forearm before, and 20 minutes after application of 0.075% capsaicin cream to a 3 × 3 cm area. All participants filled out an semi-structured survey about usability of the kit.

Result: There were no significant differences between group 1 and 2 in detection thresholds (all $t(13)<0.99$, $p > 0.43$, unpaired t-test). The mean differences between the groups in thermal thresholds were within 0.25°C (CDT = 0.12°C, [-0.43, 0.19]; WDT = 0.24°C, [-0.48, 0.96], and 0.22 μm [-0.26, 0.70] for VDT. Mean thresholds across all participants were as expected for healthy young adults: CDT = 31.2°C [31.0, 31.3], WDT = 33.5°C [33.1, 33.8], and VDT = 0.68 μm [0.44, 0.91]. To determine whether SenseCheQ could detect the sensitisation with capsaicin application, we compared pre and post capsaicin HPT. This demonstrated a large effect on pain thresholds with a significant average change of 5.39°C [3.18, 7.60] ($t(7) = 5.77$, $p < 0.001$, paired t-test).

Conclusion: The initial testing of SenseCheQ for self-administered QST in different settings has been promising. Testing showed that two groups of young, healthy adults have comparable sensory thresholds determined by SenseCheQ; despite testing in different environmental conditions. Participant feedback on usability was universally positive; highlighting ease of use and clarity of instructions. This is an important step as we have designed it to be used by patients in their homes, and reducing variance as much as possible is key for reliable monitoring of sensory function. Additionally, SenseCheQ reliably detected changes in pain thresholds brought about by standard capsaicin sensitisation. Taken together, these results provide initial evidence of reliability of self-administered QST using SenseCheQ.

Keywords: neuropathy, quantitative sensory testing, capsaicin, chemotherapy induced preipheral neuropathy, home testing

PP-010

Assessment and Measurement

SenseCheQ: Optimising vibration sensory testing for reliable use by patients in their home environment

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Background: About a third of cancer patients receiving chemotherapy will develop chronic chemotherapy-induced peripheral neuropathy (CIPN). CIPN is often accompanied by pain, sensory, motor, and autonomic symptoms significantly reducing quality of life. There is no gold-standard for diagnosis or effective treatment of CIPN and its diagnosis usually triggers a change in chemotherapy regime. Quantitative sensory testing (QST), a battery of tests designed to assess sensory function, has shown promise in objective CIPN detection. However, early diagnosis requires regular monitoring of patients during chemotherapy. This unfeasible in normal clinical practice as QST is expensive in terms of equipment, time commitment and expertise. We aim to develop a reliable home QST approach consisting of thermal and vibration detection threshold (VDT) measurement. To increase reliability of these tests, we aimed to minimise unwanted variance that may result from self-administered testing in the home.

Aims: In experiment 1, we tested a novel calibration method for reliable delivery of target vibration stimulation ramps using a linear resonant haptic actuator with accelerometer feedback to account for variance due to coupling between the test area and the device (e.g., varying compliance caused by strapping the device to the arm). VDTs have also been shown to be affected by skin temperature which is influenced by many factors (time of day, activity levels, ambient temperature and stress – all of which are relatively uncontrolled in the home environment). In Experiment 2 we tested whether clamping skin temperature over the test area using a PID-controlled Peltier increases reliability of measurement.

Method: In experiment 1, the novel calibration routine adjusted the actuator drive based on a regression model relating drive values to acceleration at discreet steps along a test vibration ramp in order to achieve target acceleration for subsequent stimuli. Vibration thresholds were determined for 10 participants (4 female: Mage = 30.9, SD = 11.8) who completed 16 non-calibrated and 16 calibrated 64 Hz vibration ramps (50%:50% ascending: descending for detection and disappearance thresholds, respectively) in a counterbalanced order. Testing was conducted by strapping the encapsulated haptic to the non-dominant volar forearm. In experiment 2, 8 participants (3 female; Mage = 31.9, SD = 11.1) completed a total of 4 sessions of VDT measurement. They underwent 2 sessions with and 2 without skin temperature clamped to 32°C. In each session 10 ascending ramping vibration stimuli were administered at 128 Hz and 300 Hz. Testing was done on the pulp of the non-dominant index finger and session order was counterbalanced.

Result: Analysis of the delivered acceleration envelopes revealed that the calibration procedure was effective at matching the target envelope. For VDT the within-participant variance (standard deviation across all ramps) was significantly lower for calibrated when compared to non-calibrated ramps ($t(9) = 3.30$, $p = 0.009$, $d = 1.05$). This amounts to a mean reduction of within-participant variance of 19.6% [2.4, 36.8]. Similarly we found clamping skin temperature to 32°C led to a significant decrease in within-participant variance of VDT at 300 Hz ($F(1, 7) = 13.71$, $p = 0.007$, $\eta p2 = 0.66$). The reduction, on average, was 51.5% [4.18, 97.91].

Conclusion: Our testing shows that significant reductions of unwanted test variance can be achieved by calibrating the physical stimulation delivered to participants and controlling skin temperature. This increases the reliability of measuring VDTs at the level of an individual person which is crucial for monitoring and confidently

detecting changes over time. These techniques have already been implemented in SenseCheQ.

Keywords: assessment, measurement, cancer, neuropathy

PP-011

Audit and Service Evaluation

Multimodal pain management – Does the "curry" metaphor convey the message?

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Background: Managing pain by using multiple types of treatment together is known as multimodal pain management (MMPM). Patients and healthcare professionals (HCPs) can have difficulty in understanding this concept resulting in suboptimal pain control, hence the "curry" metaphor was developed. In a survey of 142 HCPs the average score for conveying the concept of synergism and promoting self-management of chronic pain with the "curry" metaphor was 70 and 63 out of 100 respectively. 66% respondents were very likely or likely to use the curry metaphor in their clinical practice (Gupta S, et al. Indian J Pain 2025; 39: 24-28).

Aims: To evaluate patients' perspective regarding the usefulness of the "curry" metaphor in conveying the concept of multimodal pain management. Patients were also asked if understanding the concept motivated them and gave them the confidence to manage their pain better and if the metaphor can be used for other medical conditions that require multimodal management.

Method: A survey was designed and approved by the communication patient approval group at Bradford Teaching Hospitals NHS Foundation Trust (BTHFT). Patients who were seen by the BTHFT pain service and needed MMPM were informed of the concept with the help of the "curry" metaphor as explained below and also with the help of images during the consultation. Patients who were willing to participate in the survey were given a questionnaire containing four questions. The "curry" metaphor is the idea of managing pain with multiple types of treatments used together in the same way that multiple spices work together to make a good curry. Each spice, with its own flavor, enhances the flavor of other spices making the curry tastier than when a single spice is used. In a similar way, with long-standing pain, multiple treatments (e.g. physiotherapy, hot water bottle, massage, TENS machine, talking therapies, tablets, injections, etc.) when used together can lead to less pain and fewer side effects. When dealing with long-standing pain, people can choose the treatment combination that suites them best with the least side effects. This combination can be changed for good and bad days.

Result: All the 45 respondents agreed that the "curry" metaphor helped them to understand the concept of MMPM. Thirty-two (71.1%) respondents were very likely and 12 (26.7%) were likely to use multiple types of treatments to manage their pain and 1 (2.2%) was not sure. Thirty-two (71.1%) respondents agreed and 12 (26.7%) somewhat agreed that understanding the concept of MMPM with the help of "curry" metaphor had given them the confidence to manage their pain better and one respondent was already using their own recipe. Forty-four (97.7%) respondents agreed that the "curry" metaphor can be used in other medical conditions that need multiple types of treatment. Comments by patients included: "a brilliant analogy to explain pain management – patient focused", "a simple way to explain and understand treatment", "I was pleasantly surprised that this simple concept has helped me greatly understand what is quite a complex (pain/ medication/impact) thing to understand".

Conclusion: From the responses received from the patients (and in the past from the HCPs), it can be concluded that the "curry" metaphor can be useful in conveying the concept of MMPM, which can give patients the confidence to self-manage their pain better. Our survey informs us that the "curry" metaphor can also be used to educate patients with other medical conditions that need multimodal management, e.g. hypertension, diabetes, etc. In other parts of the world where a "curry" is not popular, local popular dishes requiring multiple spices/ingredients can be chosen as an alternative.

Keywords: metaphor, multimodal pain management, analogy, pain, chronic pain

PP-012

Audit and Service Evaluation

Improving the safety of intravenous lidocaine infusions in the treatment of chronic neuropathic pain

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Background: Lidocaine infusions can provide pain relief that is significant for some patients with chronic neuropathic pain (Vacher BJPain 2022; Kim, BJPain 2023). Although lidocaine infusions are generally well tolerated, rare serious adverse can occur with local anaesthetic toxicity, resulting in life threatening seizures, arrhythmias and cardiac arrest (Daykin, BJPain 2017). Strict safety precautions to mitigate these adverse events are therefore of paramount importance. In our institution, patients with neuropathic pain that has been refractory to pharmacological therapy in line with NICE guidance [NICE CG173] are administered 4 mg/kg of lidocaine over one hour. Medical doctors prepare the medication and programme the infusion pumps. During the infusion, recovery nurses monitor the patients. High turnover of staff and variability in allocation of recovery nurses has meant that their specific level of training about this procedure is unknown and training needs can go unrecognised.

Aims: This service evaluation aimed to assess and enhance recovery nurses' confidence and knowledge in in managing patients who are administered lidocaine infusions to improve safety and mitigate risks. The primary outcome was nurses' level of confidence in managing the side effects and complications of lidocaine infusions.

Method: A survey was conducted among 14 recovery nurses who were assigned to look after lidocaine infusion patients between October 7th 2024 to November 1st 2024. Confidence was measured using a 5-point Likert scale in response to "How confident do you feel in managing potential side effects or complications of lidocaine infusions" ranging from 1 (very unconfident) to 5 (very confident). An interactive training session was separately delivered to 16 recovery nurses, followed by a post-intervention assessment of confidence using the same Likert scale. The raw data from this scale was converted into binary data with scores of 4-5 categorised as 'Confident managing lidocaine infusions' and 1-3 as 'Not confident managing lidocaine infusions'. Fishers Exact Test was used to compare the level of confidence between the trained and untrained groups of recovery nurses. Qualitative data were also collected on knowledge of required

monitoring, side effects, symptoms of early toxicity, ECG interpretation, and management of local anaesthetic toxicity.

Result: The untrained recovery nurse survey revealed variability in nurses' understanding of side effects and complications, with a median confidence score of 3 (interquartile range (IQR) = 1) on the Likert scale. All the nurses responded that they wished for further training. After delivering a training session to a separate group of recovery nurses, the median score using the same Likert scale was higher with a median of 4 (IQR = 1). Fishers Exact test showed a statistically significant difference ($p < 0.01$) in confidence between the groups of the untrained and trained recovery nurses. Supplemental resources were introduced to sustain these improvements and reinforce key information, including a quick-reference information sheet and a safety poster displayed in recovery areas.

Conclusion: The initial survey highlighted relatively low confidence among recovery nurses in managing lidocaine infusions, driven by variability in knowledge of local anaesthetic toxicity and its management. The post-training survey revealed significantly higher confidence amongst recovery nurses in managing lidocaine infusions. Sustaining this improvement is important to ensure long term competency and has been supported by creating the quick reference information sheet and the safety poster. In services that use lidocaine intravenous infusions for treatment, targeted education is necessary and effective to maintain safety and mitigate the occurrence of life-threatening complications. The impact of developing the additional resources to support long-term competency should be evaluated.

Keywords: lidocaine infusion, clinical safety

PP-013

Audit and Service Evaluation

Patient-controlled analgesia in bariatric surgery: A retrospective evaluation of postoperative opioid use

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Background: Bariatric surgery is increasingly performed in the UK, yet postoperative analgesic strategies remain inconsistent. Patient-controlled analgesia (PCA) is commonly used, though its impact on opioid use and recovery quality in this population remains poorly defined within current recommendations. This service evaluation assessed PCA use and associated outcomes following laparoscopic sleeve gastrectomy (SG) and Roux-en-Y gastric bypass (RYGB), the two most widely performed bariatric procedures, at a single NHS Trust.

Aims: To measure the rates of PCA use in patients who underwent laparoscopic bariatric surgery and evaluate the associated patient factors.

Method: We conducted a retrospective observational cohort study of adult patients (≥18 years) who underwent elective laparoscopic SG or RYGB between 1 January and 31 December 2023 at Chelsea and Westminster Hospital, London, UK. Patients were identified from theatre and admission records. Exclusion criteria included emergency procedures, paediatric cases, gastric banding or band removal, and laparotomy conversions. Demographic and clinical data were extracted from electronic health records, including anaesthetic charts and discharge prescriptions. Outcomes of interest included PCA usage, daily and discharge opioid requirements (oral morphine equivalent, OME), operative duration, length of stay, and pain team or ICU involvement. Patients were stratified by PCA usage. Descriptive statistics and appropriate inferential tests (t-test, Mann–Whitney U, Fisher's exact) were applied.

Result: 117 patients were included (mean age 44.7 ± 10.9 years; 88.9% female). PCA was used in 53 cases (45.3%). PCA users had significantly longer operative durations (184.7 ± 59.9 vs 133.1 ± 64.5 minutes, $p < 0.001$) and higher rates of documented pain team involvement (84.9% vs 4.7%, $p < 0.001$). PCA users were more frequently discharged with opioids (81.1% vs 57.8%, $p = 0.009$) and had a longer length of stay (3.5 ± 1.8 vs 2.8 ± 1.7 days, $p = 0.036$). Diabetes was more common in the non-PCA group (28.1% vs 11.3%, $p = 0.037$). Discharge OME was higher in the PCA group (18.6 ± 14.9 vs 13.2 ± 15.1 mg day-1), though this was not statistically significant ($p = 0.058$). Among procedure types, 59 underwent sleeve gastrectomy (SG), and 58 underwent Roux-en-Y gastric bypass (RYGB). PCA use was more frequent in RYGB than SG (55.2% vs 35.6%, $p = 0.042$), and operative duration was longer in RYGB (200.9 ± 43.1 vs 112.8 ± 57.6 minutes, $p < 0.001$).

Conclusion: PCA use was common following bariatric surgery and associated with longer operative times, increased discharge opioid burden, and greater requirement for specialist pain support. Patients undergoing RYGB were more likely to receive PCA, reflecting the procedure's longer and more complex nature. A trend toward longer hospital stay was also observed in PCA recipients. These findings reinforce the need for standardised, multimodal analgesia protocols aligned with Enhanced Recovery After Surgery (ERAS) guidelines. There is an opportunity to rationalise PCA use, particularly in short-stay SG patients, and reduce community opioid exposure (and possible dependence) through conscious stewardship. Prospective audits, protocol implementation, and multidisciplinary collaboration are warranted to improve the judicious use of opioids in this high-risk cohort.

Keywords: pain, opioid, surgery, discharge opioids, analgesia

PP-014

Audit and Service Evaluation

External neuromodulation in the treatment of chronic pain in Cardiff and Vale University Health Board pain clinic – A service evaluation project

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Background: Neuropathic pain is pain which occurs as a direct result of a lesion or damage to the central or peripheral somatosensory nervous system.[1] An example is occipital neuralgia. The prevalence of neuropathic pain in the general population may be as high as 8%, which accounts for approximately 1 in 4 patients with chronic pain.[2] If medication does not provide adequate relief, the next-line treatment is often surgical lesioning, neuromodulation therapy or injections. Neuromodulation has been used to lower opioid usage as pain treatment moves towards opioid sparing techniques. External

neuromodulation (ENM) is a non-invasive method of peripheral nerve/field stimulation where an electrode is placed over the skin surface of the injured/affected nerve territory, and a low frequency (2 Hz) stimulation is used. Although not fully understood, the A-delta fibre stimulation, leading to suppression of pain sensitivity in the innervation area of the nerve, but also adjacent innervation territories which represent overlapping spinal representation of the stimulated input, is the most likely mechanism by which ENM works.[3] This allows analgesic effect to be achieved.

Aims: To evaluate the effectiveness of ENM treatment provided in a university hospital pain clinic in Cardiff.

Method: The study evaluated 64 treatments, of which some were more than one treatment in the same patient recorded as a separate treatment session. The data set was collected in the Cardiff and Vale University Health Board. Before their first treatment, patients completed a questionnaire to assess their baseline worst pain on a scale 0-10, with 0 equating to no pain and 10 indicating the worst possible pain. Day-to-day functioning was assessed by Pain Interference with sleep, mood and general activity, using the Brief Pain Inventory tool. Following familiarisation, the territory of neuralgia was mapped, and a low frequency of 2 Hz with a narrow pulse width electric current delivered close to the targeted peripheral nerve. The protocol included repeat treatment once monthly for a period of 3 months. At each subsequent treatment session, the patient would be asked to review the parameters mentioned above prior to the treatment session and these were adjusted based on patients' analgesic response to the previous treatment. Mean values for pre and post treatment sessions were calculated and statistically analysed.

Result: A one-way repeated measures ANOVA test was performed to compare the effect of three means of the data available: pain scores for baseline, after treatment 1, and after treatment 2 (n = 34). Overall treatment numbers were 64 of which treatment responders were 34/64 or 53.1%. Complete datasets for pain and functioning were available for 41% (14/34). Patients undergoing on going treatment 21.8% (14/64) and non-responders formed 28.1% (18/64). The mean pain values of different points throughout the study were calculated. ENM provides some relief for chronic neuropathic pain, improving overall pain scores in the sample group (n = 34), with a mean reduction in pain score of 1.03 points between baseline and treatment 2 (p = 0.0126, 95% C.I. [0.1975–1.861]).

Conclusion: This service evaluation suggests that ENM may be helpful to some patients with neuropathic pain, and our results are comparable to previously published audit.[3] The place for ENM in standard care protocols for individuals with locally limited neuropathic pain remains to be established with more controlled trials required. Study design needs further improvement to better explain results seen clinically. Future evaluation could include information regarding duration of experienced pain relief. ENM is a non-invasive low-cost treatment and well-designed longitudinal studies for this modality are required in patients with chronic neuropathic pain.

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Keywords: neuromodulation, neuropathic pain, non invasive, low cost, service evaluation

PP-015

Audit and Service Evaluation

Service evaluation of a pelvic pain management programme pilot

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Background: Persistent pelvic pain can have a significant impact on a woman's ability to function and their quality of life. Endometriosis is a common cause of persistent pelvic pain and conventional treatments such as hormones and surgical excision are not curative, with any benefits often not being sustained long term. One intervention offered by persistent pain services is a Pain Management Programme targeted at patients whose pain interferes with their daily life. Through education and practical sessions delivered by a multi-professional team, patients can develop strategies for managing everyday activities better. Local feedback highlighted that patients desired information that was tailored to women's health and to be in a group with women who had similar conditions to them. This service evaluation assesses a pilot Pelvic Pain Management Programme at a large inner city teaching hospital and aims to justify that the programme should become standardised patient care and offered as an additional intervention.

Aims: The aims are to collect data on patient outcomes and establish if women are better able to self-manage their pain by the end of the twelve week programme and at a twelve week follow up. Further aims were to identify if patients could reduce their contact with health care providers about their pain, and if the intervention was cost effective.

Method: The NHS evaluation cycle was used to undertake a mixed methodology project to collect both numerical data and short answer comments on patient outcomes and patient experience. Validated tools were used to measure changes in pain, anxiety, depression, quality of life and health scores together with bowel, bladder and sexual function. Patient contact with health care professionals within this Hospital Trust and cost effectiveness data was collected retrospectively.

Result: The patient outcome measure tools demonstrated notable improvements in areas of pain interference and anxiety associated with pain, as well as bladder and sexual function. Patients reported that they were able to continue the use of the learned relaxation exercises and breathing techniques, however factors such as stress and life events often impacted on their ability to engage in more formal exercise and activities. Patients reported the programme and manual helped them to better manage their pain, but it was also highlighted that travelling and parking in the city was difficult and hosting a programme at a different venue outside the city would be more accessible. Only 7 women regularly attended sessions and complete data was obtained from 5 patients. Women reported they did not attend a session due to pain flare up, childcare and difficulty in getting time off work. The impact on contact with health care providers was mostly low, except for the physiotherapist, where 3 women had follow-up appointments after the programme. The data did not consider contact with providers outside of this NHS Trust and so the broader impact in primary care was not determined. It was difficult to determine if the programme was cost effective due to the funding of outpatient

appointments, however it could be assumed that a higher participant attendance would improve cost effectiveness.

Conclusion: The pilot Pelvic Pain Management Programme demonstrated good patient outcomes and participants reported on the overwhelming benefit of social interactions with other women who have similar pain conditions and shared experiences. Although this service evaluation analysed data from a small cohort of patients, from the outcome data and patient feedback it was recommended that the programme continue to receive funding. Future evaluations may value from in-depth qualitative exploration of the impact of persistent pain and if the benefit of this intervention is sustained over a long period of time.

Keywords: pelvic, pain management programme

PP-016

Audit and Service Evaluation

Complex knee pain – Evaluation of the patient experience in a combined pain and orthopaedic specialist consultation

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Background: There are a number of highly successful treatment strategies for a wide spectrum of knee conditions. However, pain in a small percentage of the population, before or after intervention, can be disproportionate to identifiable structural change. This creates uncertainty in relation to predicted outcomes or failure of treatments to relieve symptoms and restore function. A combined knee clinic was created to cater for this patient sub-group.

Aims: The aim of the study was to assess the value of this clinic from a patient perspective as part of a service evaluation.

Method: All attending patients over a 4 year period were asked to complete a simple evaluation sheet at the end of their consultation. This comprised a Likert rating scale from 1 (not useful at all) to 7 (extremely useful) and a free text follow-up question: "Please tell us more about your answer if you would like to". Comments were initially classified as positive, negative, neutral or unable to interpret by an external evaluator. Further thematic analysis was undertaken.

Result: Of 65 patients attending these clinics, 55 (84.6% of all clinical patients) completed the score, and 34 (52.3%) also gave a written response. The mean score was 6.62 (range 4-7, SD 0.73), the median was 7. There was minimal difference in scores between written responders (6.65) and non-responders (6.57). Of the 34 responders, there were 42 separate comments excluding "thank you". There were no negative comments. 38 (90.5%) were positive, 3 (7.2%) were neutral and 1 (0.3%) was unable to interpret. Further thematic analysis was undertaken. Key themes were: Understanding of condition; Being listened to; Treatment planning; Alternative treatments; More than one perspective.

Conclusion: Our findings demonstrate the high value, from a patient perspective, of a service that focuses on complex painful knee conditions both before and after knee surgery. Having a knee surgeon and pain specialist together gave patients a more complete explanation of their symptoms and treatment options in a single appointment.

Keywords: knee pain, shared decision making, multi-disciplinary working, healthcare communication

PP-017

Basic Science

Evidence that spinal somatosensory-evoked potential modulation by analgesics is mediated through inhibition of wide dynamic range neuronal activity

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Background: Recordings of neuronal activity in the spinal cord have provided valuable evidence into the mechanisms of pain sensitisation and the action of therapies. The established technique of in vivo spinal recordings has predominately utilised single electrodes that record the activity of a small number of individual neurons per recording.

Aims: We conducted multisite silicon probe recordings in the spinal dorsal horn of anaesthetised rats to establish proof of concept of a putative translational biomarker, the spinal somatosensory evoked potential (N1 SEP), and to identify its cellular correlates.

Method: In male anaesthetised Wistar rats (250-300 g, n = 6), lamina III-V neurons in the spinal dorsal horn were recorded using a 64-channel multisite silicon probe. Neuronal activity was characterised at baseline using mechanical stimulation of the hind paw (brush, graded von Frey filaments and pinch) and with electrical stimulation of the sciatic nerve. After a period of stable baseline responses, the animals received an injection of tapentadol (opioid agonist and Noradrenaline reuptake inhibitor, 10 mg/kg i.p). Responses to mechanical and electrical stimulation were assessed up to 40 minutes post-injection, before each rat received naloxone (opioid antagonist, 1 mg/kg i.p) and hindlimb responses were assessed for a further 20 minutes. Local field potential data (N1 SEPs) were analysed in Matlab and single units were clustered with Kilosort4 and curated in Phy.

Result: From the 6 recordings, 45 isolated single units with consistent action potential waveform morphology were classified based on their responses to mechanical and electrical stimulation. A population of neurons (23 cells; 51%) displayed wide dynamic range (WDR) properties (evoked by innocuous & noxious mechanical stimulation and received convergent Aβ-fibre inputs (>10 m/s) and C-fibre inputs(<2 m/s) to electrical stimulation). Additionally, low-threshold mechanoreceptive neurons (evoked by innocuous mechanical stimulation/ only received Aβ-fibre inputs to electrical stimulation) and spontaneously active spinal neurons were also identified. The majority of WDR neuronal responses evoked by innocuous and noxious stimulation were inhibited by tapentadol (18/23 cells; 78%). This inhibition was partially recovered by naloxone. Finally, the naloxone reversal of WDR inhibition by tapentadol matched the pattern of modulation of the N1 SEP by the drugs.

Conclusion: In our previous work, we have shown that amplitude of the N1 SEP is sensitive to analgesic action in rats. Here, using single unit analysis we have shown for the first time that the evoked activity of WDR neurons is likely to be the neuronal correlate analgesic sensitive component of the N1 SEP. Pharmacological reversal of the tapentadol effect by naloxone confirms this biomarker is sensitive to opioidergic modulation. Together, these results strengthen the validity of the N1 SEP as translational biomarker of analgesic action and provide mechanistic insight into the generation of the N1 SEP.

Keywords: novel, biomarker, translational research, spinal cord

PP-018

Basic Science

An experimental protocol for high-yield, single-unit resolution of the response to subcutaneous formalin in the rat saphenous nerve in vivo

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Background: Single-unit peripheral nerve recordings are a gold standard of interrogating the behaviour of nociceptors in animal models. It allows the identification and characterization of individual sensory afferents at high resolution, providing key insight into the mechanisms of pain disorders, but also for monitoring the effects of analgesics, and for developing new treatments. As single-unit peripheral nerve recordings can also be done in humans (i.e., microneurography), it is one of the few truly translation electrophysiological methods in pain medicine. Unfortunately, the technique hasn't evolved substantially in recent decades. In contrast, brain recording techniques have evolved new recording electrodes and analysis tools that allow for simultaneous and precise recordings from tens or hundreds of brain cells over hours and days. However, such tools are not yet available for peripheral nerve recordings. Indeed, even in very skilled hands, peripheral nerve recordings remain limited to half a dozen cells at best, and a challenge to maintain for long durations. Naturally, this limits the quantity and quality of the data that can be obtained, and in turn limits the diagnostic and research capabilities for chronic pain and other disorders

Aims: To overcome the limitations of single-unit peripheral nerve recordings, we have developed a technique using a multi-contact electrode probe to capture single-unit responses in the rat saphenous nerve in vivo. Here we demonstrate the technique using subcutaneous formalin injections as used in the formalin behavioural assay. This assay is classically understood to have a peripherally mediated first phase and a centrally mediated second phase. This approach achieves a high yield of simultaneous single-unit recordings across 32 channels, that lends itself well to traditional and new post-hoc analysis techniques.

Method: Adult Wistar rats were anesthetised under isoflurane and the saphenous nerve surgically exposed. A 32 channel probe was inserted into the nerve after the preparation had been stabilised in agar. Units were characterised via their activity dependent slowing profiles to both low frequency (0.125, 0.25 and 0.5 Hz) and high frequency (2 Hz) stimulation. Their mechanical sensitivity was also assessed using the marking technique, i.e., applying von Frey filaments in combination with continuous 0.25 Hz stimulation where positive responses to von Frey stimulation elicit an increase in latency to electrical stimulation. These stimulus paradigms are equivalent to nociceptor characterization in human microneurography. Either sterile saline or 2.5% formalin was injected subcutaneously adjacent to the receptive field in the hindpaw and neural responses to 0.25 Hz suprathreshold electrical stimulation were recorded over 1 hour. The mechanical characterisation and activity dependent slowing was then repeated. Spikes were manually curated to identify well isolated single units post-experiment using custom MATLAB scripts.

Result: Each recording yielded from 5 to 12 isolated A(delta)- and/or C-fibre units that were maintained for the entire session (typically lasting 1–2 hours). Nociceptive C-fibres were robustly activated following formalin injection, aligned to the first phase of the formalin response. During the expected period of the second behavioural phase, some nociceptive C-fibres were lost, and some developed spontaneous activity. Further, a subgroup of nociceptive C-fibres also developed mechanical sensitisation after injection.

Conclusion: This study demonstrates the efficiency and high-yield of the multi-contact probe recording protocol, and shines light on the role of different nociceptor populations in the behavioural phases of the formalin test. The onset of activity during the expected timecourse of the second phase casts doubt on the classical assumption that this phase is mediated by the central nervous system. Further development of the on-line and post-hoc analysis methods will be valuable in not only improving the efficiency of pre-clinical research on nociception, but also in parallel translational studies in people using microneurography.

Keywords: novel, formalin, pre-clinical, microneurography, rat

PP-019

Basic Science

Using peripherally restricted PICK1 inhibition to treat maladaptive pain while retaining acute nociception in mice

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Background: Worldwide 1.5 billion people suffer from chronic pain. Whereas pain is crucial for our survival, maladaptive pain serves no biological function, and leads to comorbidities such as anxiety, depression, poor sleep, and high prescription drug use.

Aims: It is of great importance to explore potent targets for effective treatment with fewer side effects and without addiction liabilities.

Method: We have developed and characterized a bivalent lipid-conjugated peptide, mPD5, designed to bind to the PDZ domain of the scaffold protein PICK1 (Protein Interacting with C-kinase 1).[1] mPD5 relieves both ongoing and evoked hypersensitivity in multiple mouse models of pain in both female and male mice. Current treatment options for chronic pain entail severe dose-limiting side effects originating from their action on the CNS. However, we have data suggesting that the distribution of mPD5 is restricted to peripheral tissues. Clearing of brain and spinal column tissue of mice injected with labelled mPD5 in combination with mass spectrometry data of brain tissue, spinal cord tissue, plasma, and CSF of mice injected with unlabelled mPD5 indicate that mPD5 is peripherally restricted. mPD5 was present in dorsal root ganglions (DRGs) and plasma, but undetected in CSF, spinal cord, or brain.

Result: While PICK1 is well described in the CNS, we lack knowledge about the role of PICK1 in the PNS. By extracting mRNA data from a publicly accessible database,[2] we have confirmed the presence of PICK1 along the somatosensory nociceptive pathway of both human and mouse, including DRGs. In addition, we have used mPD5 mimicking peptides to successfully pull down PICK1 from both spinal cord and DRG tissue from male and female human donors, substantiating that PICK1 is indeed a relevant therapeutic pain target in humans as well. Lastly, other peripherally acting drugs such as botox, lidocaine patches, and capsaicin patches lead to impaired acute nociception. We have used a hot water tail immersion test (49° C) and a capsaicin paw-lick test revealing normal sensory perception of mice treated with mPD5. Relieving chronic pain, without limiting the sensitivity to potential harmful stimuli of everyday life would be a great benefit for patients.

Conclusion: In conclusion, mPD5 alleviates hypersensitivity through a novel mechanism offering a unique option for further investigation that could provide valuable insight into the biology of pain.

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Conflict of interest: The lipidated dimeric peptides, their usage, and their extended utilization are disclosed in patent application WO2021/176094 currently being processed by patent authorities. KLM and ATS have ownership interests and are co-founders of Zyneyro, a company having exclusice license rights on the patent, which is owned by the University of Copenhagen, Denmark. Ethical permissions: Experiments involving animals were performed in accordance 1 with guidelines of the Danish Animal Experimentation Inspectorate (permission number 2016-15-0201-00976 and 2021-15-0201-01036) in a fully AAALAC-accredited facility under the supervision of local animal welfare committee.

Keywords: peptide inhibitor, PICK1 peptide inhibitor, neuropathic pain treatment, spontaneous pain treat, pain treatment

PP-020

Basic Science

The impact of tonic pain on the modulation of the nociceptive withdrawal reflex during walking

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Background: If you step on something sharp, like a small stone, while you are walking, you have a reflex reaction that brings your foot away from the object. This is called the nociceptive withdrawal reflex. The muscles that are involved in this reflex change their activity depending on what point you are at in your stride when you feel the stimulus. This makes sure that you can withdraw your foot from the stimulus and that you don't fall over while you are doing so. We know that being in ongoing (tonic or chronic) pain impacts the nociceptive withdrawal reflex. But no one has ever looked at whether being in ongoing pain impacts the way the nociceptive withdrawal reflex is modulated over the walking stride. An altered reflex during walking could make it harder for people with ongoing pain to maintain balance.

Aims: This study aimed to quantify the impact of tonic pain on the modulation of the nociceptive withdrawal reflex over the stride cycle during walking.

Method: Four healthy participants (1 male, average age of 32 years, range 20-42 years) have taken part in the study to date. Muscle activity was recorded as electromyography (EMG) from surface electrodes placed on the skin over muscles in the thigh, shank and calf. A brief electrical stimulus was applied to the arch of the right foot and the stimulus intensity was increased until a reflex was evident in the EMG. Participants then walked on a treadmill under two conditions: (1) with a blood pressure cuff on their non-dominant arm inflated to 1.5 times their diastolic blood pressure to serve as a tonic pain stimulus, and (2) without any blood pressure cuff. In some strides, the electric stimulus was delivered to the foot when the foot was flat on the floor and when the leg was swinging. Reflex responses were calculated from the EMG as a percentage difference to the EMG present without any stimulation.

Result: Muscle activity as part of the nociceptive withdrawal reflex was different when the foot was flat on the floor compared to when the foot was in swing. For three participants in the control condition the vastus lateralis muscle (on the front of the thigh) demonstrated little to no response at foot flat (EMG +24 ± 8% above that during normal walking) but a large response in swing (+140 ± 63%). In the presence of tonic pain this was -5 ± 17% during foot flat and +90 ± 72% in swing. In one participant EMG was similar between foot flat and swing in the control condition and greater in swing than foot flat in the presence of tonic pain. For two participants, in the control condition the soleus muscle (calf), demonstrated an inhibitory response during foot flat (-23 ± 3%) and an excitatory response during swing (+30 ± 8%). In the presence of tonic pain, the response during foot flat was similar to the control condition (-18 ± 14%), but that during swing was slightly less than the control condition (+18 ± 15%). For one participant the same pattern was seen in the control condition, but greater EMG was seen during foot flat than swing in the presence of tonic pain. For the further participant data was missing for the soleus.

Conclusion: The phase-dependent nociceptive withdrawal reflex responses are similar to reported previously and are likely protective mechanisms (stiffening the knee joint during swing and reducing the pressure on the painful stimulus during foot flat). Reduced nociceptive withdrawal reflex in walking while in pain may increase the chance of tissue damage from the painful stimulus and or make controlling balance more difficult.

Keywords: reflex, walking, gait, tonic pain, nociceptive withdrawal reflex

PP-021

Chronic Pain

The impact of immersive virtual reality on pain processing and patient-reported outcome measures in persistent low back pain: preliminary results

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Background: Persistent low back pain (LBP) is often characterised by nociplastic pain resulting from altered nociceptive processing without clear tissue damage. Immersive virtual reality (VR) applications, including embodiment-based and distraction-based approaches, have shown promise in managing persistent LBP.

Aims: To compare the impact of distraction- and embodiment-based immersive VR on pain processing and patient-reported outcomes in individuals with persistent LBP.

Method: A total of 20 participants with persistent LBP were randomised into two groups: the embodiment group (n = 10) and the distraction group (n = 10). Each participant underwent eight immersive VR sessions over a planned duration of two weeks. Outcome measures included the Numerical Pain Rating Scale (NPRS), Pain Catastrophizing Scale (PCS), Fear-Avoidance Beliefs Questionnaire (FABQ), Tampa Scale of Kinesiophobia (TSK), Hospital Anxiety and Depression Scale (HADS), Oswestry Low Back Disability Index (ODI) and quantitative sensory testing: Conditioned Pain Modulation (CPM) and Temporal Summation (TS). Assessments were

conducted at baseline, at the beginning of the fourth session, and at the beginning of the eighth session.

Result: The mean age of participants was 36.2 years (Embodiment: 31.2; Distraction: 41.2), and 30% were male (N = 6). Most patient-reported outcomes show a tendency to improve from baseline to session eight in both groups. NPRS score decreased from 5.5 to 4.2 in the embodiment group and from 5.8 to 3.7 in the distraction group; PCS score decreased from 24.1 to 17.8 in the embodiment group and 24.2 to 19.2 in the distraction group; ODI score decreased from 13.2 to 11.1 in the embodiment group and from 13.3 to 12.9 in the distraction group; FABQ-work score reduced from 13.7 to 11.6 in the embodiment group and 11.7 to 10.4 in the distraction group; FABQ-physical activity score reduced from 13 to 12.3 in the embodiment group and 14.9 to 11.4 in the distraction group; and TSK score reduced from 38.3 to 37.9 in the embodiment group and from 36.9 to 36.0 in the distraction group. HADS-anxiety score decreased in both groups (9.4 to 8.4 in the embodiment group and 10.1 to 9.5 in the distraction group), while HADS-depression score decreased from 6.5 to 5.2 in the embodiment group but increased from 6.0 to 6.4 in the distraction group. The CPM absolute values improved more in the embodiment group (-1.27 to -2.26 points in NPRS) than in the distraction group (-1.37 to -1.55 points in NPRS), suggesting improvement in endogenous pain inhibition. TS slightly increased in the embodiment group (2.29 to 2.41), indicating increased central sensitisation and decreased pain tolerance, but decreased in the distraction group (3.32 to 3.02). Inferential statistics were not performed at this preliminary stage.

Conclusion: The results suggest improvement in pain processing and patient-reported outcomes with both embodiment- and distraction-based immersive VR, though the magnitude of change may vary across outcomes. Pain decreased in both groups, but neither achieved the minimal clinically important difference of 3 points, suggesting partial but insufficient pain relief. There may be clinically meaningful reductions in catastrophic thoughts in both groups, with change in PCS exceeding the minimal clinically important difference of 5 points. However, changes in ODI, FABQ-W, and FABQ-PhA scores appear minimal and short of clinical significance. Changes in HADS anxiety and depression were minimal and below clinical importance. There may be greater improvement in CPM absolute values in the embodiment group than in the distraction group, suggesting more enhanced endogenous pain inhibition. These findings support the potential utilisation of embodiment- and distraction-based immersive VR in managing persistent LBP. Ongoing data collection and further analysis aim to clarify these findings and assess the potential long-term impact.

Keywords: virtual reality, non-pharmacological intervention, chronic pain, Low Back Pain

PP-022

Chronic Pain

West of England patient safety collaborative medicines safety improvement: Reducing harm from chronic pain using the LWWP ten-footsteps programme

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Background: With core funding from NHS England and the government's Office for Life Sciences, our collective aim is to spread health innovation at pace and scale – improving health, transforming lives and generating economic growth. A Community pain group was founded in 2018 in the West of England, to support general practice with patients diagnosed with Fibromyalgia, due to its success the group increased its capacity to include all types of chronic pain including Long Covid. There is a wide demographic of patients; typically female, 40 yrs +. A direct invitation is made via the GP, Pharmacist or other practitioner either verbally or using the local messaging system. Patients requiring a pain management pharmacist are tasked directly where a opioid reduction plan is discussed and implemented where appropriate. A survey explored the barriers to de-prescribing opioids and was sent to Primary Care clinicians in September 2022. The survey found:·50% of the respondents felt they needed additional training to support de-prescribing of opioids, citing the following barriers: 70% of responding clinicians had low to average confidence in explaining pain mechanisms. 72% had little to average understanding of when opioids should be tapered/stopped and the principles for dose reduction. 69% stated they had little to average confidence in explaining non-medicinal self-management techniques for managing pain. Only 55% of respondents felt confident in explaining risks associated with long-term use of opioids. Majority of respondents described themselves as having "average" confidence in discussing mechanisms of pain and self-management options. Almost 60% of respondents were unaware of PrescQIPP e-learning available Large majority of respondents were unaware of support for clinicians in local area.

Aims: A whole system approach to reducing harm from opioids has been developed to support local approaches to helping people live well with chronic non-cancer pain. • By March 2025 – 25,000 fewer people prescribed oral or transdermal opioids from more than 3 months – preventing around 400 deaths. • By March 2025 – 4,500 fewer people prescribed high dose opioids (120 mg OME/day), halving their risk of opioid related death. • People with chronic non-cancer pain reporting better quality of life.

Method: We facilitated two webinars to give insight into the programme and the programme aims, with attendance and presentations from people with lived experience of chronic pain with/without opioid management. Additionally, we supported a quarterly steering group with one of our Integrated Care Systems that did not have an existing workstream for reducing harm from opioids. In 2022/23 the Quality and Outcomes Framework (QOF) had a module on quality improvement which provided additional support for engagement in the programme. Due to the feedback from the clinicians, we commissioned 100 training places for the Live Well With Pain (LWWP) 10 Footsteps Programme.

Result: Conditions for success were established, including: Project led with enthusiasm & drive; a supportive practice management team was established providing the opportunity to experiment. Based on Open Prescribing Data, we achieved a significantly reduced number of opioids prescribed across the PCN, in particular the high dose opioids. We also received positive PSQ feedback, with the top benefits highlighted "Information sharing, "Presenter sessions well organised" "Sharing ideas and experiences" 70% left feeling happy and likely to recommend to a friend; 60% are connecting outside of the organised group.

Conclusion: To increase resilience, PCN Health and WellBeing Coach has completed the LWWP Course and has begun supporting sessions throughout the year. GPs have requested this service to be initiated across the whole PCN.

Keywords: live well with pain, self-management, confidence, pain livers

PP-023

Chronic Pain

A clinical evaluation of a LWWP 10-footsteps-informed NHS pain self-management programme in the West Midlands: Early findings

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Background: Persistent pain, defined as pain lasting or recurring for longer than three months, significantly impacts the quality of life of individuals, impeding daily activities, mental health, and overall well-being. The complex nature of persistent pain, influenced by a variety of biological, psychological, and social factors, necessitates a comprehensive approach to management. This has led to the development and implementation of Pain Management Programmes (PMPs), which aim to improve the quality of life of individuals living with persistent pain through a multidisciplinary approach, focusing on self-management strategies. The "Ten Footsteps to Living Well with Pain" is an engaging, interactive self-management programme developed through a collaboration between a team of pain specialists—including individuals with lived experience, a Clinical Psychologists, GPs, and Physiotherapists and researchers from the Wolfson Research Institute for Health and Wellbeing Pain Challenge Academy, Durham University.

Aims: The UHB Pain management programme aims to help people to live well with chronic pain by helping them to learn ways of dealing with the disabling effects and distress caused by its impact of pain.

Method: The PMP has been developed based on the British Pain Society pain management programmes for adults guidelines (2019) guidance, and the content is based on the PCI-accredited Live well with Pain Ten Footsteps to self-management Framework (https://www.livewellwithpain.co.uk). The programme is a 6-week course which consists of a 3-hour weekly session and a follow up session 6 weeks after the PMP. All sessions were facilitated by a specialist pain physiotherapist and specialist pain psychologists. Each session has an educational and practical elements, where people used a health needs assessment approach to identify their health priorities and to set specific personal goals. The people learn in a group setting from the programme content about pain and ways to try and manage the pain (Ten Footsteps), and how to exercise safely and build up activity levels. Parameters were determined before and after the training programme (N = 106). Parameters measured included Pain Frequency, Intensity and Burden scale, Tempa scale of kinesphobia, Pain self-efficacy questionnaire 10, Generalised anxiety disorder assessment-7, Patient Health questionnaire-9 and Chronic pain acceptance questionnaire-8.

Result: The intervention resulted in a significant reduction in pain frequency, intensity and burden (3.04%), fear avoidance of pain (4.35%), anxiety (8.12%) and depression (5.16%), and a concomitant increase in chronic pain acceptance (2.26%) and confidence in dealing with pain (5.77%).

Conclusion: In summary, the clinical data collected to date shows significant positive changes in all dimensions tested including mental health, acceptance and confidence, with concomitant reduction in pain frequency, intensity and burden.

Keywords: live well with pain, self-management, confidence, pain livers

PP-025

Chronic Pain

A clinical evaluation of a LWWP 10-footsteps-informed NHS pain self-management group in a multicultural and diverse community south London

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Background: Persistent pain, defined as pain lasting or recurring for longer than three months, significantly impacts the quality of life of individuals, impeding daily activities, mental health, and overall well-being. The complex nature of persistent pain, influenced by a variety of biological, psychological, and social factors, necessitates a comprehensive approach to management. This has led to the development and implementation of Pain Management Programmes (PMPs), which aim to improve the quality of life of individuals living with persistent pain through face-to-face programmes providing a multidisciplinary approach, focusing on self-management strategies. The "Ten Footsteps to Live Well with Pain" is an engaging, interactive self-management web-based programme created through a collaboration between a team of pain specialists—including individuals with lived experience, clinical psychologists, GPs, and physiotherapists with researchers from the Wolfson Research Institute for Health and Wellbeing Pain Challenge Academy, Durham University.

Aims: To assess the feasibility, suitability and acceptability of delivering a community-based, advanced physiotherapy practitioner-led self-management support and exercise group for adults living with persistent pain, and to present preliminary outcomes.

Method: The Live Well with Pain Group (LWWPG) was delivered within the MSK physiotherapy department at a community Therapy Centre of St George's University Hospitals, London. An advanced practice physiotherapist with over 10 years of experience in pain management, including work within specialist interdisciplinary pain services facilitated the face-to-face groups. A second physiotherapist co-facilitated the groups, supported by the lead physiotherapist. The group sessions took place in both a group room and a rehabilitation gym, providing a comprehensive environment for delivery. The LWWPG was designed to provide early access to supported self-management resources and group-based exercise for adults living with persistent pain. The LWWPG was structured around the Ten Footsteps content and resources. (https://livewellwithpain.co.uk/, 2021). The LWWPG consisted of eight group sessions, each lasting two hours (60-90 mins footstep discussions, 20-45 mins graduated exercise, 5-15 mins relaxation or mindfulness practice), delivered on consecutive weeks, equating to 16 hours total contact time. There was an individual 30 minute two-month follow up (week 18) to review their outcomes, goals, signpost or refer to other services (e.g. exercise opportunities, talking therapies). Participants (N = 64) completed standardised treatment outcome measures at three timepoints; start of group (week 1), end of group (week 8), two-month follow-up (week 18). Outcome variables were function (Patient Specific Functional Scale (PSFS), Musculoskeletal Health Questionnaire (MSK-HQ) and mood (PHQ-9 and GAD-7).

Result: The LWWPG programme resulted in highly significant: Reduction in Health Care Use: GP visits ($p = 0.0004$) and Hospital visits ($p = 0.004$); Reduction in average pain status ($p = 0.02$); Improved physical health status (MSK-HQ, PSFS) ($p < 0.002$); and

Improved Mental Health status (GAD-7 ($p = 0.004$), PHQ-9 ($p = 0.006$). Based on series of Pearson correlation analyses, it was found that the poorer the physical status at the start of the training, the poorer the pain status ($p < 0.0001$); the worse the pain status at the start of training, the lower the positive effect of the training ($p < 0.004$). Interestingly, the training efficacy did not correlate with age of participant ($p > 0.05$).

Conclusion: In summary, the clinical data collected to date shows large significant positive changes in all physical and mental health changes, tied in with reduction in average pain status. These data further confirm the utility of the LWWP Ten Footsteps programme for pain self-management and multicultural populations in community settings.

Keywords: live well with pain, self-management, confidence, pain livers

PP-026

Chronic Pain

Greater occipital nerve block versus subcutaneous sumatriptan in the acute treatment of migraine: A prospective comparative study

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Background: Migraine is a chronic, debilitating neurological disorder characterized by recurrent attacks of moderate to severe headache, often accompanied by nausea, photophobia, and phonophobia. Acute treatment options commonly include triptans, such as subcutaneous sumatriptan, which are effective but may be limited by adverse effects or contraindications in certain patient populations. Greater occipital nerve block (GONB) has emerged as a potential non-pharmacological alternative for aborting migraine attacks.

Aims: The aim of this prospective study was to compare the clinical efficacy and safety profile of GONB with subcutaneous sumatriptan in the acute management of migraine attacks.

Method: This prospective, randomized study enrolled 40 adult patients (aged 18–55) diagnosed with migraine without aura according to the International Classification of Headache Disorders, 3rd edition (ICHD-3). Participants were randomly assigned to receive either an oral dose of 6 mg sumatriptan or a unilateral greater occipital nerve block using 3 ml of 1% lidocaine. Pain intensity was assessed using the Visual Analogue Scale (VAS) prior to the intervention and at 30, 60, and 120 minutes post-treatment. The primary endpoints were reduction in VAS score and the proportion of patients achieving complete pain relief. Secondary outcomes included the time to meaningful pain reduction (defined as ≥50% decrease in VAS score) and the incidence of adverse events in both groups.

Result: Both treatments were effective in significantly reducing the intensity of migraine pain. Mean baseline VAS scores were comparable between groups, with values slightly above 8 out of 10 in both cohorts. At 30 minutes post-treatment, patients who received GONB showed a reduction in pain intensity similar to those in the sumatriptan group. By 60 minutes, the mean VAS score decreased to approximately 2.1 in the sumatriptan group and 1.8 in the GONB group. After 120 minutes, pain further declined to around 1.2 and 1.0, respectively. Complete pain resolution, defined as a VAS score of 0, was observed in 68% of patients treated with sumatriptan and in 72% of those receiving GONB, with no statistically significant difference between groups. The mean time to achieve at least 50% reduction in pain was 27 minutes in the sumatriptan group and 25 minutes in the GONB group, which was also not statistically significant. In terms of safety, adverse events were more frequently reported in the sumatriptan group. A total of 25% of patients in this group experienced side effects, including chest tightness (15%), nausea (7.5%), and dizziness (2.5%). In contrast, only 10% of patients in the GONB group reported mild and transient side effects, such as localized numbness in the occipital area or pain at the injection site. No serious adverse events occurred in either group, and no patients required additional medical intervention.

Conclusion: This study demonstrates that greater occipital nerve block is as effective as subcutaneous sumatriptan in aborting acute migraine attacks. Both interventions led to comparable reductions in pain intensity and similar times to relief. However, GONB was associated with a more favorable safety profile and fewer adverse effects. These findings suggest that GONB may be a valuable therapeutic alternative, particularly in patients who cannot tolerate or are contraindicated for triptan therapy. Further studies on larger populations and with repeated interventions are warranted to confirm these results and explore the long-term benefits of GONB in migraine management.

Keywords: pain management, migraine without aura, visual analogue scale, sumatriptan, greater occipital nerve block

PP-027

Chronic Pain

How adulthood adverse experiences, and post-traumatic stress disorder may lead to high impact chronic pain

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Background: Trauma, defined as a profoundly distressing experience beyond one's capacity to cope, has been linked to a spectrum of adverse outcomes, including high-impact chronic pain (HICP). Trauma may act as a direct precursor to HICP or through other health conditions, such as sleep, and mental health conditions.

Aims: This study used UK Biobank data to explore hypothesised causal relationships between trauma, sleep disturbance, symptoms of anxiety and depression, and HICP.

Method: This study used data from participants of the UK Biobank, aged 40–69 at inclusion (2006-2009), who had completed both the 2016 mental health and 2019 pain sensations surveys. Data included demographic, lifestyle, physical, mental health, and pain information, with a directed acyclic graph based on literature and discussion with patient partners. The main analysis included participants (45% of

eligible participants) who had also provided consent for access to primary care records and focused on analysis of prevalence of HICP in 2019, and separately, on onset (incidence) by excluding participants who previously consulted for musculoskeletal conditions. An additional analysis used data from all eligible participants, but relying exclusively on Biobank data. Exposures reported here included adulthood adverse experiences (AAE, count out of 11) and symptoms of post-traumatic stress disorder (brief PTSD score, range 0-5) reported in 2016. HICP in 2019 was defined as presence of chronic pain and mean ≥4 for pain, enjoyment of life, and general activity (PEG). Sleep disturbance, anxiety, and depression were considered mediators and measured in 2016; confounders included demographic, socioeconomic, and clinical variables. Bayesian mediation analysis examined causal pathways from trauma to HICP. Missing data were addressed using multiple imputation by chained equations with Random Forest.

Result: The prevalence of HICP in 2019 was 21.53% (20.64% in wider UKB only sample), while incidence in those without previous musculoskeletal consultation) was 20.24%. Participants reported on average 3.08 (SD = 1.38) AAEs, and mean score for PTSD was 1.22 (SD = 1.60). For prevalence of HICP, one additional AAE was associated with a 21% increase in the odds of developing HICP, which reduced to 13% after adjusting for confounders. Mediators accounted for 75% of this association, with sleep disturbance (indirect OR: 1.10, 95% CI: 1.05–1.16) and depression (indirect OR: 1.07, 95% CI: 1.06–1.09) emerging as the most influential mediators (indirect OR for anxiety: 1.03, 95% CI: 1.02–1.04). For onset, excluding musculoskeletal consulters, the crude odds ratio (OR) was 1.20 (95% CI: 1.18–1.22), decreasing to 1.07 (95% CI: 1.05–1.09) after adjustment. Mediators explained 78% of the association, indirect effects for sleep disturbance OR: 1.07, 95% CI: 1.03–1.10, depression OR: 1.06, 95% CI: 1.05–1.08 and anxiety (OR: 1.02, 95% CI: 1.01–1.03). For PTSD, one point higher on the scale, increased the odds of HICP by 28% for prevalence, reducing to 16% after adjusting for confounders. Mediators explained 79% of the association, with depression (indirect OR: 1.10, 95% CI: 1.08–1.13) and sleep disturbance (indirect OR: 1.08, 95% CI: 1.01–1.17) again being the dominant pathways (anxiety: 1.05, 95% CI: 1.02–1.08). For onset, the crude OR was 1.28 (95% CI: 1.26–1.29), decreasing to 1.16 (95% CI: 1.14–1.18) after adjustment. Mediators accounted for 77%, with indirect effects for depression: OR: 1.10, 95% CI: 1.07–1.12, sleep disturbance OR: 1.06, 95% CI: 1.03–1.11 and anxiety: 1.05, 95% CI: 1.02–1.08). Results were again very similar for the wider eligible sample for whom primary care records were not available.

Conclusion: Although the absolute indirect effects of sleep, anxiety, and depression were modest, they explained a significant proportion of the link between AAE or PTSD symptoms and HICP onset or persistence. These findings highlight the importance of targeting these mediators to develop interventions that improve pain management and quality of life.

Keywords: chronic pain, high impact chronic pain, trauma, PTSD, anxiety, depression, sleep

PP-028

Chronic Pain

Increased prevalence of autism spectrum disorder in the children of fibromyalgia syndrome patients relative to other types of chronic pain

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Background: Recent research has suggested that fibromyalgia syndrome (FMS), a primary chronic pain condition, is autoimmune in nature. Independent of this, Maternal Autoantibody Related – Autism Spectrum Disorder (MAR-ASD) has emerged as a subtype of autism spectrum disorder (ASD) in which pathogenic autoantibodies are theorised to cross the placenta and disrupt foetal neurodevelopment. Previous research has demonstrated that maternal autoimmune disease is associated with an increased likelihood of ASD in children.

Aims: We carried out an investigation aiming to establish the prevalence of ASD in the children of a sample population of chronic pain patients and to observe what maternal factors were associated with the outcome of having a child with ASD.

Method: 590 chronic pain patients who attended a tertiary care outpatient pain clinic at the Walton Centre, a UK neurological centre, between 26/10/2020 and 10/05/2023 were invited to participate in an online questionnaire.

Result: The results indicate an increased prevalence of ASD diagnoses in the children of FMS patients (37.5%) compared with patients with other chronic pain conditions (4.8%). FMS in mothers was significantly associated with an increased likelihood of having a child with ASD ($p = 0.015$).

Conclusion: These results suggest that ASD is more prevalent in children of mothers with FMS compared to mothers with other chronic pain and the general population. This is the first study to demonstrate a significantly increased likelihood of having a child with ASD amongst a sample population of mothers with FMS. Children with ASD typically have high support needs, thus highlighting the need for further investigation to provide support to these families in clinical assessments. We suggest that, amongst other theories, the significant difference between these two groups of chronic pain patients could hint at the involvement of pathogenic antibodies during pregnancy in the pathogenesis of ASD in the children of mothers with FMS.

Keywords: fibromyalgia, autism, autoimmunity, chronic pain, autism spectrum disorder

PP-029

Chronic Pain

Chronic pain policy: Lessons learned from four countries

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Background: In response to the high prevalence and profound effects of chronic pain, various countries have developed policies, including strategies, action plans, and frameworks to ensure timely and effective care, reduce the burden on healthcare systems, and improve the quality of life of individuals living with chronic pain. Health policies are broadly defined as decisions, plans, or actions developed to achieve specific healthcare goals. Chronic pain policies play a crucial role in guiding healthcare providers, informing public health

initiatives, influencing service delivery and care, and improving the availability and quality of chronic pain services and the allocation of resources. While policy-level activities are recognised as being important in advancing care and reducing the burden of chronic pain, it remains unclear whether these policies have achieved their intended goals. This study seeks to fill this gap by examining the implementation and effectiveness of chronic pain policies, providing insights into the real-world impact of these policies.

Aims: To identify chronic pain policies and to determine to what extent recommendations have been implemented and whether their effectiveness has been evaluated. We undertook this in an international context using the UK, and three countries with broadly similar healthcare systems: Canada, Australia, and New Zealand.

Method: A systematic review of the literature was conducted and four databases – Scopus, Web of Science, OVID (EMBASE and MEDLINE), and the grey literature, were searched. The search focused on identifying national and regional chronic pain policy documents related to the management and the delivery of care for chronic pain, as well as evaluations and assessments of these policies, published between January 2000 and March 2024, in the UK, Canada, Australia, and New Zealand. Additionally, manual searching of citation lists of policies and reviews was conducted, and where policies could not be retrieved online, the relevant agencies were contacted. Searching was conducted by one reviewer (NA), with any uncertainties discussed with the other authors (RJH and GJM) and resolved by consensus. All the obtained policy documents were read, and data was extracted and analysed using the Health Policy Triangle Framework (HPT) and the RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance) framework to provide a broader understanding of the background of the policy and evaluate outcomes and real-world effectiveness of the policies. The data was narratively synthesised.

Result: 15 policy documents were identified as eligible for the review, with five from Australia, seven from Canada, three from the UK, and none found from New Zealand. Of the 15 documents, six were action plans, four were strategic documents, three were frameworks, and two were guidance documents. This review identified common themes across policies including; enhancing care delivery, promoting interdisciplinary and patient-centred approaches, improving access to resources and medication, and providing education and training to patients and practitioners. The policies reviewed varied in detail regarding their implementation and evaluation, with many lacking actionable implementation strategies or failing to describe the collection of measurable outcomes, hindering effective evaluation. Assessments of policy effectiveness were poor, as many policies lacked sufficient data to support the success of their implementation, making it unclear whether they achieved their intended outcomes. However, some policies had clear objectives and details on implementation and evaluation methods – such as the New South Wales plan, which measured data for evaluation, including wait times, health services demand, and opioid usage – a strong example of an impactful policy that is well-executed.

Conclusion: The results highlight significant gaps in the implementation and evaluation of chronic pain policies, emphasising the need for the future development of strong, evidence-based policies with comprehensive implementation plans and evaluation techniques, incorporated into the policymaking process.

Keywords: chronic pain, chronic pain policy, pain policy

PP-030

Chronic Pain

Unhelpful clinical messages in chronic pain: Clinicians' experiences

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Background: Chronic pain is not always well understood in non-pain-specialist healthcare settings. Research on clinicians' attitudes often reveals stigmatising views of chronic pain that rate it as a low priority. Also, incorrect beliefs about the harmfulness of pain have been shown to be disabling in the fear-avoidance model. Anecdotally, pain clinicians report regularly having to correct and negotiate unhelpful messages about pain that seem to have been given by other clinicians.

Aims: To survey pain clinicians about the frequency, impact and nature of unhelpful clinical messages about chronic pain (unhelpful from the pain clinician's perspective), as reported or recounted by their patients.

Method: A clinician-oriented web survey was created and publicised through social media and professional contacts. Ethical approval was granted by the University of Bath. The survey included (1) demographic information, (2) quantitative questions about the frequency and impact of unhelpful messages in various domains, and (3) open text boxes for clinicians to record typical messages reported by patients. Similar questions were repeated across four potential clinical domains: (a) Physical Safety and How to Move, (b) Diagnosis and Nature of Symptoms, (c) Prognosis and Future Change, (d) Cause of Condition. Free text responses from all domains were analysed together using Inductive Reflexive Thematic Analysis.

Result: 90-97% of 165 clinician respondents reported encountering unhelpful messages about pain in various domains. These were encountered fairly frequently (often/very often: 55-74%), and where present, had a significant clinical impact (69-74% major/severe impact). Qualitative analysis identified five themes: (1) all in your head, (2) you're physically vulnerable, (3) the end of the line, (4) an elusive fix, (5) inadequate pain explanations.

Conclusion: This online survey confirmed anecdotal impressions that pain clinicians regularly encounter patients reporting clinically harmful messages about chronic pain. These messages varied from dismissive 'psychosomatic' attributions for pain, to messages that implied physical fragility or therapeutic hopelessness. The pain community needs to persist in disseminating accurate information about the nature of chronic pain and its treatment.

Keywords: chronic pain, stigma, health beliefs, communication

PP-031

Chronic Pain

Factors associated with quality of life and changes in quality of life in people with chronic pain: A longitudinal study

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Background: Chronic pain is a prevalent condition that significantly impacts quality of life (QoL). Identifying factors associated with QoL and its changes over time is critical for tailoring interventions to improve outcomes. While numerous studies have explored the impact of chronic pain on various aspects of individuals' lives, including psychological well-being and overall QoL, there remains a need for more extensive investigations into the longitudinal factors influencing QoL. Many studies focus on cross-sectional assessments or have small sample sizes, providing limited insight into QoL changes over time.

Aims: This study aims to examine factors associated with QoL and changes in QoL over 12 months in people with chronic pain.

Method: Participants completed an online screening and self-report questionnaires as part of the Warwick Study of Mental defeat in Chronic pain, assessing sociodemographics, psychological variables, and other variables including QoL at 0, 6 and 12 months. QoL was assessed by the EuroQol-5 Dimension (EQ-5D-5L mapped to EQ-5D-3L value sets according to NICE guidelines and utility score normed to UK values). To investigate the relationship between baseline factors and QoL at 12 months, a linear multiple regression analysis with stepwise selection was conducted. Additionally, linear mixed-effects modelling (LMM) with random intercept was used to investigate associated factors with QoL at any timepoint. Interaction effects with time as part of the LMM were investigated to examine whether the relationship between QoL and the factors changes over time. Last, QoL change scores were calculated and a linear multiple regression analysis with stepwise selection was conducted to examine associated factors with change in QoL. The following factors were taken into consideration: Age, sex, body mass index, employment status, education, smoking, alcohol use, medication use, pain duration, mental defeat, pain interference, pain severity, number of pain sites, pain vigilance and awareness, activity patterns (avoiding, overdoing and pacing), insomnia severity, perceived stress, kinesiophobia, anxiety symptoms, depression symptoms, and amount of social activity.

Result: In total 527 people with chronic pain participated. Data of 342 participants could be used for the analyses. Pain interference with daily activities (standardized regression coefficient [b] = -0.173; p = 0.012), insomnia severity (b = -0.204; p = < 0.001), symptoms of depression (b = -0.225; p < 0.001), Body-map index score (b = -0.089; p = 0.05), Employment status (b = -0.120; p = 0.004), pain duration (b = -0.095; p = 0.023), pain severity (b = -0.128; p = 0.033), medication quantification scale score (b = -0.086; p = 0.047) at baseline were significant predictors for QoL 12 months later. The regression model explained about 46.9% of the total variance in QoL. The linear mixed model revealed that, independent of the time, the following baseline factors predict QoL (fixed effects): Employment status (employed) (unstandardized estimate [B] = 0.060; p < 0.001), pain severity (B= -0.037; p < 0.001), pain interference (B = -0.019; p < 0.001), medication quantification scale score (B = -0.005; p < 0.001), insomnia severity (B = -0.006; p < 0.001) and depressive symptoms (B = 0-15; p < 0.001). No interaction effect with time was included in the best-fitting model. There was very little change in QoL over time, with mean scores indicating a moderate health state at baseline (Mean: 0.536, Standard deviation [SD]: 0.271), at 6 months follow-up (Mean: 0.537, SD: 0.264), and at 12 months follow-up (Mean: 0.538, SD: 0.284). Pain severity at baseline was identified as predictor for QoL at 12 months (b = -0.148; p = 0.007; R^2 adjusted = 1.9%).

Conclusion: Pain interference, insomnia severity, and depressive symptoms are the strongest predictors of QoL over 12 months in people with chronic pain, alongside other factors such as pain severity, employment status, and medication use. Independent of time, pain interference, insomnia severity, depressive symptoms, pain severity, employment status, and medication use are predictors. Future studies can aim to investigate the effectiveness of interventions which target modifiable predictors, like insomnia and depression, to improve QoL in people with chronic pain.

Keywords: chronic pain, quality of life, predictors, associated factors

PP-032

Chronic Pain

Risk factors of long-term sickness absence in patients with high-impact chronic pain – A scoping review and Swedish register-based cohort study

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Background: High-impact chronic pain (HICP) – a significantly disabling form of chronic pain – affects nearly one in ten individuals worldwide. Beyond its direct consequences, HICP increases risk of long-term sickness absence (LTSA), leading to income loss and increased societal costs. LTSA prevention is therefore essential, and a critical first step is to understand its risk factors.

Aims: To identify and quantify the most relevant risk factors for LTSA in individuals with HICP.

Method: We conducted a joint scoping review and register-based cohort study to identify and analyze potential risk factors for LTSA among adults with HICP receiving specialist healthcare. Risk factors were identified from the scientific literature, then assessed using high-

quality data from five linked Swedish National Registers. LTSA was defined as >180 sickness absence days in third year after entering specialist healthcare. All risk factors were analyzed simultaneously in a multivariable logistic regression model, with significance set at Bonferroni-adjusted alpha of 0.05. Model performance and generalizability were evaluated using bootstrapping and quantified by area under the curve (AUC). Associations were illustrated in partial effect plots and reported as marginal risk ratios (RR) with 95% confidence intervals (CI), comparing the 75th and 25th sample percentile.

Result: In our scoping review, we identified 57 potential risk factors. Twenty-three were excluded due to missing data, and remaining 34 included in the multivariable regression model (n = 10,552; 25% LTSA). Seven risk factors were statistically significant. The model demonstrated acceptable predictive performance (AUC = 0.787) and strong generalizability. Prior sickness absence had the strongest positive association with future LTSA (RR: 2.53; CI: 2.40–2.66). Other positive associations included comorbid neurological disorders (RR: 1.60; CI: 1.38–1.81), female sex (RR: 1.18; CI: 1.10–1.26), and pain duration (RR: 1.11; CI: 1.03–1.20). Lower self-rated work ability (RR: 1.42; CI: 1.29–1.58) and lower confidence in recovery (RR: 1.21; CI: 1.13–1.30) were also associated with a higher risk, and household income showed a complex non-monotonic relationship with LTSA.

Conclusion: Consistent with previous research of other populations, both health-related and sociodemographic variables affected risk of LTSA. The strong association with prior sickness absence highlights its role as proxy for underlying health conditions and barriers to workforce reintegration. The association between self-rated work ability and confidence in recovery supports their use in clinical settings, for quickly assessing return-to-work potential. Continued refinement of prognostic models and development of targeted interventions are necessary to support workforce participation among individuals with HICP.

Keywords: disability pension, chronic pain, Interdisciplinary treatment, return-to-work, sickness absence

PP-033

Chronic Pain

A Service evaluation of the prevalence, type, and severity of mental health co-morbidities in referrals to the Southampton chronic pain service

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Background: Chronic pain is a significant contributor to disability and quality of life in the UK and globally. The complex multidirectional relationship between pain and mental health has been discussed in the literature. A mental health disorder is defined as an illness that affects the way people think, feel, behave, or interact with others and encompasses a wide range of disorders such as depression, anxiety, post-traumatic stress disorder, personality disorders, schizophrenia, phobias, bipolar disorder, eating disorders and others. It is hypothesised that patients with significant mental health co-morbidities may struggle to engage with pain management services, with psychosocial complexities cited as the main reason for referrals being declined. Evaluation of both accepted and declined referrals is needed in the pain management field, where no previous reviews have analysed Advice and Guidance discussions with the pain clinic clinicians. Advice and Guidance is the agreed first point of contact for general practice (GP) with the Southampton Pain Service. Inappropriate referrals impact on the Pain Clinic's limited healthcare professional capacity and resources with low chance of a positive outcome.

Aims: This evaluation aims to examine the current prevalence of mental health co-morbidities in the referrals into the pain service, and the degree of association between the presence of mental health disorders and referral acceptance. Our goal is to help the Service pinpoint how to maximise Pain Clinic resources allocation and increase efficiency by targeting the right treatment to the right patients at the correct time.

Method: We performed a retrospective analysis of 300 patient referrals between 1st January – 31st March 2024, extracting clinical information from patient databases SystmOne, CHIE and ERS Advice and Guidance. There were no exclusion criteria for recruitment. The results were presented in tables and graphs. Chi-squared tests, Fishers Exact tests, Mann-Whitney U tests, and Independent Sample T tests were conducted to observe any associations. For all tests, a p value <0.05 was considered significant.

Result: 68% of the sample had a documented mental health co-morbidity, of these 82% were current. Chi-squared testing showed a significant association between whether the referrals are accepted or declined and whether they have a current mental health co-morbidity ($p = 0.01$). Of all the specific diagnoses, only anxiety influences referral acceptance. The mean anxiety severity for those in the sample with an anxiety diagnosis was 14.4 (Generalised Anxiety Disorder 7 score) which equates as moderate to severe anxiety. The mean depression severity for those with a depression diagnosis was 15.5 (Patient Health Questionnaire 9 score) which equates to moderately severe depression. Mann-Whitney Testing showed that the difference in severity between accepted and declined referrals was significant for anxiety, but not depression ($p = 0.015$). Of the declined referrals in the sample, 66% had a current mental health diagnosis; 55 out of the 95 declined referrals had depression, and 46 had anxiety. Fisher's Exact testing showed that the difference in mental health complexities across the referral pathways is highly significant ($p = 0.001$). 55% of patients with mental health co-morbidities were referred from GP, and 79% of GP referrals had mental health diagnoses. Advice and Guidance is the stage at which referrals are predominantly declined from the service, 80% of the declined referrals were declined at this stage. 82% of Advice and Guidance referrals had a mental health diagnosis.

Conclusion: The referrals into the pain clinic are highly associated with mental health co-morbidities. Further evaluations are needed to plot the course of these patients' progress and outcome in the pain service, and to help further understand the influence of mental health complexities on a patient's ability to progress in the service. More comprehensive criteria for referral into the pain clinic may be beneficial.

Keywords: pain management, mental health, communication, chronic pain, resource optimisation, referral criteria

PP-034

Chronic Pain

Radiological changes in patient with knee osteoarthritis treated with Platelet Rich Plasma (PRP) intra articular injection: Case report

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Background: Platelet Rich Plasma (PRP) has been widely used for intra- articular knee injection for patients with knee osteoarthritis. Generally it shows reduction in pain score and improvement in knee function in early knee osteoarthritis patient. We decided to treat patient with stage 3 Osteoarthritis with PRP injection and monitor the radiological changes 6 months after initiation after treatment. This particular patient is chosen for studies because she is not fit for surgical option. Both her knee shows almost similar radiological changes before intervention but she has more pain only on left side. Patient agreed for PRP injection only on the painful side. There are multiple protocol for PRP preparation and it has not been standardized which may contribute in varying result.

Aims: We aim to show that intraarticular PRP injection can be a treatment option for advance stages of osteoarthritis. We would like to see the radiological changes in patients with severe knee osteoarthritis 6 months post PRP injection.

Method: Patient chosen was 66 years old lady with complain of bilateral knee pain for more than 6 months. The patient does not have diabetes or inflammatory condition which may cause the knee pain such as gouty arthritis, rheumatoid arthritis, and psoriatic arthritis. Patient has not taken any steroid in any form or non-steroidal anti-inflammatory drugs for at least 2 weeks prior to the procedure. Patient had no previous history of any intra articular knee injection. Initial Xray was done both Antero-posterior (AP) and Lateral view. It shows similar changes on both knee which were suggestive of bilateral knee osteoarthritis. The changes were in line with Kellgren-Lawrence Grade 3, which includes joint space narrowing, osteophyte formation and subchondral sclerosis. Platelet rich plasma (PRP) was prepared using double centrifuge method. 10 mls of patient's blood was collected and centrifuged using plain tube with clot activator. 2.5 ML of PRP was extracted. Intra articular injection was done with ultrasound guidance using lateral supra-patellar approach at the left knee. Patient was discharged with tablet paracetamol which to be taken if she experiences pain. This process was repeated after 2 months. Xray of bilateral knee was repeated after 6 months of initial injection.

Result: Initial pain score:right knee 2/10 left knee 7/10 WOMAC score 68 Pain score after 6 month:right knee 4/10 left knee 2/10 WOMAC score 45 Patient feels marked improvement in functional ability of the right knee Xray bilateral knee (anteroposterior view) done at standing position. Right knee showed increased gap between tibia and femur at the medial side. Reduction of the size of the osteophytes. Left knee shows little changes compared to initial Xray. Marked difference between right knee and left knee. The left knee is now is staged as Kellgren-Lawrence Grade 2 and right knee is stage 3.

Conclusion: Intra articular knee injection using platelet rich plasma shows improvement functional ability and pain reduction even after 6 months. Intra articular PRP injection shows radiological changes which are suggestive of increase in cartilage tissue formation and remodeling of the connective tissue which is evident with reduction in osteophytes. PRP potentially able to reverse degenerative changes caused by osteoarthritis. Previous studies shows lack of changes in MRI possibly because difference in method of PRP preparation.

Keywords: case report, osteoarthritis, non-pharmacological pain management, behavioral interventions, procedural interventions, device-based methods, neonatal analgesia, postpartum pain, chronic pain management, clinical trials, platelet rich plasma

PP-035

Chronic Pain

Retrospective analysis of a pilot opioid reduction clinic: Recognition of potential challenges

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Background: There is a lack of evidence of long-term opioid use in chronic pain. The risk of harm and mortality outweighs the benefit when the oral morphine equivalent dose (OME) increases above 120 mg daily. Opioid treatment should be actively reviewed and tapered if it is not effective. There is no well-evidenced opioid reduction protocol available. The recommendation from the Faculty of Pain Medicine is to reduce the total daily OME by 10% every one to two weeks. Abrupt opioid reduction could lead to withdrawal symptoms, increased suicide risk and patient disengagement.

Aims: This retrospective observational study aims to evaluate the patient demographics and patient outcome of our pilot opioid reduction clinic.

Method: We started a pilot opioid reduction clinic service at chronic pain clinic in NHS Lanarkshire. Patients were referred by the local chronic pain consultant based on their clinical decision of the requirement of opioid reduction service. Data was collected over 15 months from September 2024 till November 2024, looking into patient demographics and outcomes, as well as reviewing the opioid reduction rate and potential challenges.

Result: We have a total of 15 cases over the study period. In terms of patient demographics, patients' age ranged from 31 to 89 years. 53% of them were in the 30–59 age range and 47% in 60–89 years category. Female patients comprised 73% of the sample, while males accounted for 27%. Success was defined as achieving complete opioid independence by discharge. Of the 15 cases, 10 patients were discharged, and 4 of these (40%) successfully weaned off opioids. However, six cases (60%) were considered unsuccessful in view of failure of weaning, loss to follow up, or deceased. Out of the successful cases, the total time spent in clinic ranged from 4 to 14 months. The opioid dose reduction rate in our clinic was 5–10% fortnightly and 5–20% monthly, with adjustments made based on each individual response. When struggling, patients can decide to pause the opioid tapering for a week or two until they are comfortable to resume. One patient reported experiencing fewer opioids side effects and improved quality of life when her OME was reduced by 50% at the fifth month of attending the clinic. We also noticed increased difficulties in weaning patients off fentanyl patch. In order to overcome this issue, we utilised short-acting or long-acting opioids as bridging therapy and allowed extra time for patients to adjust to the opioids change. Based on our analysis, there were several challenges faced by the patients, with anxiety and fear about opioid reduction being the most common concern. Unforeseen events, such as trauma, acute illness and hospitalisation could increase OME and hinder opioid reduction progress. For example, one case of trauma related fall increased OME by 58%. Social issues, family stress, and travel plans also contributed to heightened pain levels and delay in the progression of opioid reduction. Patients also experienced some withdrawal symptoms including anxiety, insomnia, diaphoresis and worsened pain. However, these have no causal relationships associated to the opioid dose reduction rate. All the above challenges resulted in loss of interest and disengagement in patients.

Conclusion: Opioid reduction is a long and difficult journey and requires patience from both the clinicians and patients. Opioid tapering plans should be individualised with a certain extent of self-management strategies to encourage the feeling of empowerment thus improving patient engagement. Multidisciplinary services including

psychologist, physiotherapist, occupational therapist and pharmacist should be incorporated in other aspects of pain management. Ultimately, collaboration among patients, carers, GPs and pain specialists is crucial to rectify common challenges in order to achieve more effective opioid reduction.

Keywords: opioid deprescribing, chronic pain

PP-036

Chronic Pain

Low-dose naltrexone (LDN) for chronic pain: A case series

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Background: Low-dose naltrexone (LDN) has been found to help reduce the severity of symptoms in many chronic pain conditions. At low doses (1-5 mg), naltrexone offers analgesic and anti-inflammatory benefits that are not seen at the higher doses typically used to treat opioid dependence. These effects are believed to result from its ability to modulate glial cell activity and influence the immune system.

Aims: This study aims to evaluate the effectiveness, tolerability, and benefits of LDN in managing chronic pain.

Method: Retrospective review of patients at a pain clinic who received LDN prescriptions between 2020 and 2024. Data on the patient's diagnosis, use of LDN, and concurrent medication use were collected through telephone surveys. For diagnosis, details were obtained on the patient's primary diagnosis, the duration of their chronic pain, and prior use of opioids for pain management. For LDN use, details were obtained on the duration of treatment, dosage, timing of administration (morning, night, or both), side effects, perceived benefits, pain relief scores, and pain intensity ratings (on a 0-10 scale) before and after starting LDN. Pain relief scores were chosen from the following: 0 = worsened pain, 1 = no benefit/ pain unchanged, 2 = pain improved slightly, 3 = pain improved significantly, or 4 = pain disappeared/ resolved. For concurrent medication use, details were obtained on regular medications currently used, previous pain medications, whether LDN helped reduce or discontinue other medications, and whether they are currently on any opioids for their pain. Patients were categorized as "responders" if they reported at least some benefit (pain relief score > 1) and as "non-responders" if they reported no benefit (pain relief score = 0 or 1).

Result: Among the 29 patients treated with LDN, 17 (59%) were identified as responders (pain relief score > 1), while 12 (41%) were categorized as non-responders (pain relief score = 0 or 1). Among the pain diagnoses with multiple patients surveyed, neuropathic pain had the highest response rate (100%), followed by back pain (71%), while fibromyalgia demonstrated a moderate response rate (57%). Certain single-patient conditions, such as neck pain, frozen shoulder, and sacroiliac (SI) joint pain, had no responders (0%). In contrast, single-patient conditions such as osteoarthritis, complex regional pain syndrome (CRPS), and splenomegaly-associated shoulder pain showed a 100% response rate, though conclusions are limited by the small sample size. Statistical analysis using Fisher's exact test showed no significant association between pain diagnosis and response status ($p = 0.294$). Duration of LDN use was significantly associated with treatment response. Patients using LDN for more than nine months had a 100% response rate, whereas shorter durations such as 1-3 months and 4-6 months, had much lower response rates of 11% and 17% respectively. A strong association exists between longer treatment durations and higher response rates ($p < 0.001$). This may suggest that a longer duration of use of LDN is required to achieve optimal pain relief. Side effects and perceived benefits were reported across both responders and non-responders. The most common side effects were vivid dreams, nausea, and gastrointestinal issues, with vivid dreams more frequently reported by non-responders (67%). Positive effects, such as improved sleep, increased energy, relief from swallowing issues and reduced brain fog, were exclusively reported by responders (100%). Non-responders noted additional side effects, including eye pain and chest pain. This study highlights the efficacy of LDN, particularly with long-term use, and its potential to provide additional benefits beyond pain relief. Further research is needed to understand predictors of response better and optimize treatment strategies.

Conclusion: LDN offers a promising, safe, and effective alternative for managing chronic pain.

Keywords: low-dose naltrexone, low dose naltrexone, chronic pain, naltrexone

PP-037

Chronic Pain

Do all left/right judgment tasks of body parts have therapeutic value?

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Background: Based on their ability to elicit implicit motor imagery of upper limb movements, hand-based left/right judgment tasks (LRJTs) have been introduced for the management of chronic pain. Hand-based LRJTs typically involve presenting a series of single images, each depicting a disembodied hand requiring the observer to identify whether the image shown is a left hand or a right hand. Evidence from multiple studies strongly supports the view that people make their judgments by imagining their own hands moving to the positions shown, thereby performing motor imagery. For example, data has shown that the time taken to judge the laterality of a given image of a hand is remarkably similar to the time taken to move the corresponding limb to the same position. This is consistent with the influential principle of mental chronometry in supporting the use of motor imagery. Interestingly, the success of hand-based LRJTs in pain management has inspired the development of other LRJTs targeting different parts of the body (e.g. neck, back, shoulder), based on the assumption that the images created similarly elicit motor imagery for the target body part. However, evidence to support this is lacking.

Aims: This study aimed to (i) replicate (but in a much larger sample) seminal research by Parsons (1994) demonstrating how judgment times and movement times are comparable for hand-based LRJTs; and (ii) apply the same methodology to neck-based LRJTs exploring whether these images also lead to comparable judgment and movement times.

Method: Hand-based Tasks: One hundred and fifteen participants completed an experiment where they were presented with 96 stimuli depicting hands, systematically varying in laterality, view and orientation. Participants were required to either (i) make speeded left/right judgments, or (ii) with laterality revealed, move their corresponding limb to the position shown. Neck-based Tasks: Fifty-eight participants completed an experiment where they were presented 128 images depicting figures representative of those used in neck-based LRJTs. As with the hand-based task, neck-based stimuli systematically varied in laterality, view and orientation. Similarly, participants were required

to either (i) make speeded left/right judgments, or (ii) with laterality revealed, move their head to the position shown. For both experiments, Judgment times and Movement times (in milliseconds) were recorded and entered for statistical analysis (ANOVA).

Result: Data from the hand-based LRJT were entirely consistent with those presented by Parsons (1994). Movement times (mean = 1465 ms) and judgment times (1340 ms) were broadly similar and both varied as a function of view and orientation ($p < 0.01$ for both); judgment times reflected the same biomechanical constraints as movement times. This was not the case for neck-based LRJTs. Movement times (mean = 2186 ms) were far longer than judgment times (mean = 1327 ms) suggesting very different information processing. Moreover, while movements times were slower in response to stimuli where the amplitude of the neck movement from neutral was greater ($p < 0.01$), judgment times did not reflect the same biomechanical constraints.

Conclusion: We provide further compelling evidence that hand-based LRJTs elicit motor imagery and may therefore have therapeutic value in patients with chronic pain affecting the upper limb. These tasks have been used as part of wider motor imagery-based interventions (e.g. Graded Motor Imagery) and data presented here suggest doing so is scientifically coherent. In contrast, our data strongly suggest that neck-based LRJTs typically used in clinical practice do not elicit motor imagery of neck movements. Like other LRJTs (e.g. back, shoulder), neck-based LRJTs have been introduced to practice based on an assumption for which we find no scientific support. The available evidence suggests neck-based LRJTs have no therapeutic value.

Keywords: motor imagery, left/right judgment tasks, chronic pain

PP-038

Chronic Pain

The fatty acid binding protein 5 inhibitor ART26.12 is a novel analgesic for osteoarthritis pain

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Background: Knee osteoarthritis (OA) is a prevalent, degenerative joint disease characterized by loss of articular cartilage, subchondral bone damage, and inflammation of synovial tissues. The chronic pain associated with OA is difficult to treat due to the complex pain signaling pathways involved. Non-steroidal anti-inflammatory drugs (NSAIDs) are typically used to treat OA pain but are shown to only have short-term efficacy and pose risks such as elevated blood pressure and gastrointestinal ulcers. There are no currently approved analgesics that effectively reduce or prevent OA-induced pain in the long term.

Aims: ART26.12 is an orally active, selective FABP5 inhibitor with antinociceptive and anti-inflammatory properties in multiple inflammatory and neuropathic pain models in Phase 1 development. This study aimed to investigate the potential efficacy of ART26.12 in reducing OA pain in a rat surgical model.

Method: Experiments were conducted under approval by the Stony Brook University Institutional Animal Care and Use Committee (#277150). Female, 12-week-old Sprague Dawley rats (n = 50) underwent surgical destabilization of the medial meniscus (DMM). Eight weeks following surgery, rats were subdivided into five groups (all n = 10); vehicle, naproxen (8 mg/kg), and ART26.12 (10, 25, and 50 mg/kg) at a volume of 2 µl/g. Static incapacitance was measured 1 h after the first drug dose, and weekly over a 28- day treatment regime. Rats were gently positioned into the IITC incapacitance test meter (IITC Life Science Inc, USA), and six readouts of ten-second hind leg recordings were collected. Incapacitance is reported as an averaged ratio of ipsilateral to contralateral hindlimb weight bearing. Comparisons within each group were made using one-way repeated measures ANOVA followed by Dunnett's multiple comparisons with the baseline data as the control group. All analyses were performed using Prism (Ver. 10.3.0, GraphPad).

Result: No changes in incapacitance were found in the vehicle-treated group at any point over the 28-day treatment regime. ART26.12 significantly increased weight bearing on the ipsilateral (arthritic) limb when compared with the contralateral limb, as shown by increased weight bearing ipsilateral/contralateral ratios between baseline and post-dose timepoints. This was observed in a dose-dependent manner (10–50 mg/kg) after the first dose of ART26.12, and at each weekly measurement of incapacitance, with no signs of tolerance. The average percentage increase in weight bearing after 4 weeks of treatment was 20, 24, and 30 % in the ART26.12 groups (10, 25, and 50 mg/kg, respectively) and 31% in the naproxen group (versus 4 % in the vehicle group).

Conclusion: The increases in weight bearing ratios between baseline and post-dose timepoints in the treatment groups suggest that acute and repeated oral treatment with ART26.12 (10-50 mg/kg) reduces OA pain in the ipsilateral limbs with a similar effect size as naproxen. ART26.12 is a promising non-opioid, non-steroidal treatment alternative for chronic OA pain.

Keywords: osteoarthritis, pain, FABP, treatment, knee

PP-039

Chronic Pain

Establishing sustainable public involvement in pain research: top tips for researchers

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Background: Public involvement (PI) in research is vital for ensuring studies are relevant and reflect the true priorities of communities by including real-life perspectives. Evidence suggests that PI can be tokenistic lacking meaningful engagement. The Consortium to Research Individual, Interpersonal and Social Influences in Pain (CRIISP) involves a collaboration of eight universities across the UK, examining the psychosocial dimensions of chronic pain (https://criisp.uk). Supported by UK Research and Innovation and Versus Arthritis within the framework of the Advanced Pain Discovery Platform, this Consortium includes programmes of work which aim to understand the complex relationships between psychological and social factors and chronic pain experiences. PI is an integral part of CRIISP's ethos. A PI work package (WP), co-led by individuals with lived experience

of chronic pain, is integrated across the four-year CRIISP research programme.

Aims: We will reflect on the strategies employed within the CRIISP programme to ensure that a diverse group of people with chronic pain and caregivers are actively and inclusively shaping the included research.

Method: Two Public Contributors were co-applicants; a realistic budget to cover PI activities was costed into the initial grant application. The PI WP team recruited a network of public contributors to work collaboratively within the five individual WPs in the CRIISP programme. To reach out to diverse communities, an accessible advertisement was distributed through equality organisations, women's and community groups, pain charities, local networks, and social media. The CRIISP website provided detailed information on the role of public contributors and included a 'Find out More' video, co-created by one of the public contributors, to facilitate recruitment. To navigate the administrative and logistic challenges, university networks supported recruitment activities. During the recruitment process, public contributors were introduced to the different research areas within CRIISP and invited to indicate their preferred areas of interest. They were invited to join a Work Package Development Group (WDG), based on their interests and experiences. Feedback from public contributors was gathered regularly to evaluate the processes of recruitment, retention and support and to improve the role of public contributors within their respective WDGs. Several methods were used to evaluate PI: (1) research team meeting notes; (2) PI feedback and self-report during activities and workshops; (3) end-of-year surveys (years 1 and 2) on recruitment experiences and involvement within WDGs; (4) an online workshop (year 3).

Result: Thirty-six public contributors were successfully recruited and assigned to WDGs. Valuable insights were captured from the feedback on recruitment, retention and support of PCs. It was reported that effective communication with public contributors at each stage of the CRIISP Consortium was vital for sustainable involvement and engagement. Public contributors valued the opportunity to connect with one another, share their experiences with researchers, and engage with other public contributors by attending regular WDG meetings and participating in the online workshop. Retention of public contributors was ensured through offering flexible, personalised support adapted to their evolving circumstances. Public contributors valued the offer of one-to-one meetings with members of the research team to address particular concerns and the provision of tailored support as needed.

Conclusion: PI is at the core of the CRIISP programme: two public contributors were co-investigators and lead the PI activities; a dedicated PI WP is led by public contributors and supported by researchers. This has enabled PI to be embedded across all CRIISP WPs. We have successfully recruited and retained a diverse group of public contributors, who are integrated into individual WPs. Engagement has been sustained by providing continuous and timely support and feedback. This model offers valuable insights for other research teams to enhance diverse PI in their work.

Keywords: Pain, Chronic Pain Research, Public Involvement, Public Contributor

PP-040

Chronic Pain

Encountering pain: Witnessing pain

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Background: Having spent the last two decades researching the role of art in communicating and understanding pain through co-creating photographic images with people living with chronic pain, XXXX was invited by the Philosophy and Ethics Special Interest group of the British Pain Society (BPS) to present her work at their retreat in Rydal Water in June (2023) and to run a workshop where participants could create images themselves. This abstract presents observations and images from a selection of photographs created during that workshop where clinical participants themselves produced powerful and moving images representing their pain of witnessing pain.

Aims: We explore this unique body of work from the perspectives of xxxx, as an artist and co-creator of photographs of pain, and xxxx, an art therapist and contributor to the multidisciplinary project Pain Speaking the Threshold, which sought to understand images of pain.

Method: Our proposal celebrates the extraordinary work produced by healthcare professionals working with pain, illuminating the complex and demanding nature of their work (and of pain itself) and the genuine care with which they approach it – along with its toll. The practice of health care professionals making creative images to reflect on the emotional impact of their work with patients has a long history in art therapy. Art therapists use their own creative practice as a form of reflective practice to gain insight into therapy work with service users, and to help to bear and process painful material. Much has been written about the trauma of bearing witness, but within the NHS there are additional challenges. When patients have visited numerous specialists and been the subject of so much medical imaging to no avail, the pain professional they finally arrive at, feels an overwhelming pressure to offer a 'cure' – where there is none. With parallels in the psychological therapies, clinicians spoke of the particular problems set up by the biomedical framework, where patients expect some kind of restitution. What additional pressure does this put on the healthcare professional who knows that accompanying the patient, bearing witness, being present is sometimes all that can be done to ease suffering.

Result: We would like to share a selection of the images made during that afternoon in the beautiful landscape around Rydal Water, which speak of some of the challenges of being present under time pressure, of being honest when there is no good news, of working with people to uncover meaning through highly distressing narratives. They teach us about the huge thought and care that goes into working with pain on a daily basis and the immeasurable toll it takes. Through the extraordinary photographic images created within a couple of hours, we can glimpse how many seek relief in nature, movement, family or community. We can guess how further cuts to public service funding or further bureaucratic challenges can only increase the burden of clinicians working with pain. We are shown an angel's wing drowning, a broken stick in a whirlpool, a complex set of geometric landscapes, an eye in a wall, molten anger running down it, an island on its own, an old clock, and find for ourselves the power of images to communicate pain to others.

Conclusion: Do these images resonate with you? How would you picture your pain of witnessing pain? Come and share your stories as

part of a supportive community. NB: This abstract should all be one section. It does not really respond to the different sections provided as it's presenting an arts project. I have tried to divide it into the sections provided but I would rather it were read as one piece.

Keywords: philosophy of pain, chronic pain, supported self-management, ethinic minorities, multi-disciplinary working, see my pain, lived experience, art, photographs

PP-041

Chronic Pain

Unraveling the association between chronic pain and diet in UK Biobank: A cross-sectional study

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Background: Diet has been associated with the occurrence, prognosis, and maintenance of chronic pain pain. Zhou et al.'s investigation, using UK Biobank data, revealed connections between specific food choices and multisite chronic pain scores. Noteworthy findings include lower pain scores associated with increased consumption of fresh and dried fruit, cereal, and cheese, while higher pain scores correlated with elevated intake of salt, alcohol, pork, and chicken. The complex relationship between nutrition and chronic pain extends beyond individual nutrients, impacting neuroinflammation, a key process in pain modulation. In understanding this dynamic, comprehensive dietary pattern assessments are stated as a more effective approach than a single nutrient intake analysis to identify the diet-disease relationship. Dietary indices categorize overall diet quality (i.e., Healthy Eating Index), adherence to specific guidelines (i.e., Mediterranean Diet), or pro-inflammatory characteristics (i.e., Dietary Inflammatory Index), providing a nuanced perspective.

Aims: This study aimed to investigate the association between diet quality, assessed through various dietary indices, and the presence of chronic pain. A secondary aim was to explore these associations within subgroups defined by the number of pain sites and pain types (musculoskeletal, non-musculoskeletal, mixed).

Method: This study adopted a cross-sectional design, utilizing data sourced from the UK Biobank. The UK Biobank study received approval from the National Health Service's National Research Ethics Service and enrolled nearly 500,000 participants nationwide between 2006 and 2010, spanning ages 40 to 69. After applying eligibility criteria study, 55,812 participants included in the study. Dietary information was gathered through online questionnaires, 24-hour dietary recalls, and food frequency questionnaires. From the collected dietary data, we derived 5 dietary indices, including the Dietary Inflammatory Index (DII), Mediterranean diet score (MDS), Healthy Eating Index (HEI), Healthful Plant-Based Diet (hPDI), and EAT-LANCET dietary indice. Pain related data was collected via online questionnaires. Based on their response participants were categorised in pain-free, acute pain, or chronic pain group. Association between dietary indices and presence of chronic pain were analysed using multinominal logistic regression. We have adjusted model for potential confounding factors such as BMI, ethnicity, sex, and physical activity, social deprivation, sleep, smoking, alcohol intake in our analytical model. Subgroup analyses were conducted based on the number of pain sites and pain type (musculoskeletal, non-musculoskeletal, mixed). Data processing and statistical analyses has been done using python and R respectively.

Result: The DII initially showed a significant association with chronic pain, but this was attenuated after adjusting for sociodemographic and lifestyle factors. However, in subgroup analyses, the DII remained negatively associated with chronic multisite, widespread, and non-MSK pain. Similarly, the MDS exhibited comparable trends, reinforcing its correlation with the DII. The hPDI demonstrated the most robust association with both acute and chronic pain, even after adjustments, though it did not significantly relate to multisite or widespread pain in subgroup analyses. The EAT-LANCET Index also showed significant associations, particularly with chronic pain, but did not correlate with acute pain. Conversely, the HDI did not reveal any significant associations after adjustment.

Conclusion: This study reveals significant associations between diet quality and the presence of chronic pain, particularly with the Healthful Plant-Based Dietary Index and EAT-LANCET Index. These findings suggest that higher diet quality may be linked to lower odds of chronic pain, emphasizing the role of dietary patterns in pain presence. While the study underscores the complexity of diet-pain relationships, especially across different pain subtypes, it provides valuable insights that can inform future research. Specifically, widespread and multisite pain appear to be more associated with diets having higher inflammatory potential, as indicated by the Dietary Inflammatory Index, while other chronic pain conditions are more related to overall diet quality.

Keywords: diet, chronic pain, lifestyle factors, UK Biobank

PP-042

Chronic Pain

Severely affected adults with chronic pain: The complexity model and service design

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Background: Some adults with chronic pain cannot benefit fully from outpatient Pain Management services. Further, some are so physically disabled that they cannot manage the accommodation of many of the UK national specialist residential programmes, as these usually require the ability to self care and a certain minimum of mobility. Service access for these adults can be difficult due to physical needs, but they may also have specific background and psychosocial characteristics. The Faculty for Pain Medicine has endorsed the 'Complexity Model' for thinking about pain treatment, where complexity can refer to both pain and the presence of certain background and comorbidities, e.g. polypharmacy, head injury, high BMI. Service design may also need to account for background complexities as well as for histories of trauma and Adverse Childhood Experiences (ACEs).

Aims: Our service specifically caters for the most physically disabled, and we set out to examine the environmental and background complexities of this specific group, addressing factors from the complexity model and other issues such as past trauma, mental health issues and current psychosocial adversity.

Method: Specialist clinicians carried out a retrospective notes audit of 29 patients attending rehabilitation that required disability-adapted accommodation and 24-hour Health Care Assistant support. They completed an audit template that included questions in the following domains: (1) Clarity of pain diagnosis, (2) childhood abuse, (3) abuse

during adulthood, (4) history of school/academic problems, (5) neurodiversity, (6) mental health issues, (7) difficulties with partner/family, (8) comorbid health problems, and (9) social issues.

Result: Clinicians coded 59% of patients having significant unusual or unhelpful health beliefs, despite often having years of treatment in pain services. Rates of ACEs were high with 41% having experienced at least one form of childhood abuse, and many more than one type. This translated into adulthood, with 24% having a history of domestic abuse. Use of mental health services was high, with 51% needing secondary care mental health services in the past, and more than a third having a history of self harm. Seventy-two percent of the sample had their partner as their carer, and 69% reported difficulty family relationships, such as rifts and estrangements. Nearly half reported current financial problems (48%).

Conclusion: When designing services and treatments for the most severely affected, planning for low physical ability is just one part of the task. This notes review indicated that services need to anticipate (1) a need for good pain/health education, despite many of these patients having spent many years in health services. (2) Trauma-informed care may be highly appropriate given rates of childhood and adult abuse, and (3) systemic approaches may be needed to fully formulate the role of spousal carers and the broader family system.

Keywords: chronic pain, complexity, adverse childhood experiences

PP-043

Chronic Pain

The causal role of executive function on the maintenance of high impact chronic pain: A UK biobank longitudinal analysis

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Background: Chronic pain (pain lasting 3 months or more or past the point of expected healing) affects 35-51% of the UK adult population. The impact of chronic pain experienced can ranged from low to high, with high impact chronic pain defined as pain that occurs most days for 6 months and limits the ability to work, maintain social connection and perform personal care. Despite its prevalence, and evidence for the association, there is limited research that explores the causal relationships between cognitive factors and chronic pain impact status. Executive function, the activation of multiple cognitive processes, is one cognitive factor that research has been found to be associated with chronic pain, however, we are yet to understand the causal relationship between the two.

Aims: The aim of this study is to use directed acyclic graphs (DAGs) to understand the causal relationship between executive function and the maintenance high impact chronic pain over time, in comparison to those whose chronic pain impact status improves over time.

Method: Following guidance by De Paepe et al. (under review), we developed a DAG to model the relationship between executive function and high impact chronic pain. Using data from UK Biobank, an epidemiological dataset of 500,000 UK adult participants, we matched variables from our DAG to data items available. Based on the data available, high impact chronic pain was defined as reporting chronic pain and meeting 2 of the 3 following criteria; reporting a prescription for a pain medication, reporting poor-fair general health rating or reporting ongoing illness/disability/infirmity. Executive function was measured using the Trail Making Task. We analysed the DAG using structural equation modelling to account for both latent and observed variables in the DAG.

Result: Executive function was not found to be a causal mechanism that predicted the maintenance of high impact chronic or the transition from high to low impact chronic pain. However, maintenance of high impact chronic pain was associated with quantity of adverse events in adulthood, age and qualification level. Post-hoc analysis is still ongoing.

Conclusion: In contradiction to previous evidence of association, the current study found that there was not a causal relationship between executive function (as measured by the Trail Making Task) and the maintenance of high impact chronic pain nor the improvement of status to low impact. Future studies could explore this model in other large datasets to understand whether this is unique to the UK Biobank dataset or a more robust and generalised finding.

Keywords: chronic pain, Executive function, DAGS, Causal Models, high impact chronic pain

PP-044

Chronic Pain

Empathy in healthcare interactions with fibromyalgia patients

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Background: Empathy is a multifaceted construct with dissociable affective, cognitive, and behavioural components, each supported by distinct yet interconnected neural networks (Weisz and Cikara, 2021). These components are critical in modulating social interactions, including the healthcare professional (HCP)-patient dynamic, where empathy can influence subjective experiences, such as pain, and neural responses. Fibromyalgia Syndrome (FMS), a chronic pain condition characterised by widespread pain, fatigue, and cognitive difficulties among others, is particularly sensitive to these dynamics. FMS patients often face stigma and social isolation, exacerbating symptoms and diminishing quality of life (Arnold et al., 2008; Choy et al., 2009). Empathic therapeutic relationships are associated with high-quality patient care, resulting in greater satisfaction and reduced pain perception in FMS patients (Canovas et al., 2017, Lobo et al. 2014). However, how empathy is communicated in healthcare consultations and its impact on patient outcomes remains unclear.

Aims: This research comprises two studies investigating clinical empathy in FMS, focusing on HCPs' and patients' perspectives and interpretations.

Method: Study 1 employs Q-methodology to explore how empathy is conveyed and perceived during healthcare encounters. FMS patients and HCPs sort 40 statements about clinical empathy on a forced-choice distribution grid based on their level of agreement or disagreement. Qualitative comments on the sorting process and notable statements are also collected. Data is analysed using by-person factor analysis to identify shared viewpoints, with qualitative feedback guiding interpretation of the factors. Given FMS's impact on affective and cognitive processing, Study 2 examines how people with FMS interpret socio-emotional cues using an Interpretation Bias Task (IBT) tailored to perspective-taking in clinical contexts. Participants – FMS patients and a non-pain comparison group – evaluate ambiguous vignettes by rating the likelihood of positive, neutral, and negative interpretations.

Result: We expect that FMS patients may show biases towards negative interpretations compared to the non-pain group.

Conclusion: Findings aim to deepen our understanding of empathy-related challenges faced by FMS patients in clinical settings. These insights may help us identify key factors influencing satisfaction and distress during consultations. This research is part of a broader PhD project aiming to improve clinical practices for FMS patients, including an electroencephalography study to explore the neural underpinnings of empathy and pain during HCP-patient interactions.

Keywords: Fibromyalgia, chronic pain, empathy, healthcare communication, psychology, non-pharmacological pain management

PP-045

Chronic Pain

Case report: Testicular pain and pulsed radiofrequency sacral nerve root blocks

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Background: Chronic testicular pain, or orchalgia, is a complex condition that poses significant diagnostic and therapeutic challenges. The absence of a standardized evidence-based management algorithm complicates treatment decisions. This case study details a patient who underwent a series of nerve blocks and pulsed radiofrequency (PRF) treatments of the sacral nerve roots for chronic testicular pain relief. Chronic orchalgia often linked with chronic pelvic pain syndrome (CPP), impacts 50% of men with chronic prostatitis.

Aims: Sacral neuromodulation has been used to manage CPP, results are mixed, and UK guidelines (NICE NG193) do not currently recommend interventions for chronic primary pain, including CPP. Nevertheless, this case highlights the potential of sacral nerve PRF for chronic orchalgia.

Method: A patient with chronic orchalgia, refractory to pharmacological treatment, was referred to our pain management team. Initial symptoms began in 2017, with right-sided testicular tingling and hematospermia, diagnosed as bacterial prostatitis. Despite standard treatments, pain persisted, affecting the patient's quality of life. Right pudendal nerve block provided 50% pain relief but increased left-sided pain. The patient then underwent S3 nerve root block followed by PRF in 2020.

Result: Following PRF treatment, the patient reported a 95% reduction in pain for three years, with substantial improvements in quality of life, sleep, and anxiety. Although occasional pain flare-ups occurred. The PRF on the right S3 and S4 nerve roots was repeat in 2024 when symptoms returned and this further alleviated symptoms.

Conclusion: Visceral hypersensitization and viscero-visceral convergence complicate CPP management, limiting the effectiveness of targeted treatments. This patient's significant response to sacral root PRF, despite falling outside of national guidelines, underscores the role of PRF interventions in CPP patients. Informed consent and a cautious approach were key throughout this patient's treatment.

Keywords: Pulsed radiofrequency sacral nerve root blocks, testicular pain, Pulsed Radiofrequency sacral nerve root blocks

PP-046

Chronic Pain

Relapsing-remitting complex regional pain syndrome: A case-based description of a rare subtype

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Background: Complex Regional Pain Syndrome (CRPS) is characterized by persistent regional pain that is disproportionate in duration or intensity compared to the typical course of any known trauma. The clinical course of CRPS is monophasic in most cases. However, a subset of patients may experience a different progression, known as relapsing-remitting CRPS (RR-CRPS), in which symptoms reappear in the same limb after a period of remission. This subgroup was first described by Veldman in his seminal 1993 prospective cohort study and has rarely been reported in the literature since.

Aims: Our objective is to describe a small sub-group of patients suffering from RR-CRPS within a large patient database for persistent CRPS established at our tertiary pain center, in an attempt to identify common patterns among those affected.

Method: All medical records of CRPS patients who attended The Walton Centre (Liverpool, United Kingdom) from 2007 to March 2025 were retrospectively reviewed online. A total of 729 patients with CRPS were identified, of whom nine suffered from RR-CRPS. Demographic variables, clinical findings, and relapse episodes were collected.

Result: All nine patients met the CRPS Budapest diagnostic criteria at initial assessment. Two had persistent CRPS at the time of the last evaluation, although they had experienced periods of complete remission in the past. Eight were female. All patients were adults, but the CRPS onset had occurred during childhood in four cases. The first assessment took place one year after the onset (median), and the overall pain assessment (from the first follow-up until the last one) lasted four years (median). Pain flare-ups had occurred more than twice in eight patients. Relapses had no identifiable trigger in six out of the nine cases. Four individuals presented with additional complaints related to chronic pain or CRPS at some point during their clinical course: lymphedema in the affected limb, nausea and migraine symptoms coinciding with the flare-ups, and widespread pain in two patients. At their last assessment, one was in remission, three had shown significant improvement (flares of low intensity with low or no pain in between), one remained unchanged, two had progressed to permanent CRPS, one continued to experience RR-CRPS but also reported widespread pain and fatigue and one was in remission (pain-free during her last follow-up).

Conclusion: To the best of our knowledge, we present one of the largest cohort of RR-CRPS patients reported to date. 1.23% of our CRPS patients suffer from a relapsing-remitting form, which is

consistent with the existing literature. In our series, four cases had a debut in childhood; although we did not establish the percentage of childhood onset CRPS in the overall registry group, such early onset is generally rare in patients consulting this adult pain service and the high proportion in the RR group is consistent with reported high relapse rates in childhood/adolescent CRPS in the literature.

Keywords: chronic pain, regional, relapsing, remitting

PP-047

Chronic Pain

Postoperative pain control and quality of life in patients undergoing decompression surgery for degenerative lumbosacral stenosis

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Background: Degenerative lumbosacral spinal stenosis (LSS) is a common condition in the elderly, characterized by narrowing of the spinal canal leading to neurogenic claudication and chronic pain. Surgical decompression remains the treatment of choice in advanced cases, especially when conservative therapy fails. Pain intensity and quality of life (QoL) are critical indicators of treatment success.

Aims: To assess postoperative pain relief and selected aspects of quality of life in patients undergoing surgical decompression for LSS, with additional analysis of molecular changes in ligamentum flavum associated with TGF-β-1-3 isoforms.

Method: The study included 96 patients with symptomatic degenerative LSS undergoing neurosurgical decompression (extended fenestration and foraminotomy). Pain intensity was assessed using the Visual Analog Scale (VAS). QoL was evaluated using SWLS, ODI, and FACIT-F questionnaires at defined intervals. The expression of TGF-β1, TGF-β2, and TGF-β3 was analyzed in ligamentum flavum samples using RT-qPCR, ELISA, Western blot, and IHC. Data were compared with post-mortem control tissue. Associations between protein concentrations and pain levels were analyzed.

Result: Postoperatively, patients experienced significant pain reduction on the VAS scale, especially at 6 and 12 months (from baseline 7.02 ± 0.56 to 3.12 ± 0.87; $p < 0.005$). However, no statistically significant correlation was found between TGF-β1-3 expression and pain intensity. Despite elevated protein levels of all three TGF-β isoforms in ligamentum flavum, these did not predict pain severity (ANOVA $p > 0.05$). In terms of QoL, 91% of patients reported improvement 12 months postoperatively (SWLS), accompanied by significant reductions in disability (ODI) and fatigue (FACIT-F). Molecular analysis revealed increased expression of TGF-β1-3 proteins in hypertrophied ligaments, with TGF-β1 being most pronounced (2139.33 pg/mL vs. 252.45 pg/mL in controls; $p < 0.0001$).

Conclusion: Surgical decompression of the spinal canal in LSS patients leads to significant and sustained pain relief and improvements in quality of life, even though the intensity of pain is not directly associated with tissue concentrations of TGF-β isoforms. Molecular profiling may inform future therapeutic targets but is not predictive of clinical pain perception.

Keywords: lumbar spinal stenosis, postoperative pain, transforming growth factor beta, quality of life, VAS

PP-048

Chronic Pain

Making sense of pain and Parkinson's

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Background: Pain is a common non-motor symptom of Parkinson's. There are different types of pain and classifications posed for pain in people with Parkinson's (PwP). However, little is known about how pain influences PwP, how PwP understand pain, and the experience of living with pain and Parkinson's. Both pain and Parkinson's change over time, and it is necessary to capture this to fully understand how they interact, and how PwP can be supported to manage their pain.

Aims: To explore PwP experiences of living with pain, and the motor and non-motor symptoms of Parkinson's, including any changes over time.

Method: A longitudinal qualitative semi-structured interview study, involving interviews at two time points. PwP were recruited from three NHS Parkinson's services in the North of England. Ethical approval was granted. Data were thematically analysed. Interviews were conducted at least six months apart. All interviews were conducted in person and audio recorded. Interview transcripts were independently coded by researcher pairs, and the same three researchers (JN, MP, JD) performed data analysis.

Result: Thirty PwP were recruited and participated in interview one. 25 of 30 participated in interview two, and the mean time between interviews was eight months. Preliminary analyses have revealed themes about the description of pain; the interaction of pain and Parkinson's; and searching for a cause of pain. PwP described their pain in a range of ways yet found it challenging to articulate this experience. Frequently, cramping, spasm and/or shooting pains were reported. Emotive language was used by people living with pain to describe this experience (e.g., terrible, horrible, agony, unbearable). To describe the experience of pain, many participants likened it to the feeling of machinery being applied to them or being physically

attacked. This language and vivid imagery demonstrated the severity of pain, and the unpleasantness associated with the pain that PwP were experiencing. Over time, this description remained consistent. The majority of PwP noted that their pain had started or worsened following their Parkinson's diagnosis. Some PwP described pain related to their motor symptoms of Parkinson's, however this was often not the only pain experienced, and others experienced pain not linked to motor symptoms. PwP tried distinguishing between pain they felt to be Parkinson's related, and pain that was not associated with Parkinson's. Over time, this dialogue remained the same, with many PwP continuing to look for answers. Some questioned the role of Parkinson's in their pain, their history of pain, and whether the underlying process of Parkinson's contributed to the pain experienced. PwP were looking for a reason for their pain to help understand why they were experiencing this. PwP felt if they understood pain, this would help with treating or managing this. They also discussed more broadly what they viewed the cause of their pain to be. Many individuals tried to attribute a structural reason to their pain and described anatomically what they felt to be occurring.

Conclusion: PwP were searching for a cause of their pain. Pain is unique to the individual, complex and multifaceted. There is a need to support PwP to understand pain, its mechanisms and its interaction with Parkinson's. Pain in Parkinson's was wider than being solely linked to motor symptoms as PwP reported a range of pain experienced. It is important to highlight that how PwP described their pain was often consistent across time. In particular, the use of distressing emotive language and imagery to describe pain, and to consider the impact that pain has on quality of life. It is therefore imperative to identify ways to support the understanding and management of pain for PwP.

Keywords: Parkinson's, qualitative research, chronic pain

PP-049

Chronic Pain

Exploring how interconnected social dynamics can influence the experience of transitions to and from chronic pain

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Background: More than one in five people in the UK live with long-term (chronic) pain. We already know that people experience pain in different ways, but little is known about how social contexts are linked to chronic pain and its fluctuation over time, or why individual variation exists.

Aims: This research aimed to identify and characterise how social factors influence the experience of transitions to and from chronic pain.

Method: Using ethnographic approaches from social science, we spent 12 months with 18 participants, all of whom were around 30 years old and of whom 11 were women and 7 were men. Participants were identified through the Avon Longitudinal Study of Parents and Children and all reported that they had chronic pain at the time of recruitment. We conducted 295 research visits (observations and interviews), totalling approximately 417 hours spent with participants and members of their immediate social circles in their homes and local communities. Using inductive thematic analysis, we identified the ways that people make sense of their pain transitions in relation to their everyday lives.

Result: We learned about the complexity of social phenomena, such as relationships with friends, family and colleagues or participation in hobbies, work and other aspects of everyday life. Early thematic analysis suggests that connections with others played a salient role in transition to and from chronic pain. Aspects of social life interacted to create a chain reaction that built momentum and influenced the experience of living with pain. Over the 12 months we observed that pain has less impact and created less difficulty when people felt that they were living authentically, engaged in meaningful activities and maintained supportive relationships. Conversely, pain was thought of as worse when people experienced social disconnection, judged themselves harshly or felt judged by others.

Conclusion: Transitions through pain, including in and out of pain and through different degrees of impact are linked to aspects of social life. However, these aspects are cumulative and operate together, in a 'chain reaction'. Addressing these interconnected parts of social life offers an opportunity for development of socially-focused interventions that complement existing approaches.

Keywords: Chronic pain, Ethnographic research, social phenomena, Pain transitions

PP-050

Chronic Pain

Social influences in the experience of transition to or from long-term (chronic) pain: A synthesis of qualitative research studies

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Background: Globally, around 30% of people live with long-term ('chronic') pain, with known impact on wellbeing, economic and social lives. Despite increasing attention to contextual and psychosocial aspects of pain, there remains need to understand interrelationships between social phenomena and pain, particularly how social phenomena relate to transitions into and out of chronic pain.

Aims: We aimed to understand how pain experiences relate to social phenomena. We conducted a systematic review and synthesis of qualitative studies that explored social aspects of adults' experience of chronic pain relating to any condition. Data Sources: A comprehensive search of literature (1979-2022) was conducted using 9 electronic databases: PubMed; PsycINFO; EMBASE; CINAHL; Sociological Abstracts; Sociology Database; Web of Science; Scopus; Business Source Complete.

Method: The review used a thematic synthesis approach. Searches identified relevant qualitative studies; quality assessment was undertaken using the Critical Appraisal Skills Programme qualitative studies checklist. Material from relevant literature was extracted, coded and thematically grouped. Double processes were undertaken for rigour.

Result: Analysis of 66 articles, relating to experience of 1,251 people, enabled development of three themes relating to social phenomena

and pain: (1) Social connections with family friends and wider community; (2) Lifestyle, including household tasks, eating, sleep and participation in social activities; (3) Occupation, workplace relationships and related financial disadvantage. Although elucidating the importance of social worlds, the literature included in the review paid scant attention to transitions to and from chronic pain or any mechanisms that might support such transitions.

Conclusion: The review suggests that social phenomena influence people's experience of living with chronic pain in important ways. However, little research has explored how and why these social phenomena combine with and influence of transitions to and from chronic pain.

Keywords: Chronic pain, transitions, qualitative research, social phenomena, transition, qualitative research, systematic review

PP-052

Chronic Pain

Understanding chronic pain through a multidimensional lens: The interplay of pain, quality of life and music

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Background: Chronic pain is a complex and multifaceted condition that affects millions worldwide, significantly impacting physical, psychological, and social quality of life (Hill et al., 2008; Reid et al., 2011). Previous research has shown that chronic pain negatively influences quality of life, while music has been identified as a potential therapeutic intervention for pain management (Gatchel et al., 2007; Koelsch, 2014). However, limited studies have investigated potential differences between music and quality of life in chronic pain populations in comparison to pain in the general population (Inoue et al., 2015). In addition, few studies have explored pain, music and quality of life, while viewing pain as a multidimensional experience (frequency, intensity, emotion, impact and inability to cope).

Aims: This study argues that chronic pain research needs to adopt more comprehensive and multifaceted measures of pain, aiming to explore the relationship between music and pain quality of life, comparing chronic and general populations.

Method: Self-report measures were used, specifically: the Glasgow Pain Questionnaire (GPQ) (Taylor et al., 1996), the Short-Form World Health Organisation Quality of Life Scale (WHOQOL-BREF, UK) (THE WHOQOL GROUP, 1998), and the Music Listening Questionnaire (Mitchell et al., 2007). The study recruited participants online, with 65 responses meeting the inclusion criteria. Of these, 25 participants identified as chronic pain sufferers, with others identifying as non-sufferers or unsure/preferring not to disclose their pain status.

Result: Multiple regression analyses of GPQ subscales revealed that pain was significantly associated with both quality of life and music in both chronic pain and non-chronic pain populations, however, the models were more significant and there were more relationships between variables and pain experience scores for those with chronic pain. Furthermore, the chronic pain group showed that inability to cope and emotional reaction are key elements of the pain experience to consider. GPQ inability to cope scores ($F(15, 8) = 3.664$, $p = 0.035$, $R^2 = 0.873$) were related to some life and music scores. Specifically, higher unemployment ($t = 3.521$, $p = 0.008$); higher consideration for music helping with physical pain ($t = 2.778$, $p = 0.024$) and psychological quality of life ($t = 3.161$, $p = 0.013$) were associated with higher inability to cope. Additionally, experiencing less pain in the past month ($t = -2.463$, $p = -0.039$) and perceiving music as unhelpful for pain relief ($t = -3.430$, $p = 0.009$) were associated with lower inability to cope. Higher GPQ emotional reaction scores ($F(15, 8) = 4.231$, $p = 0.023$, $R^2 = .888$) were positively associated with older age ($t = 2.674$, $p = 0.028$); more frequent music listening frequency ($t = 4.144$, $p = 0.003$) and higher environmental quality of life ($t = 3.092$, $p = 0.015$). Conversely, GPQ emotional reaction scores were negatively associated with considering music important ($t = -3.191$, $p = 0.013$). In contrast, within the non-chronic pain population, only GPQ frequency was significant ($F(15, 17) = 2.746$, $p = 0.024$, $R^2 = 0.557$), which, when higher, was associated with having fewer children ($t = -2.693$, $p = 0.015$) and a greater likelihood of pain within last month ($t = 2.547$, $p = 0.021$).

Conclusion: This study underscores the supposition in the literature, and common practice, that chronic pain is a qualitatively different experience to and non-chronic pain populations. In addition, in our chronic pain population, quality of life and music were related to perceived inability to cope, and the emotional impact to pain. As such, this study reinforces the value of multifaceted pain measures within both research and, potentially, pain care.

Keywords: chronic pain, pain measurement, psychology, multidimensional pain measurement, pain experience

PP-054

Chronic Pain

Integrating self-management with lidocaine infusions for patients with chronic pain: Outcomes of a lidocaine pain pathway

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Background: Chronic pain conditions are prevalent and pose a significant burden on patient quality of life. The biopsychosocial model of disease has helped inform the use of self-management in chronic pain, whereby engaging with topics such as pain education, psychological training and relaxation techniques, improves patient centred outcomes. The utility of lidocaine infusions to treat chronic pain has generated mixed results, with suggestions that treatment benefits are not sustained over the weeks posts infusion. There currently exists a lack of data on longer term outcomes of regular lidocaine infusions in patients, particularly in pain phenotypes other than neuropathic pain.

Aims: To evaluate the effectiveness of a holistic self-management pathway alongside intravenous lidocaine infusions, for patients with chronic pain conditions.

Method: Patients with chronic pain at a specialist pain centre underwent a 2-year lidocaine infusion pathway, consisting of 8 regularly

intervaled intravenous lidocaine infusions (3 mg/kg at a rate of 1.5 mg/kg/h over 2 h). Infusions were provided in parallel with self-management input from pain physiotherapists, psychologists, and clinical nurse specialists in either group or individual settings. Brief pain inventory (BPI) questionnaires were used to longitudinally track efficacy of treatments; at baseline, 6 months, 1 year and 2 years. Patients were also asked to rate their perceived improvement in overall pain, as a percentage reduction. Wilcoxon signed rank tests were used to detect significance compared to baseline scores.

Result: Of the 245 patients that commenced the pathway, only 123 (mean age 52.8 [22-81], 96 female) had complete BPI questionnaires both at baseline and at either 1-year or 2-year follow-up. BPI scores for 'severity' (11.8% reduction at 2 years [27.2-23.9]; p = 0.001) and 'interference' (8.8% reduction at 1 year, with plateau at 2 years [7.4-6.7]: p = 0.003) showed significant reductions across the entire cohort, as compared to baseline scores. The effect appears to be driven by patients with chronic neuropathic pain, with no significant reduction in severity or interference for other pain phenotypes. A 9.8% average improvement was observed in BPI 'relief' scores, although this did not represent a significant difference from baseline at either 1 year (p = 0.379) or 2 years (p = 0.260). Patients with chronic abdominal-pelvic pain were the only subgroup to show significant improvements in BPI 'relief' scores (p = 0.019 at 1 year), although this effect was not observed at 2 years. Qualitative results reported by patients found that lidocaine infusions were associated with improved mobility, reduced frequency and severity of flare-ups, improved sleep quality and reduced dependence on other forms of analgesia. Average self-reported benefit of the pathway was 50% at the end of 2 years, which was consistent across all chronic pain categories.

Conclusion: These findings suggest that regular lidocaine infusions, in addition to existing self-management measures, could play a role in reducing chronic pain severity and preserving lower levels of pain interference, particularly in patients with chronic neuropathic pain. By comparison with a similar cohort at the aforementioned institution in which participants only underwent lidocaine infusions, this current study presents more significant reductions in BPI 'severity' (11.8% vs 4.4%), suggesting lidocaine infusions delivered in parallel to a self-management pathway are more effective than lidocaine infusions alone. This study provides some long-term data that lidocaine infusions delivered alongside other interventions, offers a safe and effective option for patients with chronic pain, demonstrating findings that to our knowledge have not been shown before.

Keywords: lidocaine infusion, chronic pain, self management, pathway

PP-055

Education

Using stories and guided reflection to introduce the science of pain to children and families

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Background: Pain science education is established as an important component of understanding, preventing and overcoming persistent pain. Current understanding indicates that persistent pain could be considered to be a public health problem that could be significantly improved with greater access to knowledge about the biopsychosocial nature of pain. Providing education at a community level may help to address the unhelpful impact of pain beliefs that focus on physical and biological explanations for pain only. Research indicates that pain science education can be effectively delivered in a range of settings, but that methods of delivering the education can be improved.

Aims: To determine whether an interactive education session based on real-life narratives of pain experiences could influence the beliefs of primary school aged children and adults who accompanied them about the causes of pain.

Method: The research was conducted at a university-based "Science Adventurers" Day, targeted to young families. Written consent was collected on arrival at the event for all participants. Twenty children under the age of 12 years and thirteen adults who accompanied them attended one of a series of interactive education sessions facilitated by a Clinical Psychologist. An assistant issued tokens to participants and made brief notes of discussions and selected quotes from participants. Each session lasted approximately 30 minutes. A visual display was used to guide participants to reflect on the relative impact of bodily harm or contextual and psychological factors in the experience of pain. Following this, a series of true stories were introduced and participants again encouraged to reflect on how each story could shed light on the experience of pain. At the beginning of the session participants were given a pair of coded tokens and asked to "vote" about the relative importance of "the body" and "the brain" for the experience of pain. Tokens could be placed into one of five voting boxes, ranging from 1 (pain is mostly about the body) to 5 (pain is mostly about the brain). Immediately following delivery of the session they used a matched token to repeat their vote. Paired sample t-tests were used to determine whether participants changed their views about pain following the education session.

Result: The results of a paired t-test indicated a significant medium difference between Pre-scores (M = 2.4, SD = 1.2) and Post-scores (M = 3.5, SD = 0.7), t(20) = 3.6, p = 0.002. Notes taken during the sessions indicated that the reflections of the most active group participants were influential in determining change in beliefs about pain.

Conclusion: A short, interactive workshop based around real-life stories and guided reflection shows promise as a vehicle for delivering pain science education to both adults and children.

Keywords: pain education, pain stories

PP-056

Education

Consultation on and service evaluation of a team-based learning pain education course for patients with chronic musculoskeletal pain

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Background: Pain education is a key component of supported self-management for people with chronic musculoskeletal pain. However, it has not been determined what the optimal approach is to deliver this education. Since most self-management, by definition, needs to be

done by the patient, it is crucial that any educational intervention promotes autonomous learning. Team-based Learning (TBL) is a learner-centred strategy that is gaining popularity in health professions education due to promoting student engagement, teamwork and improved learning. With TBL the learner needs to engage with learning materials in advance of class, thus encouraging individual learning. In the classroom, learners engage in quizzes individually then again in their assigned teams to check their understanding of those materials. The teacher can help to clarify any misunderstandings and address gaps in knowledge prior to teams then applying their knowledge to case scenarios. An NHS musculoskeletal (MSK) outpatients' service decided to transition from didactic pain education delivery to TBL as a means of promoting active learning and creating a learning community in the classroom.

Aims: To explore the views of people with lived experience of chronic musculoskeletal pain on TBL pain education. To understand the acceptability of TBL pain education by the first cohort of patients who participated in these classes.

Method: Consultation: An online consultation was held in February 2024 with people with chronic pain (n = 10), including members of the British Pain Society's Expert Patient and Carer Committee, Royal College of Chiropractors Patient Voice group and Bournemouth University's Patient Involvement in Education and Research group. A second consultation was held in-person with 10 attendees at a Pain Café in Somerset, England, May 2024. The consultations were to gain the views of those with the lived experience of chronic pain on a TBL approach to pain education. Service Evaluation: Between April and June 2024, 10 patients with chronic pain over the age of 18 participated in a 5-week TBL pain education course in an MSK outpatients' service, NHS Somerset, England. After the course patients were invited to discuss their views and experiences in a focus group. A topic guide was used to guide questioning and promote debate and elaboration on initial responses. Patients could also have a one-to-one online/telephone discussion should they prefer to discuss anything privately. All discussions were conducted and recorded by an independent researcher for thematic analysis. Institutional ethical approval was obtained prior to commencement (Bournemouth University Ethics ID 56258, 11th March 2024).

Result: Consultation: Feedback from both the online and in-person stakeholder events was generally favourable towards the TBL approach however some key points to take forward were making sure language in the documentation provided was simple and to avoid giving too much pre-class reading. Attendees of the Pain Café also provided positive and constructive feedback on an example quiz and application exercise. Service Evaluation: Of the ten patients who took part in the TBL pain education course, seven participated in the focus group discussion while the remaining three consented to one-one online/telephone discussion. Results were consistently positive. A particularly impactful comment was, "Everyone was made to feel welcome and not only included but heard. Those of us living with chronic pain do not often feel heard and it was a refreshing change." Negative comments appeared related to pain being an ongoing problem rather than the delivery of the course itself.

Conclusion: Confirming the initial thoughts of the stakeholder groups, patients with chronic pain who took part in the TBL pain education course were in favour of this approach. Next steps include evaluating the impact of the TBL approach on patient-reported outcomes such as pain, disability and quality of life.

Keywords: chronic pain, patient education, team-based learning

PP-057

Education

A novel LIFE (Lifestyle-Integrative-Functional-Ecological) pain medicine educational tool: The Curaidh Clinic's visual info graphic 'Look-Book'

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Background: Effective pain management, particularly for medically unexplained pain; presents, a significant challenge in healthcare. Conventional diagnostic approaches often fail to provide clear answers, leading to disengagement. This study explores the development and implementation of an audit reviewing the implementation of a visual infographic patient education tool, the 'Look-Book,' designed with an 'out of the box approach' illustrating The Curaidh Clinic's Model to enhance understanding of pain mechanisms, diagnostic procedures, and therapeutic options.

Aims: To investigate via an evidence based and evidence informed approach, the effect of Patient Education via use of the 'Look-Book' with the objective to simplify complex concepts, especially in the use of innovative methodologies developed, whilst encourage informed decision-making, and foster trust in care plans. Outcomes were tracked by Pain and Functionality. As per the general clinical management plan, any effects on Inflammatory Markers, Metabolic Health, Hormonal (Cortisol and Catecholamine levels) and Neuro-Transmitter (Serotonin metabolites) were observed and noted.

Method: Curaidh is Scots-Gaelic for Champion. The CURAIDH model aims to Collate the medical history, including a 'dis-ease and wellness timeline.' Understand concerns around pain and function, exploring 'limiting beliefs.' Rationalise the need for 'out of the box' tests, costs, benefits and turn around time. Analyse results, and 'join the dots.' Integrate Conventional Medicine with a 'toolbox' of therapeutic options. Discuss (with permission) your case with relevant healthcare providers. Harmonize 'self-help lifestyle tools' putting the patient in the Driving Seat of their health journey. This use of the bespoke Visual Infographic Look-Book was integrated into the Patient Face to Face/ Online appointments. Data collection involved reviewing patient records, collating case studies, together with real-time patient feedback.

Result: Use of the 'Look-Book' embedded within the CURAIDH model of care was associated with a 15–50% reduction in reported pain levels and improvements in patient functionality ($p < 0.01$). There were also improvement in the general trend of the Inflammatory markers, and Metabolic Health (data analysis in process). Also observed, was a reduction in analgesia use and reported less need for unscheduled patient appointments. Patients and their families/ caregivers further reported an enhanced understanding of their condition, with pro-active engagement in the care plan.

Conclusion: Visual aids such as the 'Look-Book' are likely to improve patient comprehension, reduce anxiety, and enhance adherence to diagnostic and therapeutic interventions. By addressing the psychological and emotional extent of pain, this tool facilitates a holistic and integrative approach to care. Given the results to date, there is potential to guide patients in navigating the complexities of medically unexplained pain, whilst encouraging, effective clinician-patient communication with a focus on better clinical outcomes. The 'Look-Book' also served as a personalised care plan and overall – a valuable resource for clinicians across disciplines; aiding, in the explanation of innovative complex diagnoses and therapeutic strategies.

Keywords: integrative medicine, innovation, patient education, chronic pain, visual infographics, unexplained medical symptoms.

PP-058

Education

First-person body illusions provide a novel and effective route to accessible pain science education for all

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Background: In recent decades, the popularity of pain science education has increased, with the aim of improving management of persistent pain. Persistent pain is poorly understood by many of those whom it affects directly, and their support networks, with many myths remaining pervasive. Increasing an individual's understanding of what is happening when they feel persistent pain provides a variety of benefits, including improvements in disability and pain itself. However, some patients find the information difficult to understand and connect with. Here, we present experiential multisensory body illusions and other sensory demonstrations as an accessible and engaging technique to enable patients and clinicians to collaboratively construct a new understanding of painful experiences. The first-person experiences may provide a way for more patients to consider the brain's complexity and its role in pain persisting. Moreover, the demonstrations provide easily replicable tools for patients to engage with their support networks and share the information that they have learnt.

Aims: The aim of this project was to assess professionals' and patients' acceptance of a workshop of interactive demonstrations as a component in pain management.

Method: We undertook iterative development of a novel workshop called "Reframing Pain in the Brain" – piloting it with clinical, academic, and lived experience experts. We incorporated seven interactive demonstrations into the workshop as evidence for how the brain makes sense of the body, relating this to key components of pain science education. The demonstrations rely on commonly available household objects (e.g., pencils, mirrors, sunglasses), to enable widespread sharing of these important ideas within clinical practice and the community. A group of patient partners provided feedback on early versions of the workshop and their insights were instrumental in workshop development. Professionals working with people with persistent pain, and people with persistent pain themselves, were invited to provide feedback on their experiences of the workshop. All respondents attended one our events: healthcare professional education days, a pain symposium, or community pain events.

Result: Forty professionals and eight patients completed anonymous feedback forms; they rated the workshop in terms of understandability, likelihood of use (clinically/personally), likelihood of recommendation (to clinicians and patients), general experience, and whether it made them think differently, alongside open-ended feedback responses about the workshop. Both professionals (average rating: 4.9/5) and patients (4.7/5) found the content accessible and understandable, and the workshop enabled both groups to think differently about how the brain makes sense of the body (professionals: 4.7/5; patients: 4.6/5). Professionals were likely to use the information in their clinical practice (4.5/5), and patients were likely to use the information in their lives (4.5/5). Professionals suggested that the workshop would be useful to everyone – in a professional setting (e.g., anyone from undergraduate students and above; healthcare professionals), and from a personal perspective (e.g., people with persistent pain, carers). Patients mentioned that they would be likely to share the information with friends, family members, and colleagues.

Conclusion: Both professionals working with people with persistent pain and those with persistent pain themselves broadly accept, understand, relate to, and recommend the use of the Reframing Pain in the Brain workshop. The most impactful demonstrations for this understanding are those which involve the participant's own body, as opposed to those that do not allow a tangible physical experience (visual/auditory illusions). Multiple clinicians proposed that the workshop could be used in pain management programmes, as a valuable addition to usual care. The workshop promotes empathy for people who experience invisible symptoms, which may hold relevance for numerous persistent pain conditions. The demonstrations are often unexpected and provide memorable learning moments for understanding how the brain processes information, which can readily be applied to understanding pain.

Keywords: pain science education, pain management, persistent pain, body illusions, community, accessibility

PP-059

Education

Evaluating the self-management strategies and educational support for chronic pain in fibromyalgia patients

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Background: Fibromyalgia is a pain syndrome characterised by widespread chronic pain and tenderness alongside symptoms of fatigue, sleep disturbances, memory problems and low mood. It is a common condition with a worldwide prevalence of around 3%. Its pathogenesis is debated, with some stating it has a genetic predisposition and others claiming it is due to an inflammatory response or central cognitive dysfunction. Due to the lack of understanding around the condition, patients struggle to access educational support on it. Therefore, the main management strategies revolve around reducing pain rather than eliminating it completely. Pharmacological treatments include antidepressants or neuropathic agents, while non-pharmacological strategies include exercises (such as swimming or strength training) and relaxation techniques.

Aims: The objective of this study is to evaluate the effectiveness of both pharmacological and non-pharmacological strategies in reducing chronic pain in fibromyalgia patients. It also aims to identify which of these strategies were the most beneficial in reducing pain and to retrospectively review the efficacy of the educational support patients received around self-management. The overall goal is to use these results to improve the quality of care for fibromyalgia patients regarding their pain self-management and education.

Method: We conducted over-the-phone questionnaires on the educational support received and self-management strategies used by 41 patients with fibromyalgia who'd attended a pain clinic on the strategies. Self-reported outcomes of the self-management strategies were measured by using two pain scores out of 10, one from before and one from after using the strategies. The average pain score reduction (APSR) out of 10 from doing the strategies was then measured to determine the efficacy of them.

Result: Before treatment most patients had a median pain score of 9.7 afterwards it dropped to 7.2. A Wilcoxon Signed-Rank test was used to compare the pain scores before and after treatment, producing

a p value of 0.00011, indicating a statistically significant reduction in pain level after treatment. Of the participants, 87.8% were taking pain medications. Among them, there was a higher APSR at 2.61 compared to 2 in patients who didn't take pain medications. 85.37% of patients did exercises and a higher APSR was seen in them at 2.66 compared to 1.83 in those who didn't do exercise. Of the exercises, gym and strength training had the highest APSR at 3.14. 97.56% of patients used relaxation techniques, giving a higher APSR of 2.58 compared to 1 in those who didn't. Of the relaxation techniques, listening to music was seen to have the highest APSR of 2.55. 68.29% received educational support on fibromyalgia and had an APSR of 2.64 among them.

Conclusion: From the results, the self-management strategies and educational support provided to aid the patients were helpful in reducing the majority of patients' chronic pain. The patient with the biggest pain reduction score of 6 was taking a drug called naltrexone, and attributed their symptom relief to this, suggesting it could be beneficial in the future management of fibromyalgia. A larger scale study with more fibromyalgia patients using this drug would need to be undertook to investigate its true benefits. With pain medications, exercises and relaxation techniques all reducing chronic pain, our study suggests that multimodality treatment including all of these strategies is beneficial in managing pain in patients with fibromyalgia. Additionally, 98% of the patients in our study complained of low moods and sleep problems, therefore it may be helpful to include cognitive behavioural therapy and sleep interventions into the above managements of fibromyalgia patients. As educated patients showed a higher APSR, educating fibromyalgia patients on their condition and how to self-manage their pain during their initial diagnostic clinic would be useful in future practice.

Keywords: fibromyalgia, patient education, pain management, further research, self management

PP-060

Education

Power of analogies in explaining pain management concepts

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Background: Patients with spinal and musculoskeletal pain are often referred to physiotherapy but often fail to comply with the advice given either because they lack understanding of the role of physiotherapy or their expectations were not met when they completed physiotherapy for a short period. The "brick wall and spine" analogy was developed to explain the importance of doing regular physiotherapy exercises. Patients also have difficulty in understanding the concept of referred pain and often ask health care professionals (HCPs) about pain they may have in their groin or thigh when they have back pain (referred pain). The "candle flame and the heat above" analogy was developed to explain the concept of referred pain. In a survey of 142 HCPs the average score for conveying the concept of doing regular physiotherapy exercise with the "brick wall and spine" analogy and the concept of referred pain with the "candle flame and the heat above" analogy was 73 and 70 out of 100. 73% and 66% were likely to use the respective analogies in their clinical practice (Gupta S, et al. Indian J Pain 2025; 39: 24-28).

Aims: To evaluate patients' perspectives regarding the usefulness of the "brick wall and spine" and the "candle flame and the heat above" analogies to explain the importance of doing regular physiotherapy exercises and referred pain.

Method: A survey was designed and approved by the communication patient approval group at Bradford Teaching Hospitals NHS Foundation Trust (BTHFT). Patients who were seen by the BTHFT pain service and needed advice about physiotherapy and/or had referred pain were informed of the analogies as explained below and with the help of images during the consultation. Patients who were willing to participate in the survey were asked if the "brick wall and spine" analogy helped them to understand the importance of doing regular physiotherapy exercises. They were also asked how likely are they to do regular physiotherapy exercise. Similarly, patients were asked if the "candle flame and the heat above" analogy helped them to understand referred pain and if knowing about referred pain helped them to understand their pain better. Importance of regular physiotherapy exercises, "brick wall and spine" analogy: like scaffolding supports a weak wall, regular physiotherapy exercises strengthen muscles to support the spine. Explaining referred pain, "candle flame and the heat above" analogy: extinguishing the candle removes its heat above the flame, just as treating back pain can relieve referred pain in the groin and thigh.

Result: There were 36 and 26 responses for the importance of doing regular physiotherapy exercise and referred pain analogies respectively. All 36 respondents agreed that the "brick wall and spine" analogy helped them to understand the importance of doing regular physiotherapy exercises, 32 (88.9%) were now very likely or likely to do them regularly and 4 (11.1%) were not sure. Comments: "I realise how important physio is", "an eye opener", "very helpful", "patient focused". All 26 respondents agreed that the "candle flame and the heat above" analogy helped them to understand referred pain. When asked if knowing about referred pain helped them to understand their pain better, 21 (80.8%) said "yes" and 5 (19.2%) said "a little better". Comments: "good way of explaining referred pain", "it absolutely helps to demystify pain".

Conclusion: From the responses by the patients (and from the HCPs) it can be concluded that the above analogies convey the intended concept and encourage patients to do regular physiotherapy exercise and helps them to understand their pain better. It may be reasonable to suggest that HCPs may consider using these analogies in their clinical practice when indicated.

Keywords: physiotherapy, referred pain, analogy, pain, chronic pain, chronic back pain

PP-062

Interventional Pain Management

Diagnostic interventions demystified

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Background: Patients with lower back, neck or joint pain may need test/diagnostic injections to identify the source of pain to plan further treatment. However, it is not easy for health care professionals (HCPs) to explain or for patients to understand the concept of diagnostic injections. If patients do not understand the concept, the information gathered from the patient may not be appropriate, leading to denial of a useful treatment or unnecessary further investigations and/or treatment. In a survey of 142 HCPs regarding the usefulness of the analogy "electrical light switch (joint) → electrical wire (nerve carrying pain message) → light bulb (brain)" to explain diagnostic injections the average score was 73 out of 100 in conveying the concept and 72% indicated that they were very likely or likely to use this analogy in their clinical practice (Gupta S, et al. Indian J Pain 2025; 39: 24-28).

Aims: To evaluate patients' perspective regarding the usefulness of the analogy "electrical light switch (e.g. facet joints / sacroiliac joints) → electrical wire (e.g. medial branch/SIJ) → light bulb (brain)" in conveying the concept of diagnostic/test injections for low back, neck or joint pain.

Method: A survey was designed and approved by the communication patient approval group at Bradford Teaching Hospitals NHS Foundation Trust (BTHFT). Patients who were seen by the BTHFT pain service and needed diagnostic injections were informed of the analogy as explained below and with the help of images during the consultation. Patients who were willing to participate in the survey were asked if the analogy helped them to understand the idea of diagnostic/test injections. Patients were asked to consider a light switch which represents the joint that is painful and is being blocked/numbed, a wire that connects the light switch to the light bulb which represents the nerve that carries the pain message from the joint to the brain and a light bulb which represents the brain where the pain is felt. The electricity must travel from the light switch through the wire to the light bulb for it to light up. In the same way, the pain message must travel from the painful joint through the nerves to the brain for us to feel it. If we cut the wire and it turns the light off, then we know that the wire connects the light switch to the light bulb. Similarly, if we block the nerves carrying the pain signal from the joints to the brain, we expect the pain to reduce. Thus, diagnostic/test injection helps us to find out where pain is coming from and this can help us to plan further treatment.

Result: All the 27 respondents agreed that the analogy helped them to understand the idea of diagnostic/test injections. Comments included: "seeing this way makes perfect sense", "good way of explaining. Process of elimination, trying to find the right area that is causing the paint", "it makes it easier to understand," "very well explained", "very useful".

Conclusion: From the responses by the patients (and from the HCPs) it can be concluded that the above analogy conveys the intended concept and encourages patients to respond appropriately to plan further treatment. This analogy can easily be translated into other languages to help patients understand the concept of diagnostic block and we are in the process of doing this.

Keywords: analogy, test block, diagnostic injection, spine pain, chronic pain

PP-063

Interventional Pain Management

Minimally invasive lumbar decompression for lumbar spinal stenosis in patients who have failed conservative interventions

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Background: Chronic low back pain (CLBP) is a leading cause of disability-adjusted life years. It is estimated that 619 million people globally suffer from CLBP and this number is expected to increase to 843 million by 2030. A common cause of CLBP is lumbar spinal stenosis due to ligamentum flavum hypertrophy (LFH). Minimally Invasive Lumbar Decompression (MILD) is a procedure that decompresses the spinal cord by removing a portion of the LFH. Previous studies have shown the effectiveness of isolated MILD procedures compared to conventional management including physical therapy and epidural steroid injections.

Aims: We aim to show the effectiveness of a MILD procedure specifically in patients with LSS who show symptoms of neurogenic claudication and have failed more conservative interventions such as ESI's. With this we hope to further establish MILD procedures in the clinical algorithm for CLBP for primary care physicians and other referring medical specialties to allow patients to achieve improvement in symptoms and functional status as early as possible.

Method: This is an IRB-approved retrospective study of patients who underwent the MILD procedure from Jan-Dec 2023, had LFH measuring >2.5 mm on MRI and exhibited symptoms of neurogenic claudication due to lumbar stenosis. Patients underwent a telephone interview after their surgery and were asked questions related to their pain and functional parameters before surgery and 1 month after surgery.

Result: A total of 8 patients were consented and agreed to participate in the study. At 1 month post-procedure our patients showed an improvement in pain/function for all 12 variables assessed including Pain Intensity (39%), Visual Analog Scale (44%), Walking (21%), and Quality of Life Scale (30%). The improvement in 9 out of 12 variables was found to be statistically significant using a single-tail paired t-test. Three variables (Standing, Sleeping, and Sex Life) did not achieve statistical significance. However Pearson R correlations between Pain Intensity and these 3 variables all increased post-procedure, and given our findings that pain significantly improved after a MILD, we believe that a lack of functional improvement in these variables was due to pain caused by another pathology and not due to neurogenic claudication from lumbar spinal stenosis. All participants had other lumbar spine pathologies found on MRI.

Conclusion: The main clinical outcomes for a MILD procedure, other than pain, are standing and walking. Standing and walking, and associated spinal extension, precipitate neurogenic claudication symptoms by further narrowing the spinal canal. We show statistically significant improvement of pain and walking ability, among other variables. This efficacy of MILD procedures regarding pain relief and functional gain is shown within the same patient group who exhibit symptoms of neurogenic claudication and have previously failed conservative treatment with ESI's. Confirming such findings in this specific patient group has never been demonstrated. We suggest considering MILD surgery earlier during treatment protocol to help achieve functional improvement and better quality of life. A prospective longitudinal study is needed to determine the duration of symptom improvement and outcomes related to this treatment.

Keywords: low back pain, lumbar decompression, minimally invasive, spinal stenosis

PP-064

Interventional Pain Management

The clinical usefulness of pulsed radiofrequency for treatment on myofascial pain (case series)

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Background: Globally large number of patients with trigger points myofascial pain do not respond to medication, physiotherapy, acupuncture and psychological interventions. The response to local anaesthetic injections with or without steroids is often short lived, incomplete or disappointing. The formation of taught bands in injured muscles perpetuate muscle contraction, ischaemia with resultant

fibrosis, mechanical pressure on traversing peripheral nerves, traction of ligaments and distorted joint movement. Pulsed radiofrequency (PRF) has been shown to favourably influence local inflammation, synaptic and neurotransmitter release at gamma motor neurones and may be useful in treating myofascial pain.

Aims: To assess the usefulness of application of PRF to tender trigger points in various muscle compartments in reduction of symptoms of intractable myofascial pain of different aetiology. Our secondary aim was to assess the safety and clinical effect of repeat PRF within the course of patients' follow up in a real world chronic pain clinic scenario.

Method: We assessed 25 patients, 12 women and 13 men, mean age of 54 (29-75 years) with intractable myofascial pain who attended the Chronic Pain clinic of Aneurin Bevan University Health Board and St. Joseph's Hospital between March 2015 and September 2024. 11 patients were having myofascial trigger points (TP) in the splenius capitis and trapezius muscles; 2 patients in the piriformis muscle; 3 patients in the intercostal muscles; 3 patients had TP in quadriceps of the postamputation stump; 2 in the multifidus muscles; 4 in oblique abdominis muscles. We applied PRF at 42 degrees, 45 V for 3 minutes via 22 g cannula either 5 or 10 cm with 5 or 10 mm exposed tip. Two patients with piriformis syndrome and intractable pelvic pain had PRF applied under image intensifier. We assessed the tolerability of the procedure, side effects, clinical reduction of symptoms by 50% at 3 months follow up. We arranged a repeat procedure on recurrence of symptoms and we followed the patients until resolution of symptoms.

Result: All patients tolerated the procedure well and reported a sensation of warmth during the application of the PRF. The effect of pain reduction and functional improvement developed within 2 weeks post application. 20/25 patients reported the occurrence of muscle contractions before the onset of muscle relaxation and pain reduction. At 3 months initial follow-up 18/25 (75%) of patients reported at least 50% reduction of symptoms. 7/25 (25%) did not report 50% reduction of symptoms and were no longer treated with PRF. The patients with good clinical response of 50% or more pain reduction were offered follow-up treatments on recurrence of symptoms. 4 of them had three treatment episodes, 4 patients had two treatments and 10 patients had one treatment after which the symptoms resolved.

Conclusion: In this case series we demonstrate the clinical usefulness of application of PRF at tender TP with intractable myofascial pain at different body sites and of different aetiology. Our work shows improved clinical outcomes short and long term. We consider PRF to be valuable in treating chronic myofascial pain without the side effects of steroids, avoiding local anaesthetic toxicity and denervation changes by Botulinum toxin. Further experience is needed to gather more insights into the application of PRF for myofascial pain which will benefit the patients.

Keywords: non-pharmacological intervention, chronic pain, musculoskeletal, pain trajectories, pulsed radiofrequenccy

PP-065

Interventional Pain Management

Hip articular nerve injections and radiofrequency denervation: a novel technique for management of osteoarthritis hip pain

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Background: In the UK, 34% of adults suffer from chronic pain (1). Studies show almost 20% of older adults suffer from hip pain, with 4% of patients experiencing bilateral symptoms (2). Differentials are categorised as extra-articular, intra-articular or referred pain (3). An option for conservative management for Osteoarthritis of the hip is the use of nerve injections where the sensory nerve inputs from the anterior hip joint are blocked by blocking sensory branches of femoral, obturator and accessory obturator nerves with local anaesthetic and steroid (4).

Aims: We aimed to assess the impact of hip articular nerve injections on patients in University Hospital of Wales, Cardiff. Primary outcome measures were pain scores pre- and post-injection and length of time of benefit of the injection. Secondary outcome measures were analgesia use and difference in pain-free movement.

Method: Patients receiving hip articular nerve injections between 1st January 2023 until 20th March 2025 were identified from Theatreman IT system. All patients had been referred from chronic pain clinic. Patients identified were called by a single interviewer with a standardised 8-question survey completed by each participant. Contact was attempted over a single week period. Consent was gained for each participant before inclusion. Pain scores pre and post-injection were collected using the numeric 10-point pain score. Pre-injection pain scores were based on the month leading up to the injection. Post-injection pain scores were based on the period where the benefits were still ongoing. Beneficial period was defined as the time before pain returned to normal.

Result: A total of 20 patients were identified as having at least 1 hip articular nerve injection in the past 2 years. 12 patients were able to be contacted for completion of the survey, all consented to be included. 1 patient had deceased since injection. 7 were uncontactable during the 7-day period. 2 patients had radiofrequency denervation following 2 injections into the same hip. 1 patient received bilateral injections. 9 patients had injections unilaterally. Mean age of patients at time of injection was 63 years. 58% were female, 42% were male. Average time since 1st hip injection took place was 66.6 weeks. Patients reported pain in the procedure hip for 8.6 years, with a range of 1.5-21 years. 75% of patients had been diagnosed with hip osteoarthritis previously. 7 patients were awaiting planned operative procedure, 3 patients were not operative candidates, whilst 2 declined surgery. 11 patients reported pre and post-injection pain scores. Of these patients, 9 reported a decreased pain score post-injection. Overall, mean pre-injection pain score was 8.5, whilst post-injection pain score was 5.1. One patient reported an increased pain score post-injection. 2 patients reported ongoing benefit at time of survey. Overall, mean length of benefit was 22.2 weeks. Prior to injection, 3 patients reported pain-free mobility across any distance. Post-injection, this increased to 8 patients. Mean Pre-injection pain-free walking distance was 100.8 metres. Contrastingly, post-injection this was 569.2 metres. It was difficult to obtain concise data regarding analgesia usage as none of the patients contacted were able to give accurate doses of medications taken. 5 patients reported opioid usage prior to injection, compared to only 3 post-injection. 7 patients reported the same analgesia regime both pre and post-injection, whilst a further 1 patient reported a change of medications.

Conclusion: Several benefits of hip articular nerve injections have been identified. Improved pain scores were seen across this cohort of patients, with only 1 patient experiencing worse pain. This improvement typically lasts around 3 months, with improvements being seen to last longer. There appears to have limited impact on analgesia use, whilst mobility of patients was impacted positively overall.

Keywords: osteoarthritis, articular nerve block, radiofrequency denervation

PP-066

Interventional Pain Management

Evaluating patient outcomes: The impact of lumbar joint radiofrequency denervation on patients with chronic lower back pain

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Background: Chronic lower back pain is estimated to affect 5-7% of adults over 45, with facet joint pain accounting for 15-45%. Initial management options include physiotherapy and non-opioid based analgesia. However, where conservative measures have failed, NICE recommends that those with chronic lower back pain due to facet joints may benefit from lumbar facet joint radio frequency denervation (RFD). This minimally invasive procedure performed under local anaesthetic has been offered to patients at Cardiff and Vale University health board with chronic lower back pain.

Aims: The aim of this study was to follow up patients post RFD treatment to see what effect it has had on patient's back pain, pain medications, and activities of daily living (ADLs).

Method: Data was collected from 22 patients via a short telephone survey who had received lumbar facet joint RFD between January 2024 and June 2024. Patients were asked to rate their pain using a standardised visual analogue with a scale of 0-10 and whether RFD led to a reduction in analgesia. Functionality was assessed by asking if their ability to independently perform ADLs improved following RFD. Patient satisfaction was evaluated by asking if RFD had positively impacted their back pain and if they would recommend it to others.

Result: 23% of patients were male and 77% were female with an average age of 62.3 years and a range of 31-85 years. The mean duration of back pain prior to RFD was 16.3 years and the average follow up time was 3 months. The average pain score prior to RFD was 8.7 compared to 4.5 after. Ability to perform ADLs independently increased from 36% to 73%. Medications were reduced in 56% of patients who reported a reduction in pain score. 82% of patients reported RFD had a positive impact and 100% of patients would recommend this treatment to others.

Conclusion: Chronic lower back pain affects a significant number of the adult population, more commonly affecting women than men. This can impact patient's physical and psychological health, often becoming a barrier to independently carrying out ADLs. RFD has the potential to reduce chronic back pain and improve functionality. Overall, patients are satisfied with the service and this service evaluation support NICE's suggestion that RFD is a good treatment option for patients with chronic lower back pain. RFD has the potential to reduce chronic back pain and improve functionality. Reduction in opioid and other analgesic medication is an important benefit, something the service could look to improve. Overall, patients are satisfied with the service and support NICE's suggestion that RFD is a good treatment option for patients with chronic lower back pain.

Keywords: Low Back Pain, facet joint, radiofrequency ablation

PP-067

Interventional Pain Management

The influence of semantic priming of pain resilience and catastrophising: Effects on pain expectation and experience

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Background: Chronic pain affects 28 million UK adults and is a leading cause of disability. As the population ages, demand for pain management increases, but many patients face unmet needs and poor outcomes. Pain is subjective and shaped by expectations. Catastrophising amplifies pain perception, reinforces avoidance behaviours, and worsens treatment outcomes. Resilience, the ability to adapt positively to adversity, reduces pain intensity, promotes active coping, and improves overall functioning. Semantic priming influences thoughts and behaviours, and resilience-focused priming may reshape expectations, counter catastrophising, and improve pain experiences, although research is limited in this area.

Aims: To investigate whether resilience-focused priming influences pain expectations, prediction accuracy, and the overall pain experience, compared to catastrophising and neutral primes. This study aimed to explore the potential of resilience-focused priming as a low-cost intervention to improve chronic pain management and quality of life.

Method: In a 3 × 3 mixed factorial, mixed-methods design, 30 pain-free participants completed three identical trials, randomly assigned to a prime condition (Catastrophising, Neutral, Resilience). The prime involved unscrambling fourteen six-word sentences, identifying one word that didn't fit. Five minutes of tourniquet induced ischemic pain on the upper arm then followed. Pain expectations, thoughts, and experiences were recorded using Likert and visual-analogue scales, pre and post pain. Pain-behaviour questionnaires and open-ended questions regarding perception, were completed post-experiment.

Result: A Bayesian mixed-factorial ANOVA revealed no overall effect of Prime on expectation (BF10 = 0.18). However, in Trial-2, Resilience showed a notable effect (M = -6.58, SD = 3.22, 95% CI [-13.45, -0.54]), where expectations lowered simultaneously with negative thoughts. This differed decisively from the Catastrophising group (BF10, U = 2.08), who's negative thoughts increased, despite expecting pain to decrease. Experienced pain ratings were influenced by Trial (BF10 = 3.18), and Trial and Prime combined (BF10 = 2.47), suggesting a learning effect through experience. However, Catastrophising reported distinctly lower pain scores compared to Resilience (BF10, U = 1.64), and Neutral (BF10, U = 4.39), indicating they may have been more trait pain-resilient, or the catastrophising focused statements encouraged perspective-taking through comparison to prior experiences. Neutral's experienced pain increased for Trial-2, coinciding with increased expectations. Thematic analysis of perception prose revealed the prime had mostly been perceived as non-influential. However, some participants in the Resilience group reported feeling positively boosted, while Neutral participants noted distraction. Bayesian linear-mixed models revealed that higher expectations related to better prediction-accuracy (β = -0.41, SE = 0.09, 95% CI [-0.61, -0.24]), for the Resilience and Neutral groups, where better accuracy occurred at lower expectations for Catastrophising. A Bayesian process model for Trial-1 indicated higher expectations related to higher experienced pain (β = 0.51, SD = 0.09, 95% CI [0.34, 0.69]), with pain vigilance partially mediating this relationship (β = 0.09, SD = 0.05, 95% CI [0.007, 0.21]).

Conclusion: Resilience-focused priming shows modest potential to reduce pain expectations and improve coping strategies, promoting cognitive flexibility through repeated exposure. For pain patients, reminding themselves of their coping abilities and challenging catastrophising perspectives, could enhance pain management through the realistic management of expectations. Further research should

explore its clinical application, integrating top-down and bottom-up processes to target expectation violation, inhibitory learning, and sensory interpretation.

Keywords: expectations, resilience, catastrophising, semantic priming, pain management

PP-068

Epidemiology

A summary of pain and psychosocial factors: Exploring data from the avon longitudinal study of parents and children

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Background: Given the subjective and internal experience of pain, it can be difficult to measure. In order to better understand pain, it is important that we collect a wide range of data on pain, pain impact and relevant psychosocial factors that could help to further research in the area. Utilising data from a range of sources (e.g., quantitative secondary data as well as qualitative studies), and incorporating expertise from multiple viewpoints (e.g., clinicians, researchers and individuals with lived experience) will be vital in ensuring that our research questions are (a) relevant to those experiencing pain and (b) can be addressed well using research methods and data of the highest quality.

Aims: To give an overview of the existing data on pain and relevant psychosocial factors in the Avon Longitudinal Study of Parents and Children (ALSPAC). We highlight a process of mapping existing variables onto the recently developed 'Dream' (i.e., under ideal circumstances free from study design and measurement constraints) Directed Acyclic Graph (DAG) designed to represent causal models. This approach used data that has been developed and integrated in conjunction with both researchers and public contributors.

Method: The ALSPAC database was searched for key words linked to pain (including pain, ache, sore, chronic, specific pain conditions, pain relief, physiotherapy and labour pain). These were then independently categorized into pain categories by 3 members of the study team. A similar approach was taken to categorize data collected on social support. Co-creation workshops were held to develop a causal diagram (the Dream DAG) to help research teams ask meaningful questions in the context of pain and psychosocial processes. These workshops involved researchers, clinicians, and members of the public with lived experience of chronic pain.

Result: 21 categories of pain variable were identified, which were grouped into the following themes: pain characteristics, extended pain characteristics and causes, treatment for pain, pain interference and pain-related to specific events. The social support variables were categorised into practical support, emotional connection and partner support. The co-creation workshops drew on experience from a wide range of researchers (from quantitative and qualitative fields), clinicians, data scientists, as well as public contributors. The relationships and pathways of interest that were identified as part of this process cover a wide range of concepts, including the role of relationships, social support, mental health, self-care in chronic pain.

Conclusion: Collaboration between researchers and individuals with lived experience is vital in ensuring that research questions are meaningful. However, in order to answer the identified questions well, we need to collect high quality data on pain and related processes. This highlights the importance of cohort studies, such as ALSPAC, continuing to collect and document relevant data. The relationships and concepts identified during the Dream DAG process are unlikely to be captured by a single item, and it is therefore vital that as researchers, we are able to map the individual items that we collect as part of these studies onto meaningful constructs.

Keywords: CRIISP, ALSPAC, co-creation, cohort studies

PP-069

Epidemiology

The mediating role of emotional connections and practical support at age 25 on changes in pain impact from ages 18 to 30

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Background: Chronic pain, persistent or recurrent pain lasting longer than 3 months, impacts around one third of adults. Chronic pain has also been shown to be associated with mental health and support, however the mechanisms of these relationships are less clear.

Aims: We aimed to investigate a. whether the impact of pain/health at age 18 is associated with pain impact in daily, social and work activities at age 30; b. the extent to which the association between pain/health impact at age 18 and at age 30 is mediated by practical support and emotional connections with others at age 25 and; c. the extent to which the direct effect, not mediated by support, differs when accounting for mental health at age 21.

Method: Analyses were carried out in a sample of young adults from the UK who took part in the Avon Longitudinal Study of Parents and Children and reported experiencing pain for more than 1 day in the past month at age 18 (N = 1,836). Causal mediation analysis via parametric g-formula by Monte Carlo simulation was used to estimate total, natural and controlled direct effects, and natural indirect effects via support. Analyses were adjusted for sex, the Monte Carlo sample was increased to 10,000, and 95% confidence intervals were estimated using standard errors from 1000 non-parametric bootstrap resamples. Intermediate confounding by depressive and anxiety symptoms at age 21 was assessed.

Result: Pain/health impact in the work domain at age 18 was associated with changed ability to work, including housework, at age 30 in models adjusted for sex (Beta = 0.68, 95% CI = 0.32–1.0, $p < 0.001$, N = 237). This association remained after further adjustment for emotional and practical support (25y), and mental health (21y), however it was partly attenuated in models adjusted for practical support and mental health (Depressive symptoms: Beta = 0.50, 95% CI = 0.08-0.91, $p = 0.020$, N = 154; Anxiety symptoms: Beta = 0.46, 95% CI = 0.04–0.88, $p = 0.034$, N = 155). Associations were less impacted by adjustment for mental health in models including emotional rather than practical support. Pain impact (18y) in the social domain was associated with reductions in both practical support (Depressive symptoms: Beta = -0.12, 95% CI = -0.23–0.02, $p = 0.017$, N = 536; Anxiety symptoms: Beta = -0.13, 95% CI = -0.23-0.03, $p = 0.009$, N = 534) and emotional connection (Depressive symptoms: Beta = -0.15, 95% CI = -0.24–0.05, $p = 0.003$, N = 538; Anxiety symptoms: Beta = -0.15, 95% CI = -0.24–0.05, $p = 0.002$, N = 536) even after adjustment for mental health. Pain impact in the self-care domain was also associated with emotional support, but associations with practical support were completely attenuated by adjustment for mental health. Conversely, pain impact in the work domain was associated with practical support, while associations with emotional support were attenuated by adjustment for mental health. There was evidence of a direct effect of pain/health impact in the work domain (18y) on changed ability to work due to pain (30 y) in g-formula models incorporating both emotional connection (MD = 0.732–0.789, 95% CI = 0.291–1.235) and practical support (MD = 0.651–0.690, 95% CI = 0.187–1.149); however there was little evidence of any indirect effects via support. The direct effect was smaller when accounting for intermediate confounding by mental health (Emotional support: MD = 0.588–0.625, 95% CI = 0.089–1.118; Practical support: MD = 0.499–0.534, 95% CI = 0.006–1.052).

Conclusion: These findings suggest that in people who experience pain in young adulthood, those with greater pain/health impact in the work domain, but not self-care or social domain, are more likely to experience pain interference in activities later in adulthood. While this does not appear to be mediated by support, there was evidence that pain impact influenced later emotional connection. This highlights the important of considering and minimising the impact of pain on social connections. Findings also highlight the important role of mental health and the potential importance of reducing depression and anxiety in young people with pain to minimise longer term impact.

Keywords: Epidemiology, ALSPAC, young adults, pain im, pain impact

PP-070

Epidemiology

The Chronic High Impact Pain Project (CHIPP): prevalence and socio-demographic variation of high-impact chronic pain in the UK Biobank

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Background: In the UK, almost half of adults have pain that lasts longer than three months (i.e., chronic pain). High-impact chronic pain (HICP) significantly affects quality of life and function including work and social life. Not all individuals with chronic pain experience these effects and HICP may require a different management approach. There is a paucity of contemporary data on how common HICP is, and who experiences it.

Aims: The aim of this study was to examine the prevalence of HICP and differences in the prevalence between socio-demographic groups (sex, age, ethnicity, and deprivation) in the UK.

Method: The data source was the UK Biobank (UKB). For analysis, information on sex, age, ethnic background and Townsend Deprivation Index (TDI) from the initial UKB assessment questionnaire conducted in 2006-2010 was linked to data from the 2019 experience of pain (EOP) survey. The EOP survey (N = 167,099 participants) assessed health status and outcomes, and the presence, duration, severity, location and impact of pain using the Brief Pain Inventory (BPI). After removal of 2502 (1.45%) persons with missing data, 164,669 participants were available for analysis. HICP was classified as a mean BPI interference scale >5. Observed prevalence estimates and 95% Wald confidence intervals were calculated using the prevalence package in R. Analysis was performed in R version 4.1.1. The authors do not disclose any conflicts of interest.

Result: The prevalence of CP in UKB was 56.3% (95% CI: 56.0-56.5%) and the prevalence of HICP was 14.1% (95% CI: 13.9-14.2%). The prevalence of HICP was higher in women (16.6%, 95% CI: 16.3-16.8%) than men (10.8%, 95% CI: 10.5-11.0%), and this sex difference was observed across all categories of age, ethnic background and TDI quantiles. The prevalence of HICP did not differ between participants aged 45-54 (13.7%, 95% CI: 13.1-14.2%), 55-64 (14.0%, 95% CI: 13.7-14.3%) and 65-74 (13.7%, 95% CI: 13.5-14.0%) years, but was higher in participants aged 75-84 (15.5%, 95% CI: 15.1-16.0%) years. The prevalence of HICP in Asian (20.7%, 95% CI: 18.6-22.8%), Black (24.4%, 95% CI: 22.0-26.8%) and Mixed (18.4%, 95% CI: 15.8-21.1%) ethnicity participants was higher than White (13.9%, 95% CI: 13.7-14.1%) and Chinese (13.8%, 95% CI: 10.3-17.2%) participants. These differences were greater when stratified by sex. For example, the prevalence of HICP in Black women (28.3%, 95% CI: 25.0-31.6%) was almost three times higher than White men (10.6%, 95% CI: 10.4-10.9%). The prevalence of HICP increased across TDI quantiles, from the least disadvantaged areas (11.6%, 95% CI: 11.3-12.0%) to the most disadvantaged areas (17.9%, 95% CI: 17.5-18.3%). Of the participants living in the most disadvantaged areas, there was higher prevalence of HICP in Asian (26.4%, 95% CI: 22.6-30.3%) and Black (26.3%, 95% CI: 23.1-29.5%) participants compared to White (17.6%, 95% CI: 17.2-18.0%) participants.

Conclusion: The concept of HICP goes beyond the direct experience of pain and focuses on the consequences of chronic pain on peoples' lives. In our analysis, there was considerable socio-demographic variation in the prevalence of HICP in the UK with women having consistently higher prevalence of HICP than men across all socio-demographic subgroups. When studying the causes and consequences of HICP, researchers should consider whether models tailored to specific subgroups of the population, such as women, are appropriate. Understanding these differences could help researchers and policy makers to target resources and improve the prevention and management of HICP and reduce the impact on individuals with pain, communities, workplaces, services and the economy.

Keywords: epidemiology, UK Biobank, CHIPP, health inequalities, high impact chronic pain, chronic pain

PP-071

Evidence Based Guidelines

Opioids prescription at discharge – Are we adhering to National guidelines?

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Background: Effective analgesia following major surgery is crucial for recovery and early mobilisation. Opioids are regarded as one of the most effective forms of analgesia in the management of acute pain. Their long-term use can pose significant risks including misuse, dependence and constipation amongst several others.

Aims: The primary aim of the project was to evaluate the adherence to National Surgery and Opioid Best Practice guidelines laid out by the Faculty of Pain Medicine of Royal College of Anaesthetists (RCOA) on opioid prescription at discharge following major surgery, at a tertiary centre in Wales. The focus is on type, dose, duration and documentation of opioid prescription at the time of discharge after major surgery.

Method: Retrospective data was collected after major surgeries from the period of 03/05/22–24/05/22. A total of 100 patient discharge summaries were analysed to see if the discharge plan is as suggested by the guidelines. Data on opioid prescription, including type, dose, route, duration, and additional analgesia, were collected, and analysed.

Result: Our findings revealed that sixty-five patients (65%) were prescribed opioids following surgery. However, in only 60% of these patients, the duration for the opioid prescription is documented in their discharge summaries. 21.5% of these patients received prescriptions exceeding the recommended 7-day duration as per the National guidelines. 15% of the opioids prescribed were modified release prescriptions. More than 60% of the total patients were prescribed additional analgesia that didn't include opioids.

Conclusion: National standards for post-operative analgesia prescription regarding opioid were not largely met. Whilst most clinicians clearly documented the duration of opioid prescription on discharge summaries, a large volume of discharge summaries didn't state the duration of prescription. The current guidelines highlight the complications associated with long term opioid use, yet nearly a quarter of the patients had a discharge prescription of opioids for longer than recommended. To improve clinical outcome and avoid opioid misuse, it is essential for clinicians to document intended duration of opioid use at discharge. The literature and guidelines recommend not to prescribe opioids greater than 7 days in post-operative pain management, so patients must be reviewed before re-prescribing opioids after this point. There must be good reason for a re-prescription to avoid the risks of overuse of opioids. The findings highlight the importance of careful opioid prescription for the post-operative period and hence the significance of clear documentation of intended duration of opioid use on discharge summaries. Improving opioid prescription practices and enhancing the clarity of discharge documentation is crucial in minimizing the risks associated with opioid use and improving patient outcome.

Keywords: post-operative pain, discharge opioids

PP-072

Neuropathic Pain

The use of Qutenza 8% in neuropathic pain: A retrospective audit

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Background: Neuropathic pain is increasing in prevalence and can be extremely debilitating. It is commonly associated with peripheral diabetic neuropathy (PDN), postherpetic neuralgia (PHN) and surgical scars. Managing neuropathic pain can be challenging but topical treatment options such as Qutenza provide new hope. Qutenza is a topical patch containing capsaicin. It acts on TRPV1, a receptor expressed on nociceptive fibers in the skin (1). Application for 30 or 60 minutes can provide pain relief for 3 months or longer (2). It offers a non-invasive alternative or adjunct to other analgesics.

Aims: 1. Is there a significant change in numerical rating scale for pain (NRS) following application of Qutenza? 2. Is there a reported percentage in pain reduction following application of qutenza? 3. Is there a reduction in adjuvant analgesia after application? 4. What are the side effects of Qutenza and how prevalent are they?

Method: Data was collected from any Qutenza patches applied between 2020-2024 at University Hospital of Wales. Clinical information was taken retrospectively from the Welsh clinical portal and clinic notes. This study included 77 applications to 52 patients.

Result: Out of 77 applications 62 reported a pre and post treatment NRS. NRS improved after 37 applications (59.7%), was unchanged after 17 applications (27.4%) and worsened after 8 applications (12.9%). Using a paired T test the mean NRS prior to Qutenza was 7.3 (±1.7). The mean NRS after Qutenza was 5.5 (± 3.0). Therefore there was a significant change following Qutenza application with $p < 0.001$. There is a 95% confidence interval of a change in NRS between 1.1 and 2.5 following the application of Qutenza. Additionally, 43 out of 77 applications resulted in a reported percentage reduction in pain with a mean reduction of 60%. Only 3 applications resulted in a 0% reduction in pain and 31 applications had no reported value. Out of 77 applications, 50 resulted in either a reduction in NRS or reported percentage reduction in pain. If an application resulted in either of these, we considered it a positive outcome. 60.9% of applications for PDN had a positive outcome, 80% for PHN applications, 57.1% for trauma, 75% for post-surgery/scars, 50% for other indications. Out of 77 applications, 13 resulted in a reduction of adjuvant analgesia (16.9%). Within these applications there were 34 reports of redness, 18 of burning, 8 of a hot sensation, 7 of tingling 1 of itching and 1 of a prickly sensation.

Conclusion: Qutenza presents a promising treatment option for managing neuropathic pain, with a compelling safety and efficacy profile. These results underscore the importance of continuing to explore the clinical benefits of Qutenza. More research is needed to define its role in improving quality of life for those living with neuropathic pain.

Keywords: neuropathic pain, chronic pain, capsaicin 8%, neuropathy, post-herpetic neuralgia

PP-073

Neuropathic Pain

Ivabradine, an HCN channel blocker, alleviates mechanical but not heat pain hypersensitivity in normoglycemic HFD/STZ rats

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Background: Chronic peripheral neuropathic pain (PNP) is associated with various injuries and diseases, including diabetes mellitus (DM). Among the complications of DM, diabetic PNP (DPNP) is one of the most debilitating, affecting patients with both type 1 (DM1) and type 2 (DM2) diabetes. DPNP presents with distressing symptoms, including mechanical and thermal hypersensitivity. Despite its high prevalence and clinical significance, effective treatment remains a challenge due to its poorly understood pathogenesis. Preclinical studies suggest that hyperpolarization-activated cyclic nucleotide-gated (HCN) channels play a role in other forms of PNP. This is based on the findings that ivabradine, the only clinically available HCN channel blocker (approved for chronic angina and heart failure) is effective in alleviating pain hypersensitivity in rodent models of nerve injury and chemotherapy-induced PNP (Noh et al., 2014; Descoeur et al., 2011; Young et al., 2014). However, studies on the role of HCN channels in DPNP and effects of ivabradine on pain hypersensitivity in models of DPNP particularly models of DM2 are sparse.

Aims: The aim of this study was to investigate, whether blocking HCN channels with ivabradine, a peripherally restricted drug that is devoid of CNS side effects, can reverse or attenuate behavioural signs of DPNP in a rat model of DM2.

Method: Male Sprague Dawley rats (270-488 g, n = 30) were used, following approval from the University of Qatar Ethical review committee. The high fat diet-fed, streptozotocin (STZ)-treated (HFD/STZ) model of DM2 that involved a single injection of a low dose of STZ (35 mg/kg, i.p.) after 2 weeks of feeding the rats on HFD (60% calories as fat) was used as described previously (see Skovso, 2014). Three groups of rats were used: (1) vehicle (control) group (n = 10); (2) Ivabradine group (10 mg/kg, i.p, n = 10) and (3) Gabapentin (positive) group (30 mg/kg, i.e., n = 10). Mechanical and heat hypersensitivity was performed using a dynamic plantar aesthesiometer touch stimulator, and Hargreaves analgesiometer, respectively. Data were presented as mean ± SEM, and were analyzed using One-way ANOVA with post hoc tests.

Result: Blood glucose levels did not differ significantly ($p > 0.05$) between HFD/STZ rats and control rats an any time points tested including 35 days post induction (100.3 ± 1.2 vs 99.7 ± 1.4 mg/dL), indicating that the HFD/ZTZ rats were normoglycemic. However, HFD/ZTZ rats exhibited mechanical and heat hypersensitivity, as shown by significant decreases in the mean paw withdrawal threshold (PWT) from 39.0 ± 0.9 to 32.8 ± 1.7 g ($p < 0.01$) and mean paw withdrawal latency (PWL) from 16.4 ± 0.7 to 11.9 ± 1.1 sec (($p < 0.01$) at 35 days post STZ respectively. A single injection of ivabradine (10 mg/kg, i.p) reversed the decrease in PWT, but not PWL, at 2 h, post treatment indicating its efficacy in alleviating mechanical but not heat hypersensitivity. The anti-allodynic effect of ivabradine was comparable to that of the gabapentin (positive control), the first-line treatment for DPNP.

Conclusion: The findings support previous studies suggesting that factors beyond hyperglycemia, such as insulinopenia, contribute to the DPNP pathogenesis. They also suggest that HCN channels are involved in the mechanisms of mechanical, but not heat, hypersensitivity associated with DPNP, and that their blockade with ivabradine may be a potential therapeutic option for DPNP in humans.

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Keywords: neuropathic pain, chronic pain, diabetic neuropathy, pain behavior, HCN channels

PP-074

Neuropathic Pain

Capsaicin 8% topical patch for trigeminal post-herpetic neuralgia: a case report

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Background: Trigeminal post-herpetic neuralgia (PHN) is defined as unilateral facial pain present for at least 3 months in the distribution(s) of one or more branches of the trigeminal nerve, caused by herpes zoster.[1] Typically, the pain of PHN is burning and itching, and patients show a sensory deficit and brush-evoked mechanical allodynia. Many patients show little sensory loss, but demonstrate heightened responses to thermal and/or punctate stimuli. Capsaicin 8% topical patch is licensed for the treatment for peripheral neuropathic pain. It is a highly selective agonist for the transient receptor potential vanilloid[1] receptor (TRPV1). Activation of TRPV1 cutaneous nociceptors causes release of vasoactive neuropeptides. Following capsaicin exposure, the receptor becomes desensitised to a variety of stimuli. Alterations in TRPV1 sensitivity are reversible, and normal function returns within weeks.[2] Capsaicin 8% patch is not recommended for use on the face, scalp or near the eyes or mucous membranes, there are few case reports of its use.[3,4,5]

Aims: To demonstrate the safety and efficacy of capsaicin 8% topical patch use on the face.

Method: A 69-year-old gentleman presented with V1 distribution PHN since an episode of herpes zoster 18 months earlier. He had continuous burning, itching and tingling, fluctuating in severity between 2/10 and 7/10 on an 11-point numerical rating scale. Amitriptyline 50 mg and pregabalin 600 mg daily were of some benefit, but pain was not well controlled and interfered with his ability to work and quality of life. Oral gabapentin and duloxetine, topical lidocaine and Botulinum toxin-A were not helpful. Supratrochlear and supraorbital nerve blocks offered relief for a day. He found capsaicin cream too painful to use. He was consented for capsaicin 8% topical patch, on the understanding that it is not recommended for use on the face. Prior to each session eutectic mixture of local anaesthetics (EMLA 5%) was applied for 60 minutes and wiped off before applying the patch. Treatment duration was gradually increased to confirm tolerance. Initial treatment duration was 30 minutes, then 45 minutes, and the last 3 for 60 minutes per session. A silicone dressing and safety goggles were used to protect the eye area. Brief pain inventory data was collected.

Result: Five 3-monthly treatments sessions have been completed over 13 months. Following each treatment he experienced slight redness and burning ≤ 24 hours, and no other adverse consequences. After the initial treatment the patient reported 5 days of complete pain relief before the pain returned. Brief pain inventory data for the next three treatments demonstrated a fall in mean severity score from 5 to 3.67, and a fall in mean interference from 4.19 to 2.24 two to four weeks later. Baseline mean severity (4.5) and interference (4) were similar 13 months later (4.3 and 3.43 respectively).

Conclusion: Pain intensity was reduced for at least four weeks when the patch was applied for at least 45 minutes. Interference was also generally reduced, except following the fourth treatment when

stressful life events contributed to increased pain interference. He has been referred to a pain management programme for support in coping with the impact of pain on his life. Mean pain severity had returned to baseline by 3 months after each treatment. Capsaicin 8% topical patch can be a safe treatment for trigeminal PHN.

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Keywords: neuralgia, trigeminal post-herpetic neuralgia, capsaicin 8%, post-herpetic neuralgia, capsaicin, neuropathic pain, facial pain

PP-075

Neuropathic Pain

Positive response to lacosamide in a young adult with idiopathic erythromelalgia

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Background: Erythromelalgia (EM) is a rare condition; exact incidence figures are not available for the United Kingdom. EM episodes are typically relieved by cooling the affected areas but care is required to avoid freezing injuries. Symptoms can be intermittent and insidious. Treatment is difficult. Diagnosis of erythromelalgia is based on clinical criteria and the exclusion of differentials. Primary erythromelalgia may be idiopathic or inherited. Genetic testing may reveal presence of SCN9A mutation; this is an autosomal dominant mutation, with 50% penetration.

Aims: We report on a young woman with idiopathic EM, negative SCN9A mutations and positive response to lacosamide.

Method: Signs and symptoms: We describe the case of a woman in her early 20s, who visited the Emergency Department in the summer season due to intense pain in her limbs, especially in her hands. She reported intermittent stiffness and pain in both hands for the past four weeks and milder, most recent symptoms in her feet, together with thermic dysregulation in the previous months. Upon physical examination, she exhibited excruciating pain upon palpation of the hands, along with swelling, redness, and warmth in the affected areas. Swelling of lesser intensity was also observed in the lower limbs. Her past medical history was unremarkable, except for stress-related fatigue the previous year and an episode of hand stiffness two months prior. During her 39-day hospital stay, symptoms and signs in her hands progressed, reaching 10/10 pain on a 11-point (0-10) Numerical Rating Scale, and the area of redness and edema extended to the base of the hands. Foot symptoms followed the same course with a few days' delay, ultimately preventing her from walking. After twenty days of hospitalization and treatment, her hands began to improve, and a few days later, her lower extremities followed the same course. Investigations: She had elevated prolactin and high T4 levels. Tests for infectious diseases were negative. Nerve conduction studies in the lower limbs were hindered by oedema. Lower limb sensory responses were present but small in amplitude. Sensory conduction in the upper limbs and motor conduction in both upper and lower limbs were normal. EMG was not performed. Genetic testing for hereditary neuropathy or pain disorders was negative, including SCN9A. Treatments: The patient effectively relieved her pain by immersing the affected extremities in freezing water. Pharmacological approaches included carbamazepine, which she had trialled in the previous weeks, without benefit. She also received treatment with pregabalin, oramorph, and lacosamide, in addition to pain physiotherapy. Follow-up: At discharge, she was pain free on lacosamide, pregabalin and tapentadol. One-month follow-up: physical examination was normal although occasional flare-ups of pain, redness, and swelling were reported.

Result: Symptom improvement appeared to coincide with her Lacosamide treatment. The SCN9A gene encodes the alpha-subunit of voltage-gated sodium channel NaV1.7. Mutations cause channel-hyperexcitability, which leads to nociceptive neuron firing at subthreshold stimuli. Most cases of mutation-associated primary EM are early-onset (first two decades of life); second dacade onset may be associated with a less common mutation causing a smaller degree of dorsal root ganglion excitability potentially explaining somewhat later onset of symptoms. There is evidence to recommend the use of lacosamide for pain treatment in Nav 1.7-related small fibre neuropathy, with good tolerability and safety profile. Our patient was not helped with carbamazepine but appeared to respond to lacosamide. Both drugs act on the sodium channel, but through different mechanisms.

Conclusion: It is possible that our patient is carrier of an as-yet undescribed mutation or one not tested for in the genetic panel. Further studies are needed to shed light on these issues, given the potential impact on offspring and the refractoriness to treatments.

Keywords: erythromelalgia, channelopaties, lacosamide, neuropathic pain

PP-076

Reviews

Effects of pharmacological and non-pharmacological interventions to improve sleep quality for people with fibromyalgia: a network meta-analysis

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Background: Fibromyalgia is a long-term complex, chronic condition characterised by widespread musculoskeletal pain. Although pain is the primary symptom, sleep problems are also common and are often described by individuals with fibromyalgia as both frustrating and exhausting. Poor sleep is also reported to exacerbate other fibromyalgia symptoms. Various pharmacological and non-pharmacological treatment options are available to promote better sleep in fibromyalgia, but it remains unclear which are most effective. We conducted a network meta-analysis (NMA) to compare multiple options and identify the best treatments for managing fibromyalgia-related sleep problems.

Aims: To evaluate effectiveness and safety of interventions for the management of fibromyalgia-related sleep problems.

Method: We conducted a systematic review and NMA of randomised controlled trials assessing pharmacological and non-pharmacological interventions targeted to improve sleep in adults with fibromyalgia or used for pain management with potential effects on sleep. Comparator treatments included placebo/sham or usual care or another active intervention. Seven major electronic databases were searched in November 2021. The primary outcomes were sleep quality assessed using patient-reported outcome measures validated in fibromyalgia, and adverse effects (AEs). Secondary outcomes included: sleep efficiency, sleep duration, and quality of life. Treatments were categorised based on their stated or hypothesised mechanism of action and divided into four main exercise categories (aerobic, strength, flexibility and mind-body; further classified as 'aquatic' or 'land-based'). Psychological and behavioral therapies (PT/BT) were grouped into two categories: 'sleep-focused' or 'generic.' Random-effect NMA models were fitted using WinBUGS to calculate standardised mean differences (SMD) with 95% credible intervals (CrI). Study quality was assessed using the Cochrane Risk of Bias tool. For the primary outcome, the certainty of evidence (CoE) was assessed using the GRADE/CINeMA approach.

Result: Of the 90 included studies, the majority (91%) were judged at high overall risk of bias. Most studies enrolled patients of White ethnic origin and (62%) compared active treatment with either placebo/sham or usual care; however, not all sham interventions were adequately designed. For sleep quality, 65 studies (8247 participants, 35 intervention categories) provided data for the NMA. Compared to placebo/sham, there was some evidence of improvement on sleep quality for land-based aerobic exercise training in combination with flexibility training (n = 32 participants; SMD -4.69, CrI -8.14 to -1.28; CoE Low) and aquatic aerobic exercise (n = 59; SMD -2.63, CrI -4.74 to -0.58; CoE Low). There was also a suggestion that land-based strengthening exercise (n = 56), sleep-focused PT/BT (n = 94), electrotherapy (n = 20), weight loss (n = 41), dental splints (n = 29), antipsychotics (n = 53) and tricyclics (n = 43) could improve sleep, but estimates were imprecise and CoE low to very low. Improvement in the QoL assessed by the Fibromyalgia Impact Questionnaire was observed for some form of exercise (land-based aerobic and flexibility, n = 32; land-based mind-body, n = 420), PT/BT (sleep-focused, n = 77; generic with relaxation, n = 29), multidisciplinary training (n = 81), and pharmacological interventions (antioxidant, n = 12; iron replacement, n = 38; serotonin reuptake inhibitor, n = 573; central nervous system depressant), although the magnitude of the effect varied. Due to insufficient data, a meta-analysis assessing sleep efficiency/duration was not performed. Because of heterogeneity across studies, information on AEs was summarised descriptively. The most common AE after pharmacological interventions included dizziness, drowsiness, and dry mouth; AEs after non-pharmacological interventions were mild/moderate such as stiffness and fatigue.

Conclusion: Some forms of exercise training are likely to improve sleep quality in people with fibromyalgia. However, heterogeneity, imprecision, and low quality of the current evidence base preclude any firm conclusions. Future studies should include an adequate comparator/control treatment, recruit more diverse patients and should include objective and subjective measurements of sleep.

Keywords: fibromyalgia, sleep, systematic review, network meta-analysis

PP-077

Reviews

Review of pain measurement tools: Applications in clinical and research settings

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Background: Pain measurement is a cornerstone of effective pain management in clinical and research settings. As pain is a subjective experience, its assessment requires reliable and valid tools to capture its intensity, characteristics, and impact on patients' lives. A variety of pain measurement tools have been developed, each catering to specific needs and conditions, including neuropathic pain, chronic pain, and pain induced by medical treatments such as chemotherapy. Understanding the strengths and applications of these tools is essential for improving patient care and advancing research methodologies.

Aims: This review aims to provide a comprehensive analysis of widely used pain measurement tools, examining their design, application, and contribution to pain assessment in clinical and research contexts. By evaluating these tools, the review seeks to identify their roles in enhancing diagnostic accuracy, monitoring treatment efficacy, and guiding tailored interventions.

Method: The review examines a range of pain measurement tools, including the Brief Pain Inventory-Short Form (BPI-SF), Visual Analog Scale (VAS), Douleur Neuropathique 4 Questions (DN4), Numeric Rating Scale (NRS), Numerical 11-point Pain Intensity Scale, Vibrograms, Chemotherapy-Induced Peripheral Neuropathy 20 (CIPN20) score, and the Functional Assessment of Cancer Therapy/Gynecologic Oncology Group-Neurotoxicity (FACT/GOG-Ntx) subscale. Each tool is evaluated based on its structure, methodology, and clinical utility. Data were drawn from clinical studies, guidelines, and research articles, providing a robust foundation for analysis.

Result: The review highlights the diverse methodologies and applications of pain measurement tools: Brief Pain Inventory-Short Form (BPI-SF): A self-report questionnaire used extensively in clinical trials to evaluate pain severity and its interference with daily life. Its dual focus on intensity and impact makes it a versatile tool for assessing pain in various conditions. Visual Analog Scale (VAS): A simple, widely applicable tool for quantifying pain intensity. Its visual and subjective nature enables patients to easily express their pain levels, making it a staple in both clinical and research settings. Douleur Neuropathique 4 Questions (DN4): Designed to identify neuropathic pain, this tool combines patient-reported symptoms with clinical examination findings. It is particularly valuable for distinguishing neuropathic pain from other types of pain. Numeric Rating Scale (NRS) and Numerical 11-point Pain Intensity Scale: These tools provide straightforward methods for patients to self-report pain intensity. The inclusion of an additional point in the latter allows for more nuanced pain assessment. Vibrograms: Used to evaluate sensory processing and pain thresholds, particularly in neuropathic pain and neurological disorders. This method provides objective data to

complement subjective pain reports. Chemotherapy-Induced Peripheral Neuropathy 20 (CIPN20) and FACT/GOG-Ntx Subscale: Specialized tools for assessing the impact of chemotherapy-induced neuropathy on sensory and motor function, as well as quality of life. These tools are essential for managing side effects in oncology patients.

Conclusion: Pain measurement tools are indispensable for both clinical practice and research, offering diverse approaches to assessing pain intensity, characteristics, and impact. The tools reviewed here demonstrate their efficacy in capturing the multidimensional nature of pain, aiding healthcare providers in diagnosing conditions, monitoring treatment efficacy, and improving patient outcomes. However, variability in methodologies and application highlights the need for standardized protocols and further validation across diverse populations. Future advancements in pain measurement should focus on integrating objective and subjective data, ensuring comprehensive and accurate pain assessments.

Keywords: pain management, pain measurement, tools, neuropathy, research

PP-078

Reviews

Effectiveness of multi-modal compared to active physical interventions alone in chronic widespread pain, including fibromyalgia: A systematic review

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Background: Chronic Widespread Pain (CWP), including Fibromyalgia (FM), are prevalent and complex conditions characterised by longstanding, diffuse bodily pain that significantly impacts daily functioning and quality of life. To address the multifactorial nature of pain, multi-modal interventions encompassing various treatment modalities, including exercise, are often recommended. However, the comparative effectiveness of these comprehensive approaches versus active physical interventions (such as exercise or movement-based therapies) alone remains unclear.

Aims: This systematic review aims to evaluate the effects of multimodal interventions on pain and disability compared to standalone active physical interventions in patients with CWP, including FM.

Method: A systematic search of MEDLINE, Embase, PsycINFO, and the Cochrane Central Register of Controlled Trials (CENTRAL) was conducted to identify randomised controlled trials (RCTs) comparing multimodal interventions with standalone active physical interventions. Pre-specified inclusion and exclusion criteria were applied to ensure relevance. Where sufficient data were available, outcomes for pain and disability were pooled, and a meta-analysis was performed using a random-effects model. For studies with insufficient data for pooling, a narrative synthesis was conducted.

Result: Eight studies met the inclusion criteria and were included in this review. Meta-analyses were performed for various outcomes in both the short- and long-term, with pain and disability as the primary measures for studies providing sufficient data. In the short-term (immediately post-intervention to six months), multimodal interventions significantly reduced pain scores (SMD -0.50; 95% CI -0.93 to -0.08; $p = 0.02$) and fibromyalgia impact (SMD -0.45; 95% CI -0.80 to -0.10; $p = 0.01$). However, no significant effects were observed for these outcomes in the long-term. Additionally, no differences were found between groups for the remaining outcomes assessed in the review (including measures of disability, mental health, QoL and self-efficacy).

Conclusion: The findings of this systematic review suggest that, compared to exercise alone, multimodal interventions may offer short-term benefits in reducing pain and fibromyalgia impact. However, further research is needed to explore long-term outcomes and to identify the key components and characteristics that contribute to the effectiveness of these interventions.

Keywords: chronic pain, supported self-management, ethnic minorities, multi-disciplinary working, pain management, chronic pain

PP-079

Non-Pharmacological Pain Management

Non-pharmacological pain management: A review of clincaltrials.gov dataset

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Background: Non-pharmacological pain management represents an essential paradigm in healthcare, offering alternatives to medication-based strategies that often carry risks of dependency and adverse effects. Such approaches are increasingly being recognized for their role in providing safe and effective pain relief for populations with unique needs, including neonates, postpartum women, and patients with chronic conditions. The growing body of research in this field underscores the need for a comprehensive analysis of completed clinical trials to better understand the potential and limitations of these methods.

Aims: This study aims to systematically analyze completed clinical trials on non-pharmacological pain management to identify key trends in interventions, targeted conditions, and patient outcomes. By examining the efficacy and applicability of these strategies, the research seeks to provide insights into their integration into diverse clinical settings.

Method: A dataset comprising 26 completed clinical trials focusing on non-pharmacological pain management was analyzed. Data variables included the type of study (observational or interventional), target population demographics (age, sex, specific conditions), intervention methods, primary and secondary outcome measures, and sponsorship. The interventions assessed spanned behavioral approaches, procedural techniques, device-based strategies, and other non-invasive methods. Each trial's methodology and findings were reviewed to extract trends and evaluate their impact on pain management.

Result: The analysis revealed significant diversity in non-pharmacological pain management strategies: Behavioral approaches: Mindful awareness techniques, cognitive-behavioral therapies, and preparatory strategies were among the most frequently studied methods. These approaches demonstrated improvements in pain perception, patient engagement, and overall quality of life. Procedural interventions: Techniques such as oral glucose administration, maternal holding, and non-invasive physical stimulation were found effective in neonatal and pediatric populations. These interventions highlighted the importance of minimally invasive strategies in

vulnerable groups. Device-based methods: Interventions like abdominal binders and other supportive devices showed significant efficacy in managing postpartum and surgical pain. These methods were cost-effective and easily integrable into routine care. Other strategies: Studies included novel approaches like virtual reality-based distraction, hydrotherapy, and acupuncture. These demonstrated varying degrees of success, emphasizing the potential for innovative methods in pain management. The primary outcome measures across studies consistently reported reductions in pain scores, improved physiological markers (e.g., reduced heart rate or cortisol levels), and enhanced patient-reported outcomes. Secondary measures included adherence to non-pharmacological regimens, patient satisfaction, and quality-of-life indices. Sponsorship of these studies ranged from academic institutions and hospitals to private research organizations, indicating a broad interest in advancing non-pharmacological approaches. Participant demographics spanned neonates, children, adults, and older adults, reflecting the universal applicability of these interventions.

Conclusion: The findings from these 26 studies underscore the effectiveness and versatility of non-pharmacological pain management strategies. Behavioral, procedural, and device-based approaches offer promising alternatives to pharmacological treatments, especially for populations where medication use may be limited or contraindicated. Despite these advancements, the variability in methodologies and outcome measures highlights the need for standardized protocols and larger, multi-center trials to confirm efficacy and enhance implementation. Future research should prioritize scalability and integration of these methods into standard care pathways to maximize their impact.

Keywords: non-pharmacological pain management, behavioral interventions, procedural interventions, device-based methods, neonatal analgesia, postpartum pain, chronic pain management, clinical trials

PP-080

Non-Pharmacological Pain Management

Do pain management programmes (PMPs) reduce opioid prescriptions in chronic pain patients?

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Background: Between one third to half of the British population suffer from chronic pain, greatly impacting quality of life. Opioid analgesia is commonly used in chronic pain management, despite growing concern regarding its efficacy and potential for harm. Pain management programs (PMPs) have emerged as an adjunct to medical therapy, equipping patients with self-management strategies to improve functioning and wellbeing. PMPs are run over a 3-week period, led by a multidisciplinary team comprising of a consultant clinical psychologist, nurse, occupational therapist and physiotherapist. However, the extent to which these initiatives reduce opioid analgesic reliance has yet to be fully explored.

Aims: To review changes in opioid prescriptions in patients with chronic pain following completion of a pain management programme.

Method: Data on medication prescriptions was extracted from GP connect for patients who started the pain management programme (PMP) at Addenbrooke's Hospital between Feb 2018-Feb 2020. Of the 90 patients enrolled into the PMP over this period, data from 59 patients was available on GP connect. All medications prescribed for each patient were recorded. Opioid medication was converted into units of morphine equivalent, enabling calculation of total opioid burden.

Result: One year after completion of the PMP, most patients showed a modest reduction in opioid prescriptions, but a few showed a large reduction in opioid use, although this is not statistically significant (mean of 16.4 mg/day at baseline vs 13.5 mg/day after year 1, p = 0.09). At two years post-PMP, the average prescriptions rebound slightly, although remain lower than at baseline (mean of 15.2 mg/day after year 2, p = 0.76). Three years following completion of the PMP, there is an increase in opioid prescriptions, rising above baseline (mean of 17.4 mg/day after year 3, p = 0.55).

Conclusion: These results show that while there appears to be an initial reduction in opioid usage in the first year post-PMP, this is not statistically significant and instead rises after three years. This implies that the benefits of PMPs on decreasing opioid prescriptions is not long-term. Limitations of this study include the substantial heterogeneity in opioid prescriptions within the patient population, as it might be more difficult to reduce opioid reliance when used to higher doses at baseline. Moreover, it is not possible to rule out confounding factors which may contribute to this increase in opioid prescriptions three years post-PMP. Extensions to this study include exploring changes in neuropathic medications commonly used in chronic pain management such as amitriptyline and pregabalin.

Keywords: Pain management programme, opioids

PP-081

Non-Pharmacological Pain Management

Supported self-management within ethnic minority communities

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Background: This paper explores the benefits of a self-management intervention for those living with chronic pain in the community of Bradford. This project, in collaboration with Bradford University pioneered a new approach in the self-management of chronic pain, providing a community-based group within a university environment. As far as we are aware, this is a world first.

Aims: The project had the following.

Aims: To help people in the community (including university staff) with chronic pain and long-term conditions including long covid, by providing professionally led, supported self-management sessions. To provide students with a practical experience of therapeutic group work combined with a reflective seminar. This was a theory in to practice experience.

Method: The project consisted of a two hour professionally-led group session which would be observed by students. The group sessions examined classic self-management topics including: Understanding pain, stress, anxiety, emotions, pacing, acceptance, flare up, confidence, problem solving, changing habits, communication. These were delivered in a lively interactive co-creative way.

Result: Student feedback was that it facilitated the following: enhanced learning experience; enabled real-world participation. Patient

feedback included: improved skills in managing their chronic pain; provided valuable source of support and education.

Conclusion: The project was successful in delivering a community group allied to a powerful student experience. Members from the community gained support and improved their health and well- being. Students gained valuable practical insights and understanding and able to experience real- life scenarios. In addition to this, they were able to learn the practical elements of the theory. The University benefitted by giving back to the community as well as providing students with the extra-curricular practical based learning and development.

Keywords: chronic pain, supported self-management, ethnic minorities, multi-disciplinary working

PP-082

Non-Pharmacological Pain Management

Holistic management of wound-related pain

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Background: Pain is a significant factor associated with wounds. Its presence can impact on every aspect of an individual, affecting their overall quality of life including ability to function, as well as their social and psychological well-being. Holistic approaches that can help to address wound-related pain are vital to improve patient outcomes.

Aims: To review the evidence for the holistic management of wound-related pain in individuals with chronic wounds in order to provide recommendations for healthcare professionals in clinical practice.

Method: The L OVE platform was used for the search as wound and burn are in the same search category. L OVE collects systematic reviews retrieved from the systematic reviews database Epistemonikos and allocates them to specific L OVEs and questions. We conducted our search for reviews related to wounds and burns in November 2022. Retrieved titles and abstracts were exported into Rayyan. The search was organised within Rayyan according to the focus for each chapter to retrieve evidence on pain assessment, physical therapies, patient education, psychological approaches, and complementary and alternative approaches. A systematic approach was used by senior experts in wound and pain management for double-blind screening and application of inclusion criteria (chronic wounds and pain) to agree on articles for review. Sources related to acute wounds (including burn injuries) were excluded. The L OVE search was supplemented by narrative reviews of literature identified from the individual systematic reviews and handsearching of relevant sources.

Result: 38 systematic reviews and 27 additional articles were identified: pain assessment (n = 25); physical therapies (n = 8); patient education (n = 12); psychological approaches (n = 2); complementary and alternative approaches (n = 18). The results showed that assessment of wound-related pain is complex and multidimensional and requires selection of the most appropriate assessment tool. There may be a role for physical exercise in helping reduce pain in patients with venous leg ulcers. Procedural-related pain, management of exudate, combinations of therapies to manage symptoms are recommended. Patient education should include; aetiology of the wound and causes of pain, non-pharmacological and pharmacological methods for pain relief, methods for assessing pain relief, as well as impact of pain on QoL. Psychological approaches need to consider the factors associated with pain (attention, cognitions, emotions and emotion regulation and overt behaviour) in order to determine the most appropriate treatment strategy. Aromatherapy and music therapy may also be helpful. There may be a role for honey for the management of wound-related pain. Evidence for traditional Chinese medicine, plants, low-dose topical steroids and low level-laser therapy was very weak.

Conclusion: The experience of wound-related pain is complex and needs to take into consideration the psychological and social factors that can impact on an individual's quality of life to ensure a holistic approach. Equally the assessment of wound-related pain is complex and multidimensional. Healthcare providers must determine the most suitable assessment tool for their patients and in doing so consider an individual's ability to respond to the assessment. Management of wound-related pain may require both non-pharmacological and pharmacological approaches and can include dressings and devices. A holistic strategy should incorporate education (patient and healthcare professional) and psychological approaches to improve patient outcomes. The results of our review have been synthesised for health care practitioners to inform their clinical practice. The resource includes an evidence-based decision-aid to support the holistic management of acute and chronic wound-related pain and incorporates the features of the assessment of pain as well as management options. The philosophy underpinning the recommendations is that the main determinants of wound-related pain management cannot solely be based on the wound symptomatology and the process of care (healing), but also need to consider the individuality of the patient and their current needs.

Keywords: acute pain, chronic pain, Multi-disciplinary working, pain management, non-pharmacological intervention

PP-083

Non-Pharmacological Pain Management

The influence of piezo ion channels and haptics on pain severity and pain interference: Results from the RESTORE trial

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Background: An estimated 100 million people live with pain and, in the United States, pain is the most common reason patients consult primary care providers. There is a reduction in quality of life and impairment on activities of daily living (ADLs) for people experiencing acute and chronic pain- which remain prevalent conditions. Due to the potential for serious adverse effects and toxicities of exiting pharmacological pain treatments, researchers have been focused on identifying alternative, less invasive, safe, and effective options that exhibit a reduced side effect profile. As part of a multi-modal approach to care, these less invasive options may provide pain relief without the potential for harmful side effects. The somatosensory experience is determined by a set of channels and receptors sensitive to thermal, tactile, and mechanical stimuli shown to be critical to survival, balance control, and pain modulation. Tactile perception is an innate mechanism for human survival and represents our evolved and adaptive ability to apprehend information via haptics – the active touch for object recognition and perception by higher centers of the brain. Identification of two important ion channels, named PIEZO1 and PIEZO2, have been shown to be involved in our tactile sensation as well as showing sensitivity to external mechanical stimuli. In recent years, haptic skin-stimulation technology has been incorporated into several over-the-counter products and other devices with different routes of delivery that include protheses, patches, apparel (socks), braces, wrist bands, and compression sleeves, among others. These haptic advancements have shown positive outcomes in patients experiencing pain, sleep, or stress/anxiety disorders.

Aims: This IRB-approved, randomized-controlled, and double-blinded trial evaluated subjects with mild to moderate, acute or chronic pain, after use of a drug-free, non-invasive, haptic vibrotactile trigger technology (VTT) pain-relieving Patch (FREEDOM Patch; The Super Patch Company Inc.; Toronto Canada) using validated scales ((e.g., BPI-short Form (Brief Pain Inventory), range of motion, flexibility and other functional measurements), along with a control group of subjects who received a 'sham' Patch.

Method: Data was collected for subjects with mild-to moderate, acute, or chronic pain issues at 0, 7 days, and 14 days. All subjects were randomized and received either an 'active' patch with VTT or a 'sham' patch by their clinician and determined by a Block Randomization methodology. A comparison of Quality of Life (QoL) components, pain relief and measurement scores, and assessment of the severity of pain and its impact on functioning, flexibility, range of motion, subject satisfaction, and any adverse events between active and placebo groups were evaluated.

Result: After 14 days, statistically significant differences were shown in the treatment group with decreases in pain severity and Interference scores, increased range of motion and flexibility showed marked improvements compared to baseline measurements. After 14 days, the treatment group subjects were very/extremely satisfied with the active patch. Results also showed statistically significant and positive outcomes in all measured Quality of Life (QoL) components with improvements in general activity, mood, relations with other people, sleep, normal work, walking ability, and enjoyment of life.

Conclusion: Study results indicate that this non-pharmacologic, non-invasive, haptic vibrotactile trigger technology (VTT) embedded topical patch reduces pain severity and interference scores and increases range of motion and flexibility with minimal side effects. Results show that the over-the-counter VTT patch should be considered as a first line therapy and added to the current arsenal of noninvasive and nonpharmacological pain therapies.

Keywords: pain management, non-pharmacological intervention, novel, treatment, topical formulations, musculoskeletal, medication, patient education, opioid prescribing

PP-085

Non-Pharmacological Pain Management

Neurofeedback for the treatment of fibromyalgia in patients with rheumatoid arthritis

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Background: Rheumatoid arthritis (RA) pain is typically attributed to inflammation; however, a significant subset of patients experience persistent pain despite effective control of inflammatory activity. Fibromyalgia (FM), a type of chronic widespread pain associated with abnormal central pain processing (i.e., nociplastic)[1], affects more than 20% of people with RA.[2] Neurofeedback (NF) has shown promise for treating FM by enabling voluntary modulation of cortical activity.[3,4]

Aims: The primary aim of this pilot study is to evaluate the effect of NF on the nociplastic component of pain in RA. Secondary aims include exploring changes in comorbid fatigue, sleep disturbance and depression.

Method: Right-handed adults that fulfil American College of Rheumatology (ACR) classification criteria for RA and chronic widespread pain, with stable RA and pain intensity ≥4 on Numerical Rating Scale (NRS), with no major confounding neurological diseases can be recruited for the study. Eligible participants undergo ten NF training sessions each lasting 30 min, aimed at upregulating individual alpha power (IAP) over the sensorimotor cortex (C3/C4). Outcomes on pain and comorbidities, and quantitative sensory testing are quantified at pre- and post-intervention assessments, including the following questionnaires: ACR-FM, pain NRS, McGill Pain, Routine Assessment of Patient Index Data3 (RAPID3) and the Patient-Reported Outcomes Measurement Information System (PROMIS) battery for anxiety, depression, fatigue and sleep impairment. Additionally, we record 64-channel electroencephalography (EEG) at rest and while participants perform motor imagery. The latter activates the sensorimotor cortex, which is expected to be influenced by central sensitisation,[5] thereby providing insight into potential mechanisms of NF for affecting nociplastic pain. Participants complete a 10-point visual analog scale (VAS) and the Widespread Pain Index (WPI) before and after each session and a diary with daily entries rating pain, fatigue, depression and sleep disruption on a 0–10 scale. Participants' current pain fatigue and sleep disruption levels are assessed at a follow-up interview 1 month after the last session. Intervention efficacy was defined as concurrent reduction in pain measures during and post-assessment, alongside upregulation of IAP of 10% or more, from daily resting sate. Pearson's correlation coefficients between VAS pain ratings and session number and between WPI session number are used to assess any trend in pain changes over the course of the intervention.

Result: This is an ongoing study. Of 23 individuals approached, six met inclusion criteria, six enrolled and five completed the study. Four

participants (80%) successfully upregulated IAP over the sensorimotor cortex in at least two NF sessions, starting with session five. Two participants showed a moderate negative correlation between pain ratings and intervention timeline (-0.56<r<-0.48), and we found moderate to weak correlations between WPI and intervention timeline in three participants (-0.76<r<-0.39). Between pre- and post-intervention assessments, all participants decreased WPI (48 ± 10%), anxiety (30 ± 24%) and depression (32 ± 19%), while fatigue, sleep disruption and RAPID3 scores decreased in three out of five participants (fatigue: 46 ± 13%; sleep: 38 ± 20%; RAPID3: 34 ± 14%). At follow-up, pain NRS value was unchanged in two participants and 1-3 points lower in two participants. One participant reported headaches and tiredness after NF sessions.

Conclusion: Preliminary results of this ongoing study suggest that NF for IAP upregulation may help reduce nociplastic (fibromyalgic) pain in RA, with additional potential benefits on comorbidities. Additional participant recruitment and analysis of motor imagery pre- and post-intervention is expected to provide better insight into both the efficacy and mechanisms of action underlying this intervention.

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Keywords: fibromyalgia, nociplastic pain, rheumatoid arthritis, rheumatoid arthritis, neurofeedback, motor imagery, central sensitisation

PP-087

Non-Pharmacological Pain Management

Daily associations of sleep and rest-activity patterns with pain intensity in adults with chronic pain

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Background: It is widely recognized that a bidirectional relationship exists between sleep and pain. Recent systematic reviews suggest that self-reported sleep quality has a stronger predictive influence on pain intensity than the reverse, particularly among patients with chronic pain (CP). However, sleep constitutes only one-third of an individual's 24-hour rest-activity rhythm (RAR). Limited research has been conducted on the combined influence of daytime activity and overall daily RAR patterns on next-day pain.

Aims: This study aims to examine whether temporal associations exist between sleep, accelerometer-measured rest-activity patterns, and pain ratings in individuals with chronic pain. Specifically, the study seeks to understand how sleep, physical activity (PA), and 24-hour RAR patterns would influence next-day pain among individuals with chronic pain in the UK.

Method: A total of 193 individuals with chronic pain (CP) participated in the study. Participants were instructed to wear the MotionWatch 8 (MW8) actigraphy device on their non-dominant wrist continuously, both day and night, for seven consecutive days in their natural sleep-wake environment. Additionally, they completed a daily sleep diary to assess self-reported sleep efficiency (SR-SE; percentage of time a person spends asleep compared to the total amount of time they spend in bed) and sleep quality (SR-SQ; subjective perception of the sleep), alongside three daily surveys to record pain intensity, which served as the outcome variable. Data collected from MW8 included actigraphic sleep variables such as sleep efficiency (A-SE) and fragmentation index (A-FI; degree of fragmentation of the sleep). PA variables included total activity counts (TAC) and total sedentary behaviour (TSB). The MW8 also measured parameters of rest-activity rhythm (RAR), including intradaily variability (IV; degree of fragmentation of RAR) and relative amplitude (RA; robustness of RAR). Multilevel modeling (MLM) was employed to examine the prospective joint effects of participants' sleep, PA, and RAR patterns on next-day pain intensity.

Result: In the multilevel modeling (MLM) analysis, higher self-reported sleep quality (SR-SQ; β = -0.057, p < 0.001, 95% CI [-0.085, -0.013]) and self-reported sleep efficiency (SR-SE; β = -0.051, p < 0.01, 95% CI [-0.089, -0.028]) significantly predicted lower next-day pain intensity. Conversely, actigraphic measures of sleep efficiency (A-SE) and fragmentation index (A-FI) were not significant predictors of next-day pain intensity. Regarding physical activity (PA) patterns, neither total activity counts (TAC) nor total sedentary behavior (TSB) from the previous day were significant predictors of next-day pain intensity. Similarly, rest-activity rhythm (RAR) parameters reflecting rhythm robustness or fragmentation, including intradaily variability (IV) and relative amplitude (RA), did not predict next-day pain intensity. The MLM results further indicated that pain intensity scores did not significantly vary across the daily surveys or days of measurement. Among demographic covariates, older age (β = 0.152, p < 0.01, 95% CI [0.053, 0.251]) and higher body mass index (BMI; β = 0.110, p < 0.05, 95% CI [0.019, 0.200]) were associated with greater reported pain intensity.

Conclusion: Findings from the MLM analysis indicate that self-reported sleep quality (SR-SQ) and self-reported sleep efficiency (SR-SE) consistently serve as robust predictors of next-day pain intensity, even after statistically controlling for daily physical activity and rest-activity rhythm parameters. This suggests that achieving better sleep mitigates next-day pain intensity, regardless of increased physical activity levels or fragmented rest-activity rhythms. These findings highlight the importance of prioritizing high-quality sleep as a means of reaping the health benefits of physical activity while minimizing the potential for heightened exercise-induced pain the following day.

Keywords: Chronic pain, sleep, physical activity, rest-activity rhythm, actigraphy

PP-088

Other

The national peri-operative diamorphine shortage (PODS): An organisational and individual anaesthetist survey of practice

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Background: Since 2019, the UK has experienced a shortage of diamorphine, a widely used opioid in obstetric practice. While the

Obstetrics Anaesthetists' Association (OAA) issued guidance in 2021 to address this shortage in obstetrics, no equivalent recommendations exist for non-obstetric surgical practices. Pain-Train UK, the research network for doctors interested in pain medicine, conducted a survey to evaluate how the shortage has impacted UK anaesthetic practice for managing non-obstetric postoperative pain and to document current practices.

Aims: The study sought to assess organisational responses to the diamorphine shortage in non-obstetric perioperative care and document changes in anaesthetists' clinical practices.

Method: This national prospective multicentre survey consisted of two components: an organisational survey completed by acute pain leads, and a second survey completed by consultant anaesthetists to assess individual practices. A call for local coordinators 'collaborators' was circulated nationally amongst resident doctors. Recruited collaborators sought to collect responses to both surveys, aiming for 25% of consultant anaesthetists at their trust to complete the consultant survey. The study included adult surgical departments providing elective or emergency procedures and excluded paediatric and obstetric-only services. Data was collected from July to September 2024 with responses subsequently analysed.

Result: In total 20 sites were surveyed, 60% reported being affected by the shortage. The acute pain lead survey revealed that responses to the shortage varied, including restricting intrathecal diamorphine to specific areas (n = 5), issuing informal advice on diamorphine alternatives (n = 5), issuing formal departmental advice (n = 7), or implementing new guidelines (n = 3). Only two trusts changed postoperative monitoring practices, namely regarding duration and type of observations monitored, and/or admission to a higher acuity post-op destination. Overall, 416 consultant anaesthetists responded, reporting pre-shortage use of diamorphine most commonly in general surgery, obstetrics, and trauma/orthopaedics. Due to the shortage, 44% of consultants altered their practice, with 41% using intrathecal morphine, 26% intrathecal fentanyl, and 10% using only local anaesthetics. Some discontinued intrathecal analgesia, citing safety concerns or inadequate postoperative care facilities. Over half (56%) had no prior experience with intrathecal morphine. The main themes identified regarding reasoning for stopping intrathecal analgesia included: due to formal guidance, no suitable alternative intrathecal opioid available, side effect profiles of alternative intrathecal opioids, or preferring an alternative practice to provide analgesia. Where consultants reported that they had not been affected by the diamorphine shortage, reasons identified from responses included that intrathecal opioids were not part of their normal practice or that their diamorphine supply had been maintained. Several consultants reported that they were unaware of the diamorphine shortage.

Conclusion: The diamorphine shortage led to widespread adaptations in anaesthesia practices. The predominant response was adopting intrathecal morphine, despite its unfamiliarity for over half of the anaesthetists. Many would revert to diamorphine if supplies improved, suggesting dissatisfaction with alternatives. Reasons for dissatisfaction were not investigated, however may be due to prolonged side effects or additional monitoring requirements. A small number of trusts altered the post-operative monitoring of patients receiving intrathecal opiates after the diamorphine shortage, and a few developed local guidelines. This left individual anaesthetists responsible for ensuring patient safety, with an implicit need for effective communication to Post-Anaesthesia Care Unit and ward staff in patients who had received intrathecal morphine. Future studies could explore adverse outcomes related to the use of intrathecal morphine in hospitals without established policies. Limitations: The study surveyed 36% of consultant anaesthetists across 20 sites, predominantly in the Midlands and North of England, limiting its representativeness of national practices. Potential response bias may have overestimated the shortage's impact. However, responses revealed diverse adjustments across hospitals, reflecting variability in resources, expertise, policies, and attitudes.

Keywords: diamorphine, opioid, intrathecal, guideline, shortage, PODS

PP-089

Other

Facilitators and barriers to effective self-management of chronic musculoskeletal conditions by asylum seekers and refugees: A review

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Background: Chronic musculoskeletal (MSK) conditions, with pain as the predominant symptom, are the leading cause of disability worldwide. People living with chronic MSK conditions frequently use healthcare services and face considerable challenges to valued participation because of pain, related disability and distress. Self-management strategies, such as exercise, decision-making, and goal setting, are recommended by guidelines and can improve function, well-being, and symptoms. Healthcare professionals have a key role in supporting tailored self-management. Refugees and asylum seekers with chronic MSK conditions face additional challenges due to complex demographic, social, and economic factors. However, the barriers and facilitators to effective self-management in this underserved population remain poorly understood.

Aims: To identify and describe the barriers and facilitators related to the self-management of chronic MSK conditions from the perspective of refugees and asylums seekers, and the healthcare professionals involved in their care.

Method: A systematic search of MEDLINE, CINHAL, PsycINFO, Embase, ProQuest, Health, SCOPUS and Cochrane Library databases was carried out from inception to 2024. Eligibility criteria required all studies to be qualitative studies, or mixed methods studies that reported qualitative data where the findings could be extracted separately. Included studies contained participants who were aged 18 years or over, refugees and asylums seekers with chronic MSK conditions, or healthcare professionals involved in their care, which discussed barriers and facilitators related to self-management. The Joanna Briggs Institute method of systematic review of qualitative data was followed, which allowed for assessment of credibility and methodological quality. Following appraisal by one reviewer, findings were extracted using a standardised form and categorised into themes according to concept or description and synthesised to make recommendations for future research and practice.

Result: 757 studies were identified in electronic searches. Seven studies were included in the final data extraction and analysis (n = 66 participants, 39% male). All studies were performed in countries in Western Europe, Australia or New Zealand. Five of the studies included only female participants from Iraq (n = 15), Somalia (n = 14) and one a range of countries of origin (n = 9). Two of the studies involved tortured refugees (n = 28, 93% male). Barriers to successful self-management included limited accessibility of healthcare due to

language challenges, cost to attend and awareness of services. Other barriers reported included conflicting diagnoses, ineffective medical treatments (e.g., medications), socioeconomic factors (e.g., lack of healthy food), cultural differences and concurrent mental health conditions, like anxiety, depression and post-traumatic stress disorder related to forced migration. Facilitators included improved understanding of their condition through interpreters and trusted relationships with culturally aware healthcare professionals, and access to multidisciplinary services addressing physical, psychological and social needs (e.g., support and advice about occupational and financial matters). To support ongoing management, culturally sensitive community-based exercise options, such as female only groups for Muslim women and opportunities for social support were valued.

Conclusion: Refugees and asylum seekers report barriers relating to understanding of the chronic condition, treatment expectations, language, cultural differences and accessibility, which is comparable to other culturally and linguistically diverse populations with MSK conditions but differs from indigenous populations. Additional barriers reported by refugees and asylum seekers are associated with high prevalence of concurrent mental health conditions resulting from the forced migration experience, especially in those that experienced torture. Facilitators include access to multidisciplinary care which integrates physical and mental health support, as well as long term support in their community to undertake physical activity. Research in this area is limited. To improve care for refugees and asylum seekers with chronic MSK conditions, future efforts must actively involve this underserved population in designing new interventions. This approach ensures that care is tailored to their unique needs and challenges, fostering more effective and equitable solutions.

Keywords: chronic pain, supported self-management, ethnic minorities, multi-disciplinary working

PP-090

Other

Hypermobility syndromes in chronic pain management - initial evaluation of a new diagnostic and management pathway

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Background: The Centre of Pain Education (COPE) is an interdisciplinary pain management service supporting patients to live well with pain. This service improvement was the result of increased awareness of a demographic of patients with a hypermobility syndrome (HMS). These patients frequently present with fibromyalgia which they felt did not explain their full experience of pain and adverse lifelong health issues. HMS patients frequently experience additional multi-system co-morbidities, higher rates of mental health and neurodivergence which have a profound effect on quality of life. There are currently no NHS pathways to manage the complex needs of this group. Diagnosis of HMS can take over 10 years. Diagnostic issues and negative healthcare experiences further impact symptoms. The current fragmented pathway and lack of validation incurs significant costs to the individual and the healthcare system.

Aims: The development and evaluation of a new pathway for the diagnosis and management of HMS within an existing NHS pain management service. The pathway intends to enable patients to gain an HMS diagnosis, understand the condition and support self-management within an adapted outpatient pain-management-programme (PMP).

Method: Service development COPE clinicians underwent self-directed professional development and online training with: The Hypermobility Syndromes Association (HMSA) and The Ehlers Danlos Society Echo to upskill in HMS diagnosis and management. An assessment tool was developed to identify HMS profiles within chronic pain patients. The Hypermobile Ehlers Danlos Syndrome (hEDs) 2017 diagnostic criteria were used to assess for hEDS diagnostic features. An online workshop on hypermobility syndromes was developed by the COPE team to educate patients on the condition and management. An existing 8 week out-patient PMP was adapted to meet the different needs of a group of hypermobile patients. Evaluation A retrospective audit was undertaken reviewing clinical notes and PMP outcome data. The Patient Self Efficacy Questionnaire (PSEQ), measuring confidence to live with pain, and the Musculoskeletal Health Questionnaire (MSK HQ), evaluating interference of pain and stiffness were used at assessment, post-PMP and at 3 & 9 month follow-up. An online survey gathered patient feedback.

Result: 330 patients were assessed at COPE between October 2021-2022. HMS was identified in 108 (33%). Mean age was 40 and 98% were female. Initially 17 patients had pre-post data available. Mean assessment scores were compared with 9 month follow up data. PSEQ increased from 23/60 to 31/60 (60 = maximum confidence) and MSK HQ increased from 20/56 to 24/56 (56 = no interference from symptoms). The patient survey125 HMS patients surveyed, 35 (28%) responded.69% were diagnosed with HMS by a COPE specialist physiotherapist.86% had already received psychological therapies.71% suspected they were neurodivergent. 77% no longer reported symptoms to their GP, due to feeling dismissed. Qualitative data included "I was told it was all in my head", "I still have to convince health professionals I know what's wrong with me, its exhausting and frustrating." Patient feedback included: "It has completely changed my life!" "Before nobody understood me and I didn't understand myself." "It feels like a weight has been lifted", "they were patient, understanding and knowledgeable." "We need awareness from doctors/health professionals, so people don't wait 10 years suffering thinking they are mad and wasting time and money on unnecessary tests". Patients reporting confidence to manage pain and HMS issues increased from 9% to 54% pre and post COPE HMS pathway.

Conclusion: HMS are an unidentified but significant proportion of patients referred to outpatient pain management services. The majority of HMS are undiagnosed with little understanding of its relation to health and pain issues. Patient satisfaction with provision of HMS diagnosis and pain management within an adapted pain management pathway is high. Further evaluation of outcome measures with larger numbers completing the intervention is in progress.

Keywords: hypermobility syndromes, 2017 hEDS diagnostic criteria, chronic pain management, new pathway, complex health

PP-091

Other

First contact practitioner requests for prescription medication for musculoskeletal problems: A quality improvement project

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Background: Overuse of prescription medication for musculoskeletal pain, particularly opioids, is recognised as being problematic (Lin et al, 2019, Nowakowska et al, 2021). First Contact Practitioner (FCP) services for those with musculoskeletal pain presenting to

primary care are common across the UK and are purported to reduce prescribing for MSK conditions (NHS England and NHS Improvement, 2019). Evidence to support this is currently limited. This FCP service is in an area of deprivation with opioid prescription rates ranking above the 90th percentile over the last four years and high levels of persistent musculoskeletal pain, making medicines optimisation clinically important and a valuable area for research and service improvement. Currently no FCPs in the service are non-medical prescribers so, when needed, a request for prescription medication must be tasked to a GP. This may include requests for short-term weak opioids. While there is evidence that patient expectation influences prescribing, this is drawn mainly from post-surgical cohorts and is not necessarily generalisable to primary care. Therefore, this project drew on what evidence is available to hypothesise that education about use medicines optimisation could reduce patient expectation for prescription medication and thus reduce potentially unhelpful prescribing in primary care.

Aims: To evaluate FCP requests for prescription medication over a 12-month period. To provide patient education about appropriate use of over-the-counter medication for musculoskeletal issues and achieve a reduction in FCP requests for prescription medication over a subsequent 12-month measurement period, and by extension reduce opioid prescribing.

Method: A quality improvement project was carried out in line with the structure recommended by the British Medical Journal. Baseline data on the rate of FCP requests for prescription medication was collected from the electronic records of all patients seen in the FCP service over 12 months. After baseline data collection, a patient education video outlining appropriate use of over-the-counter pain relief was produced and sent to patients on booking an FCP appointment. FCP appointments are booked anywhere between 'same day' and two weeks in advance. The rationale was that improved knowledge of appropriate, effective use of over-the-counter pain control prior to being seen in clinic would result in lower patient expectation for prescription medication and thus lower rates of requests from FCPs to GPs for prescription medication. Follow-up data was collected over the subsequent 12 months.

Result: Over the 12-month baseline data capture period FCPs saw 3996 new patients. The request rate for prescription medication was 17%. Over the 12-month follow-up period FCPs saw 4690 new patients. The request rate for prescription medication was 10%.

Conclusion: Both baseline (17%) and follow-up (10%) request rates compare favourably with national primary care prescribing for musculoskeletal issues, reported at 27% (Welsh et al, 2023). This indicates FCP services are effective in reducing prescribing for musculoskeletal conditions. The patient education video was associated with a reduction in requests for prescription medication, indicating effectiveness of this intervention. It is acknowledged that the design of this project does not allow causality to be assigned. However, confounding factors were considered and on balance it appears likely that providing patient education on the appropriate use of over-the-counter medication for musculoskeletal issues contributed to reduced FCP requests for prescription medication, and by extension reduced opioid prescribing. This is an important finding given the current issue of overuse of prescription medication for musculoskeletal pain. These findings support the continued use of patient education about appropriate use of over-the-counter pain medication for musculoskeletal issues. The use of this video will be expanded to all sites at which the FCP service runs.

Keywords: Musculoskeletal, medication, patient education, opioid prescribing

PP-092

Other (Research)

Pain nurse specialist role in the UK: A national survey of workforce needs

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Background: Specialist pain nurses play a vital role in all areas of pain management across various clinical settings. Since the introduction of the role in the 1990s, the scope of the specialist pain nurse has continued to expand, with many now working at advanced and consultant practice levels. They provide expert care to individuals living with complex pain complaints, including acute, chronic, cancer-related pain, and neuromodulation. However, despite this essential and expert role, significant variation exists across the UK regarding the ongoing support and development of the specialist pain nurse role.

Aims: This survey aimed to map the current UK specialist pain nurse workforce and identify the barriers and facilitators to their personal and professional development.

Method: An online survey was developed with its content validity and readability evaluated by an expert panel (a small group of specialist pain nurses working in various settings). The survey was distributed via social media platforms and shared through The Pain Nurse Network over two weeks in December 2024. Approval for minimal risk ethics was obtained from King's College London (ref: HR/DP-24/25-46809). The survey and descriptive data analysis were conducted using Qualtrics.

Result: A total of 135 survey responses were received, with 34 removed (33 incomplete and 1 non-UK resident). The remaining 101 responses were used for data analysis. Most respondents were from England (69%), followed by Scotland (28%), Northern Ireland (2%), and Wales (1%). Job titles varied significantly among the responses, including deputy clinical nurse specialist, clinical nurse specialist, senior clinical nurse specialist, advanced clinical nurse specialist, advanced clinical practitioner, consultant nurse, and clinical lead. Educational qualifications also varied, with 50% reporting their highest qualification as a degree, 40% holding a master's and 10% having a diploma. Only 55% had completed a formal qualification in pain management (degree or masters level). However, 93% reported they could access pain-related continuing professional development through study days and conferences. Participants shared their views on the current challenges and opportunities facing specialist pain nurses. They reported that significant opportunities exist to enhance patient care at both local and national levels and that there is potential for further development of the specialist pain nurse role. However, they also mentioned considerable challenges related to role confusion and difficulties in career progression due to the introduction of the "advanced clinical practitioner" role. Additionally, they noted challenges in service delivery stemming from a combination of increasing complexity in patient needs and inadequate recognition from senior leaders, who often fail to understand the value and impact that pain specialist nurses can have on patient care. This lack of recognition hinders their ability to develop services and secure funding for formal educational training programmes, such as master's-level modules and courses.

Conclusion: The opportunities for the specialist pain nurse role as an expert clinical leader and role model in pain management are limitless. However, more work is needed to highlight the impact these roles can have on patient care, standardise the role descriptions, and improve access to formal professional and personal development. These are essential if the role of the specialist pain nurse is to continue improving the care and quality of life for those impacted by pain.

Keywords: nursing, pain, workforce, education, continuing professional development

PP-093

Other

Understanding healthcare professionals' experiences and perceived competencies for pain management in people with haemophilia – A qualitative study

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Background: Haemophilia is a rare, genetic condition whereby affected individuals have a complete absence (severe) or deficiency (moderate or mild) in clotting factor proteins VIII and IX. In an untreated state, spontaneous bleeding into synovial joints and muscles is the hallmark of severe and moderate haemophilia. Repeated joint bleeding leads to the development of painful, multi-joint haemophilic arthropathy. Even with the phenomenal success of current haemostatic treatments for people with haemophilia (PWH), management of bleed and arthropathic related pain in complex and a significant unmet clinical need in this cohort. It is unclear why this gap in practice persists despite the presence of expert multidisciplinary teams (MDT) in haemophilia care.

Aims: This study aimed to explore the practice and experience of pain management by haemophilia healthcare professionals (HCPs) to better understand perceived competency and barriers/enablers to appropriate care.

Method: This was an explorative, qualitative study. European HCPs working ≥3 years in haemophilia care were approached via their professional groups and invited to participate (haematologists, nurses, physiotherapists, psychosocial professionals). Data were collected using profession specific focus groups and semi-structured interviews, recorded and transcribed. The data were analysed using reflexive thematic analysis.

Result: Twenty-three HCPs from 10 European countries agreed to participate, together representing 353 years of clinical experience in haemophilia care (median 16 years, range 3-28 years). Four themes were constructed from the data: (1) Aspirations for better pain management are challenged by prevailing biomedicalism (dualist thinking about pain and bleeding continues to direct clinical reasoning); (2) The concept of pain and its management exists in multiple temporalities (temporal nature of pain exists in day-to-day clinics but also in the complex, historical experiences of previous pain events); (3) Defining who is responsible: the challenges in MDT provision for good pain management (local logistical issues in healthcare delivery conflate with professional concerns of competency in pain management and defining who is responsible); (4) Pain management can be better knowledge and experience improves confidence (identifying and acquiring knowledge is imperative to better care and is everyone's responsibility).

Conclusion: This study describes current clinical practice approaches as well as the gap in knowledge and skills for haemophilia HCPs in providing pain management care. These data demonstrate that confidence in delivery of effective pain management is influenced by individual perceptions of responsibility, knowledge, and skills, as well as wider geographical and health economic determinants of haemophilia healthcare provision. Management of rare disorders such as haemophilia in hyper-regional, highly specialist units mean that other co-morbid conditions associated with the index condition (such as pain) often need to be supported by the specialist team. Haemophilia HCPs see the benefit of, and are open to, targeted educational initiatives to improve implementation of pain management (assessment and treatment/interventions) in practice. Findings of this study will help to inform the design and content of an educational support tool for haemophilia clinicians. The findings here may also have relevance for clinicians working in other rare conditions where pain is a significant associated co-morbidity, or where anatomical/physiological damage and the pain experience are not always linear.

Keywords: Haemophilia, chronic pain, Multi-disciplinary working, pain management

PP-094

Other (Research)

The UK musculoskeletal translational research collaboration pain workstream: An operational model to drive cutting-edge translational pain research

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Background: The UK Musculoskeletal Translational Research Collaboration (MSK TRC) is a national collaboration of clinicians and researchers, working to deliver scalable, high-impact experimental studies to benefit people with rheumatic and musculoskeletal diseases (RMDs). As a partnership between the National Institute of Health Research (NIHR) and Versus Arthritis, the MSK TRC capitalises on the UK infrastructure, forming 17-UK wide TRC centres. By utilising these national resources – expertise, infrastructure and capabilities – the TRC creates harmonised and impactful world-leading research. Established through a consultation exercise with nationwide members, the TRC's workstreams reflect areas of scientific focus and need in RMD translational research. The 9 TRC workstreams function as a mechanism to support and progress individual work by creating a platform for effective collaboration, drawing on the strength of the UK network plc, and ensuring the voice of people with RMDs is central to TRC activities and research.

Aims: The MSK TRC Pain workstream aims to optimise relevant and effective pain translational research. Achieved through an operational model and governance framework that harnesses national expertise,

infrastructure and capabilities in pain, providing a mechanism to collaborate to deliver translational pain research to improve outcomes for those with RMDs.

Method: The Workstream is led by 2 co-chairs from differing institutions allowing for shared capacity and diversified representation through expertise and geography. The breadth and size of the Pain Workstream membership – 42 members from 25 UK centres (including the devolved nations and non-TRC centres), demonstrates the inclusive, multidisciplinary, and large geographic footprint of the Pain Workstream. To achieve its aim, the workstream functions and applies various approaches: Establishing four subthemes (areas of focus) with leadership Signposting and discussing relevant funding opportunities, utilising existing expertise within the workstream to collectively develop research proposals with funding. Pain closely interlinks, with a contributory role in RMDs. Pain workstream members are also members of the other disease-specific TRC workstreams. Collaborating with UK strategies to achieve national synergy.

Result: The model ensures pain representation in each of the TRC disease-specific workstreams, encouraging pain to be included in their respective research. The broad expertise of the pain workstream, represented in other national initiatives (e.g. the Advanced Pain Discovery Platform and Alleviate), allows for complementary programmes to be connected by leading clinicians and academics and facilitates collaborations that align with the workstream. Building on the experience of successful grant applications to collectively apply for funding, the workstream established the Chronic Pain Neurotechnology Network+ with EPSRC funding. The outputs/focus of the subthemes: Pain Assessments and Outcomes: improving engagement with key stakeholders, including clinicians, therapists, pharmacists, commissioners and researchers on widening acceptance of pain assessment tools in clinical practice. Enhance implementation of assessment for distinct pain components including inflammatory, nociceptive, neuropathic and nociplastic pain which can inform patient diagnosis and care. Digital Interventions: communicates and fosters knowledge, promoting digital technologies to improve pain management, through sign-posting relevant conferences and training opportunities, and promoting relevant Patient Partner Inclusion Engagement activities to improve capacity and resources in this area. Wearables for remote monitoring of pain: PainWatch: Investigating Digital Inclusivity in Painful Musculoskeletal Conditions with Use of Wearables. This multicentre study was established within the workstream through collaboration. To further support this, an opinion piece is being drafted for funders, to educate perspectives on the use of digital applications in pain research. Data capture: a core pilot across the country with pain-specific recommendations

Conclusion: The scale and infrastructure of the TRC coupled with this workstream model, expedites collaborations to further pain translational research and outcomes. The unique multidisciplinary and breadth of expertise of the workstream and its framework enable a truly national capability, successfully leveraging funding to deliver its ambitions.

Keywords: musculoskeletal, pain assessment, translational research, digital Interventions, data capture

PP-095

Other (Research)

Increasing the Peak Alpha Frequency (PAF) using auditory stimuli

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Background: The Peak Alpha Frequency (PAF) is the frequency within the alpha band (8–14 Hz) that exhibits the greatest power during EEG recordings. PAF is a heritable trait-like marker that remains stable when measured at different time points. Research shows PAF is linked to individual differences in pain sensitivity such that slower PAF is associated with heightened acute pain sensitivity and chronic pain. However, it remains unclear whether PAF can be increased by auditory stimuli and whether such changes could influence pain sensitivity and management.

Aims: This pilot study aimed to investigate whether auditory stimuli could modulate PAF in healthy adults. Specifically, we explored: The immediate effects of auditory noise bursts on PAF. Whether repeated auditory stimulation compounds these effects. The duration of any observed PAF modulation.

Method: Eight participants completed the study. EEG recordings were taken at rest with eyes closed for three minutes to establish a baseline PAF. Participants then listened to broadband noise bursts at either 8 Hz (n = 4) or 12 Hz (n = 4) through headphones, followed by a second resting-state EEG recording. After completing the Attention Network Test (results not reported), a third resting-state EEG recording was obtained. Participants repeated the auditory stimulation protocol three hours after the last recording. PAF was calculated using the Centre of Gravity (CoG) method, which uses a weighted peak for PAF. Change in PAF (ΔPAF) was calculated by subtracting baseline PAF from post-stimulation PAF at parietal electrodes, chosen due to the common observation of increased alpha activity and slower PAF in chronic pain patients in this region. For recordings taken while listening to the auditory stimulation, the data were divided into epochs around the onset of each noise burst. Time-frequency decomposition was performed to visualise changes in power over trials for each time-frequency point. Power was extracted at each frequency, time point, and channel. For each combination of frequency and time point, a linear least-squares regression line was fitted to the power values across trials, with the slope of the regression line representing change in power across trials.

Result: Auditory stimuli at both 8 Hz and 12 Hz increased PAF at parietal electrodes in 7 of the 8 participants. The combined ΔPAF for both groups was significant after the first auditory stimulus ($t(7) = 3.309$, $p = 0.013$). The magnitude of the increase was greater for participants with slower baseline PAF, and the effect appeared to compound with repeated auditory stimulation. However, the increase in PAF was transient, as it was not sustained after the three-hour interval. For participants who showed an increase in PAF, time-frequency analysis shows a progressive rise in PAF during auditory stimulation.

Conclusion: Our results demonstrate that auditory stimuli can increase PAF in healthy adults, with greater effects observed in individuals with slower baseline PAF. These pilot findings inform the development of a follow-up study with an appropriately powered sample size. The larger sample will allow for more robust statistical analyses, including cluster-based permutation tests to examine changes in PAF across all electrodes. Additionally, the study will optimize the auditory stimulus parameters and include a control group receiving auditory stimulation outside of the alpha range. This will enable a more comprehensive assessment of the duration of PAF modulation, and provide insights into the underlying mechanisms through time-frequency analyses. These pilot findings represent an important stepping stone toward future research exploring whether

increased PAF following auditory stimulation may be associated with changes in pain sensitivity. Further studies could investigate the potential for auditory interventions to modulate pain perception, ultimately contributing to new approaches in pain management.

Keywords: EEG, Peak Alpha Frequency

PP-096

Primary Care

Opioid deprescribing in the community setting. A multi-modal approach

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Background: There is recognised opioid crisis within the United Kingdom with a persistent increase of drug related deaths over the last two decades. In 2019 approximately 5.6 million people had received a prescription for an opiate medication (13% of the population).[1] In 2023 for deaths registered a total of 2551 drug poisoning deaths involved opiates (12.8% higher than in 2022).[2] Within the UK healthcare system there has therefore been a drive to de-prescribe opioid medications. It is now widely recognised that opioids are not effective for chronic pain issues and are suitable only for acute pain and palliative care. Our practice was listed in the 99th centile for opioid prescribing as per July 2024[3] (openprescribing.net. Bennet Applied Data Science University of Oxford). We identified significant numbers of patients who had been prescribed opioids for chronic pain issues within our practice.

Aims: To reduce opioid burden within our practice using a multi-modal approach.

Method: Initially, we undertook a electronic records search to identify our cohort prescribed opioids. (1) Targeted reviews for high burden opiate patients. (2) Restructuring of our medical review process (including clinician approach to prescribing opioids and all reviews requiring reduction discussions). (3) 3rd party interactive SMS sent to patients when requesting opioids. This SMS communication allowed for assessing risks and offering weaning. (4) High priority targeting of immediate release opiates.

Result: Comparing the prescription numbers from the end of our two-month period of interventions, with the month prior to commencing our interventions we found a significant reduction. We achieved a 50% reduction in our 10 mg/5 ml prescribing (or 16,350 mg of oral morphine). We also achieved reductions across almost all opiate prescriptions, with a 46% reduction in our prescribing of 10 mg modified release tablets. There were a few areas where our prescriptions rose and the majority of these, we feel are likely due to weaning plans. For example, our modified release 30 mg oxycodone prescriptions reduced by 48% and our 10 mg modified release oxycodone prescribing fell by 11%; however, our instant relief oxycodone 5 mg/5 ml prescribing rose by 6%. The total practice prescriptions of weak opioids fell across this time frame: Tramadol 50 mg capsules fell by 10%; Dihydrocodeine 30 mg tablets fell by 29%; Codeine 30 mg tablets reduced only marginally by 3%; Codeine 15 mg tablets did however significantly reduce by 32%.

Conclusion: Our multimodal strategy has provided a significantly greater reduction in opioid burden than we had anticipated within such a short time frame. We hope this provides encouragement to other clinicians that find themselves in a similar situation. However, we do acknowledge that the interventions were varying in time input needed and are dependent of staff resources. There is also an awareness that this intervention must be backed by long term changes to clinician knowledge base and behaviour in prescribing controlled medications.

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Keywords: opioid deprescribing

PP-097

Primary Care

Chronic pain long term condition pathway – interim implementation report, The Willow Group of GP practices, Gosport

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[3]Gosport Primary Care Network

Background: The Willow Group practice comprises 5 GP practices serving a 50k population in a highly deprived area and is managed by a local NHS community Trust. Opioid prescribing for chronic pain is high. There are several reports in the literature of successful opioid management, although only one RCT. The majority of interventions are heterogeneous and report differing parameters.

Aims: To establish an appropriate intervention, within resources, to deliver effective evidence based pain care; and reduce reliance on dependence-forming medicines.

Method: Informal interviews with a range of clinicians at Willow, and GPs across the UK who had been involved with comparable interventions, to gain an understanding of essential elements of care needed. Patients on strong opioids (excluding codeine) were prioritised and searches carried out to identify this group. A GP practice-based Chronic Pain MDT meeting (GP, Pharmacist, FCP, LTC nurse, HAW coach) was established, with regular meetings supported by a GPwER in pain management. Patients referred to the team were reviewed at the MDT. Patients identified at MDT, or through searches, were offered an extended pain assessment with the most appropriate clinician. This was most often the Pharmacist. This extended assessment takes a holistic approach, including pain education discussing the risks and harms of long term opioids. Psychosocial support was delivered through the LTC Nurse and HAW Coach. Costs were recorded, and mitigated through an inequalities initiative.

Result: Essential care principles agreed were: the recognition of the Long Term Condition nature of Chronic Pain, requiring the appropriate support structures for patients• LTC support to be in place prior to initiating the discussion on the harms of long-term opioids• widespread support across the practice is required for the preservation of the small incremental gains made at each interaction with the

patient. Twenty four patients completed the intervention over 3 months; 18 were referred to supporting services, or were already attending (75%), of which 12 engaged with the Health and Wellbeing Coaches (50% of completers). Opioid reduction• Enrolment Rate: 25% of the target cohort participated, • Retention Rate: 80% remained engaged throughout the intervention • Engagement in Opioid Reduction: 13% did not engage in opioid reduction • Opioid Dose Reduction: 33% reduction of daily morphine equivalent dose • Dose Reduction to 50% or Less: 33% of patients • Complete Opioid Discontinuation: 8% of participants fully stopped opioids CostsThe cost of implementing the intervention comprised the following key components:

1. Multidisciplinary Team (MDT) Time (2 hours per week)

2. Extended Appointments

3. Administrative Support

4. Training Costs

Conclusion: Our outcomes demonstrate good engagement and reasonable reduction in opioids in comparison to other work. It is hard to draw comparisons , we would recommend agreed core outcomes for these interventions. Our intervention has proven effective within the constraints of resources typically available in primary care. This highlights its practical applicability and real-world relevance. Further work needs to be done on impact on quality of life and other measures.

Keywords: chronic pain, long term condition, opioid deprescribing, psychosocial support, primary care

PP-098

Psychology

How does pain-related distress change in the transition from acute to chronic musculoskeletal pain?

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Background: Musculoskeletal (MSK) pain is extremely common in the UK, and low mood is frequently experienced alongside it. This is commonly diagnosed and treated as depression; yet there is evidence that this may be pain-related distress. Pain-related distress is qualitatively different from depression; rather than a mental health disorder it is a normal and expected reaction to experiencing pain. Pain-related distress has been explored in chronic MSK pain, however, there has been no research exploring how pain-related distress may change in relation to pain duration.

Aims: The aim of this study is to explore how pain-related distress changes over time in people experiencing acute and chronic musculoskeletal pain.

Method: Secondary analysis will be undertaken on two existing datasets as part of the STarT MSK programme. The Keele Aches and Pains Study (KAPS) was a cohort study of people consulting their GP for MSK pain, with follow-up timepoints at 2 months and 6 months. The Treatment for Aches and Pains Study (TAPS) was a cluster randomised controlled trial of stratified care for MSK pain, with monthly follow-ups for pain and distress for 6 months. Both datasets have data on pain intensity (0-10 NRS), duration (length of time since no pain), interference (Brief Pain Inventory), and low mood (KAPS = SF-36 Mental Component Score; TAPS = distress due to pain 0-10 NRS). Changes in pain-related distress over time will be explored using regression analyses.

Result: Data analysis was undertaken on 3101 participants in total (KAPS = 1890; TAPS = 1211). Populations were similar in average age (KAPS = 58.3 [16.1]; TAPS = 60.03 [15.3]) and gender (KAPS = 60.6% female; TAPS = 58.9% female). Results from the regression will be presented in the poster.

Conclusion: Understanding how pain-related distress changes over time is integral to providing effective and holistic care for people with pain. The results from this study will enable healthcare professionals to deliver more personal care by addressing and managing pain-related distress, meaning that people with pain will receive treatments relevant to them, leading to increased wellbeing.

Keywords: distress, musculoskeletal, transition, cohort, low mood

PP-100

Psychology

What constitutes validation and invalidation by clinicians in consultations for chronic pain? A qualitative exploration

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Background: Validation is the communication of understanding, acceptance, and legitimacy of a person's experience, and is a core component of patient-centred care for chronic pain. When patients report that they feel validated, they are more likely to engage with treatment decisions and have higher levels of wellbeing than those who are invalidated. However, there is no large-scale analysis exploring the components of validating and invalidating clinical experiences, or how validation may differ across different populations (e.g., pain conditions, gender, ethnicity).

Aims: This study aimed to qualitatively explore experiences of validation and invalidation in clinical encounters for people with chronic pain.

Method: 372 adults with chronic pain were recruited via prolific.com to participate in an online study investigating clinician validation and recall. Participants were randomised to recount either a validating or invalidating clinical experience, and write about this in detail in a free-text box. Responses were analysed using thematic analysis.

Result: Analysis is currently ongoing. Initial results indicate that core components of validation for people with chronic pain include: making eye contact, open body language, empathy, and active listening. In comparison, invalidation from clinicians is characterised by 'cold' body language, rushing through the consultation, and minimising the impact of a person's pain. Full analysis will be presented at the conference.

Conclusion: Analysis is currently ongoing. These findings will provide a comprehensive and fundamental account of the core

components of validation and invalidation of chronic pain from clinicians. This will inform clinical practice of clinicians who see patients with chronic pain.

Keywords: validation, invalidation, chronic pain, communication, qualitative

PP-101

Psychology

"Clinically Quirky": Exploring the lived experiences of neurodivergent individuals with fibromyalgia: A qualitative study

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Background: Neurodivergent conditions (e.g. autism and ADHD) share similarities with fibromyalgia including cognitive challenges (e.g. brain fog and executive dysfunction), sensory processing differences and comorbid mental and physical health conditions. Neurodivergent individuals often struggle to explain their emotions and physical experiences; therefore, we predict this could extend to the explanation of their chronic pain, however this is currently ambiguous. Neurodiversity and fibromyalgia are managed by separate healthcare disciplines, so this relationship can either go undetected, or clinicians can lack the necessary understanding, skill or the capacity to deal with this appropriately which can lead to negatively impacting an individual's quality of life.

Aims: This study aims to investigate the personal lived experiences of neurodivergent individuals with fibromyalgia and the interconnectedness of the conditions.

Method: Individually conducted semi-structured interviews took place via MS Teams with n = 25 participants (mean age: 40.36 years (SD = 10.1) range: 22-58 years, female n = 18, male n = 2, non-binary n = 5). Participants had a physician diagnosis of fibromyalgia and at least one neurodivergent condition but 64% had more than one. The interview schedule was developed alongside a participatory action research group and included 19 questions on the topic of neurodiversity, fibromyalgia, mental and physical health, sleep, menstrual cycle and everyday experiences. Interviews lasted for an average of 30 minutes and were digitally recorded via MS Teams and transcribed verbatim. A semantic, inductive thematic analysis was used following the procedure established by Braun and Clarke (2006). NVIVO software was utilised during the coding stage and in the generating of themes.

Result: An overarching theme 'interconnectedness' was established, and three main themes were derived: Theme 1, 'Overall Health', Theme 2, 'Clinically Quirky' and Theme 3, 'Navigating a Neurotypical World'. Theme 1, 'Overall Health' encompasses three subthemes: 'physical health', 'mental health' and 'the healthcare system' which includes experiences around the diagnostic process, unable to explain their pain and not being believed by the healthcare professionals during this process. These subthemes demonstrate the interconnectedness of the health conditions "they overlap each other, so it's really hard to know which is which and which one's flaring" and how difficult it is to navigate the healthcare system "I find any dealings with doctors and medical professionals quite difficult". Theme 2, "Clinically Quirky" includes the subtheme of 'Cognitive Traits' (e.g. alexithymia, sensory sensitivities and brain fog), 'Burnout' and the 'Cyclic Relationship' between neurodiversity and fibromyalgia, again looking at the interconnectedness of these experiences "The pain is pain that gets more, feels more than amplified because I'm more sensitive". Theme 3, 'Navigating a Neurotypical World' consists of two subthemes, 'social experiences' exploring the individuals' friendships, relationship and social environment due to their experiences with the conditions "I believe it played a great role in ending my first marriage". The second subtheme 'other people's perceptions' demonstrate how "people just don't understand" or that "no one else gets what you're going through". The overarching theme of interconnectedness demonstrated how each of the themes are related, for example, the physical pain in 'Overall Health' effecting the 'social experiences', "Like if I'm in pain, I'm not in a good mood. And if I'm not in a good mood, I'm isolated".

Conclusion: This is the first qualitative study, to the best of the authors knowledge, investigating the lived experiences of neurodivergent individuals with fibromyalgia. Findings are beneficial for clinicians and other allied health professionals as they aid understanding of the interconnectedness and cyclical nature of these conditions. Importantly, people with these conditions can face challenges explaining their pain to health professionals due to symptoms of their neurodivergent profile which is something that needs to be taken into consideration in the diagnostic processes.

Keywords: fibromyalgia, neurodiversity, autism spectrum disorder, ADHD, lived experience, thematic analysis

PP-102

Psychology

Refining a self-report measure of pain stickiness within a large online sample of adults with chronic pain

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Background: We previously introduced the concept of 'pain stickiness', a framework of cognitive and behavioural processes that may contribute to people feeling 'stuck' when in pain – defined as the maintenance of high impact chronic pain. We developed a first iteration of a new questionnaire to capture 'pain stickiness' and explored it within an online general population sample of UK adults. Three distinct domains of stickiness were found: (1) repetition and fixation in pain, capturing repetitive and fixative thoughts and behaviour in pain, (2) openness and alternatives in pain, reflecting recognition and utilisation of multiple perspectives and openness to different views and experiences and (3) attentional inflexibility, capturing ability to attenuate attentional resources, for example to facilitate focus and multi-tasking.

Aims: In the current study we aimed to explore an updated version of the pain stickiness questionnaire in a different sample (adults with chronic pain) to further refine and clarify the latent structure of pain stickiness.

Method: We refined our measure of pain stickiness, developing additional items and honing the wording of existing items. Additional/amended items were informed by insights from those with lived experience of pain, and from experts. The second version comprised of

40 items, with new items more reflective of behavioural processes of stickiness. Original items from the first version were retained. We administered the updated questionnaire to a large online sample (n = 1200) of adults with chronic pain, recruited via the online crowdsourcing platform, Prolific. Initial exploratory factor analysis is reported here.

Result: Analyses suggested either 3 or 4 factors. The four-factor solution represented: (1) repetitive and fixative thinking and behaviour in pain (2) attentional flexibility in pain, (3) perspective taking and recognition of alternative thinking in pain, (4) openness in pain management. In the three-factor solution, a slightly different pattern emerged: (1) repetitive and fixative thinking/behaviour, (2) attentional focus and considering alternatives, (3) openness to different perspectives and experiences. The next steps will be to remove items with insufficient loadings and select items that are most reflective of the latent structure to create a more succinct and appropriate tool with well-delineated subscales.

Conclusion: Our work reflects an attempt to explore the psychological factors underpinning 'pain stickiness' and to understand its role in the maintenance of unremitting high impact chronic pain. The current study revealed stickiness domains within adults with chronic pain, broadly in line with our first iteration. Development of a self-report measure of pain stickiness would enable exploration of its role for those who feel 'stuck' in high impact chronic pain. Identification of novel mechanisms of pain stickiness may highlight opportunities for intervention in those with existing chronic pain or those at risk of transitioning to a high impact chronic pain state. Involvement of people with lived experience of pain at all stages of development ensures the measure and theoretical grounding is relevant and representative of people with pain.

Keywords: high impact chronic pain, psychology, self-report, mechanism, measure development, psychological mechanism, stickiness

PP-103

Psychology

Chronic pain in highly functioning undergraduates was associated with increased directed exploration

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Background: The balance of deciding to explore the unknown, versus exploiting the well-known, has been hypothesised to shift towards exploitation under pain conditions. Decreased exploration could underlie an inability to extinguish fear of pain or pain memory, leading to chronification or increased disability associated with chronic pain. However, there are few studies investigating this.

Aims: Here we investigate the effect of chronic pain on attitude to ambiguity as well as two different types of exploration: directed, in which there is a bias for more informative options, and random, in which choices appear uninfluenced by the value of options.

Method: Participants were undergraduate students at the University of Arizona, who received course credit for their participation. To determine if chronic pain was present, participants first completed the graded chronic pain scale revised (GCPS-r). Then, to examine attitudes to exploration and ambiguity in daily life, participants completed the curiosity and exploration inventory ii (CEI-ii), which asks about 'stretching', akin to directed exploration, and 'embracing' ambiguous situations. Scores in each category were out of 25. Then, to directly test directed and random exploration behaviour, participants completed the Horizon Task. Over 144 games, they chose between two slot machines that had either equal or unequal starting information and paid out varied probabilistic rewards. All results are reported as mean ± standard error of the mean. A Welch's t-test was performed on data from the CEI-ii, in the Horizon task a linear mixed-effect model was used to examine the effects of pain group and horizon, and where significant effects were found, post-hoc pairwise were conducted with a Tukey test for multiple comparisons.

Result: In our sample, 34 participants or 25.8% had chronic pain defined by the GCPS-r, while 98 or 74.2% did not. In the chronic pain group, 11 (32.4%) participants were classified as having mild pain, 16 (47.1%) bothersome and 7 (20.6%) high impact. Chronic pain participants had increased directed exploration attitude in the CEI-ii. Chronic pain stretching score was significantly higher compared to controls (control 16.21 ± 0.4, chronic pain 17.94 ± 0.56, $t(69.2) = -2.5$, $p = 0.015$). However, there were no differences in embracing ambiguity (control 15.18 ± 0.39, chronic pain 15.68 ± 0.39). This suggests that participants with chronic pain have greater directed exploration, but no difference in attitude to ambiguity compared to controls. Chronic pain participants had a numerically higher score for directed exploration, and no difference in random exploration compared to controls in the Horizon Task. Both control and chronic pain groups show significant directed exploration, (control $t(134) = 5.63$, $p < 0.0001$, chronic pain $t(134)=4.02$. $p = 0.0006$), and the chronic pain group had a numerically higher level of directed exploration, although this didn't reach significance (control 0.12 ± 0.02, chronic pain 0.15 ± 0.04). Both groups also showed random exploration (control $t(134) = 7.18$, $p < 0.0001$, chronic pain $t(134) =3.00$, $p = 0.018$) and there were no significant differences between them.

Conclusion: Participants with chronic pain showed higher levels of directed exploration in both a survey analysis and a decision-making task. We had hypothesised the inverse, that chronic pain would decrease directed exploration. One could conclude that the hypothesis is wrong, and that chronic pain induces increased directed exploration or that increased directed exploration is a vulnerability factor to chronic pain. However, whilst these participants have chronic pain, they are highly functioning undergraduate students, suggesting they are in fact coping well with the challenges of chronic pain. Thus, the increased directed exploration could be a resilience factor in the face of chronic pain.

Keywords: decision making, explore exploit dilemma, cognition, chronic pain, ambiguity

PP-104

Service Management

Patient Initiated Follow-Up (PIFU) following lidocaine infusions in the management of chronic pain

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Background: For more than 20 years, Sandwell and West Birmingham (SWBH) NHS Trust has been providing intravenous lidocaine (IVL) infusions as part of the multi-disciplinary team (MDT) management of chronic pain. IVL is used to manage chronic widespread body pain (fibromyalgia) and neuropathic pain which has failed to improve with other pharmacological treatment. The IVL infusions are part of the regular injection lists. Each consultant-led list has a minimum of two IVL patients, and in addition there is also a nurse-led IVL service. Each infusion runs over 1-2 hours with half hourly observations, and the service has a good safety profile. Previous SWBH audit data has shown that a significant proportion of patients are able to wean analgesics following IVL infusion (52% in a 2021 audit).

Aims: In line with increasing waiting lists in the NHS, our waiting list for IVL has increased to several months. SWBH Pain Medicine Department considered ways of improving the waiting list times to help optimise patient treatment, and following this established PIFU for lidocaine infusions. PIFU also promotes patient ownership of and engagement in their healthcare, and maximises MDT working.

Method: Currently there is an approximately 18 week wait to be seen in a multi-disciplinary team (MDT) pain management clinic following initial referral. Following this consultation, if a patient is referred on for a lidocaine infusion there is then a 20+ week wait to receive the infusion. Historically, following their IVL all patients would then be discharged back to the care of their GP to be re-referred back if IVL was beneficial and requested by the patient. This was previously the only route to receiving this treatment, with long wait times challenging for patients in the context of proven efficacy for our patient population (from previous audit data). The department incorporated PIFU to try and address increasing wait times. Following an initial lidocaine infusion, patients can be reviewed in one of a range of clinics including review at the pain self-management program, the Advance Practitioner (physiotherapists and nurses)-led clinic, a new pain MDT clinic following re-referral from their GP, or a consultant-led follow up clinic. If patients have benefitted significantly from IVL (defined as a 50% reduction in pain lasting at least 2-3 months) they will then be offered information about the PIFU program for future IVL. This includes contact details for patients to use if they would like to start the process. Once they have contacted the department, they are then reviewed in the Advance Practitioner and Clinical Specialist Nurse-led telephone PIFU clinic (current wait time for this is approximately 3 weeks). Detailed assessments are carried out about the efficacy of IVL including reduction in pain with concurrent decrease in analgesia requirements, impact on daily activities and sleep. If deemed clinically appropriate the patients are then referred on for a further infusion. A patient can remain in the PIFU programme for either a maximum of 3 procedures, or a 12 month period.

Result: The development of PIFU has resulted in significant reductions in waiting times for patients to receive follow up IVL by eliminating the need for a new GP referral and the resultant 18 week wait for an initial pain clinic appointment which gives a 38 week wait for another IVL. On the PIFU pathway, from contacting the department patients experience an approximately 3 week wait for a PIFU clinic appointment then the 20 week wait for the lidocaine infusion, giving an approximately 23 week wait for treatment vs the non-PIFU 38 week wait.

Conclusion: PIFU offers a useful tool in reducing wait times for lidocaine infusions, promoting patient engagement in their healthcare and maximising MDT working.

Keywords: chronic pain, multi-disciplinary working, lidocaine infusion, patient initiated follow up

PP-105

Pain and Gender

See my pain year 3: Gender pain gap – uncovering pain dismissals at different life stages

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Background: The gender pain gap (GPG) remains a pressing issue since we first launched the research in 2022, reflecting the systemic disparities in how women and men experience, report and are treated for their pain.[1,2,3] Women often face longer diagnostic time and a pervasive sense of dismissal regarding their pain, which has profound implications on their physical and mental health.[4] Over the last three years, we have sought to investigate the issue through national surveys to understand the problem, raise awareness and aim to drive meaningful change for the affected population.

Aims: This study marks the third consecutive year of research into the GPG. Our objectives were to deepen the understanding of where and how women's pain is dismissed and to explore its consequences. We hope to continue raising awareness and advocate for systemic change to address this gender-based disparity in pain treatment.

Method: A national survey was conducted via Toluna in May 2024. We gathered responses from 5072 UK adults across different demographic backgrounds. 50% of them identified as women, 49% as men and 1% as non-binary/alternative gender identities. The survey explored their pain conditions, treatments they received, subsequent impacts on their life, careers and self-perception.

Result: The survey revealed that the GPG persists, with an average disparity of 7% across the last 3 years. Key findings highlight the systemic and lifelong nature of the issue. Many women reported experiencing pain dismissal from as young as 10 years old. One in 10 respondents indicated their pain first being dismissed by a healthcare professional (HCP) between 10 to 15 years old, while 33% faced the same issue before the age of 21. Among women aged 18-24, 81% reported having their pain dismissed compared to 73% of men in the same age group. This trend continues with age as 56% of women ages 45+ had experienced pain dismissal compared to 49% of men. This issue is not only affecting their health One in 5 women believed that their career was negatively impacted reflecting a broader issue of inequality in professional settings. From a mental health perspective, one third of women surveyed reported that their pain being dismissed had affected their mental wellbeing, up from a quarter last year. One in 4 women also questioned themselves, doubting the severity of the pain they suffered due to repeat dismissals from their HCP and surroundings. This year, we have also revealed new data with women reporting experiencing their first pain dismissal at different life stages and settings – from adolescence to workplace and to late life.

Conclusion: The study has reaffirmed the urgency of addressing the GPG issue and highlights the persistent inequalities faced by patients in seeking help for their pain. The findings illustrate women continue to face dismissal across life stages with significant personal, professional and mental health consequences. The issue requires collaborative effort from society, HCPs, regulatory bodies, government and industry stakeholders. Over the past three years, we have committed to raising awareness through extensive research and public engagement. Our survey results reveal the need for systemic change in healthcare system including broader and enhanced clinical education for HCPs. We remain dedicated to support this patient group and to ensure that everyone's pain is being recognised. This year, we have started collaborating with a professional body and chain pharmacy to implement Gender Bias Training. We have also partnered with HCPs to create PAIN PASS, a tool to help facilitate two-way conversation during

consultations, allowing HCPs understanding more about patients' pain to help providing suitable treatments. Moving forward, we hope to continue collaborating with key stakeholders to drive transformative change in help reducing bias.

Keywords: pain, bias, diagnosis, men, women, mental health

PP-107

Pain and Women

A focused systematic review of recommendations for the prevention and management of persistent post caesarean delivery pain

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Background: Caesarean delivery is one of the most frequently performed surgeries worldwide and is increasing. Therefore, the associated rate of chronic post caesarean (CPCP) is concerning, as large population exposure means the potential burden of disease is high. Consequently, it is important for anaesthetic, pain and obstetric practitioners to have frameworks for preventing and managing CPCP.

Aims: This focused review sought to summarise the available recommendations on the prevention and management of CPCP.

Method: A focused literature search was carried out using PubMed and terms: "pain" AND "Caesarean" AND ("chronic" OR "persistent"). We also conducted an internet search using terms such as "chronic post caesarean pain," in addition a hand search of referenced national obstetric, anaesthetic and pain medicine organisation recommendations was performed. All study designs including Meta-analyses, systematic reviews, randomised control trials, observational studies and editorials were eligible for inclusion.

Result: We screened a total of 184 abstracts, yielding 31 results, from which recommendations for practice and future research were identified. No articles presented guidelines on the prevention or management of CPCP. However, 31 made recommendations across risk stratification, consent, prevention, management, and future research. Three articles made recommendations on risk stratification and consent, including: evidence-based risk communication and consent where CS is not medically indicated, identification of high-risk patients for titrating post caesarean pain management, and scar-mapping for identifying women to target use of anti-hyperalgesic medications. Ten articles made recommendations on the prevention of CPCP, including: Strategic timing of pain control efforts, modification of surgical technique, preventative analgesia during and after caesarean section, continuation of preventative strategies for high-risk groups beyond the usual analgesic window, patient centred use of loco-regional adjuncts and multimodal analgesia, individualised alternative analgesic strategies for high risk patients and the aggressive control of pain in early post-delivery period. Six articles made recommendations on the management of CPCP, including: increased awareness of CPCP amongst clinicians, differentiation between types of post caesarean pain to guide management, the use of psychosocial interventions and the use of targeted chronic pain interventions such as ilioinguinal and iliohypogastric nerve pulsed radiofrequency ablation for neuropathic pain. Eighteen articles recommended areas for future research including: research into contributing and confounding factors, comparisons with vaginal delivery, genetic and psychological predispositions, risk prediction tools, protective factors (specifically oxytocin), prospective multicentre intervention comparisons, adjunctive therapies, functional outcomes, and medication dosing, duration and materno-foetal risks.

Conclusion: Currently, there are no guidelines for the prevention or management of CPCP. Despite the high and growing burden of disease, the evidence bases are limited. Existing recommendations for the prevention of CPCP highlight the importance of risk stratification, modification of strategies to focus on at-risk individuals and post-operative acute pain management. The recommendations for the management of CPCP emphasise clinician education and holistic, multi-modal biopsychosocial approaches. Future research should focus on specific preventative or therapeutic strategies.

Keywords: caesarean delivery, chronic post surgical pain, chronic pain

PP-109

Paediatric

Impact of maternal presence on neonatal stress response during painful procedures

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Background: Neonates exposed to medical procedures may experience pain, particularly in intensive care settings. Maternal presence has been proposed as a modulator of infant stress responses, potentially affecting both mother's and neonate's physiological biomarkers such as salivary cortisol, heart rate variability (HRV), and skin conductance activity (SCA). Nevertheless, the extent to which maternal presence and psychological state may influence these biomarkers during infant painful events remains incompletely understood.

Aims: To determine whether maternal presence influences on the infant stress responses during the newborn screening test by measuring physiological stress biomarkers, and to examine associations between these biomarkers and maternal pain catastrophizing and self-efficacy perceptions.

Method: This was an observational study with 130 healthy mother-term infant dyads randomized into two groups: Group I (mothers present during venipuncture) and Group II (mothers absent). Maternal and neonatal salivary cortisol, HRV, and maternal SCA were assessed pre- and post-procedure, being the last through a Skin Conductance Measure System (SCMS®). Maternal pain catastrophizing and self-efficacy metrics were evaluated via the Pain Catastrophizing Scale (PCS) and the Perceived Maternal Parenting Self-Efficacy Scale (PMPS-E), respectively.

Result: No significant differences in pain catastrophizing or self-efficacy scores were observed between groups ($p = 0.98$). Nonetheless, mothers in Group II exhibited higher baseline ($p < 0.01$) and post-procedure ($p = 0.01$) salivary cortisol levels. Neonates in Group II demonstrated greater cortisol variability and lower HRV compared to Group I.

Conclusion: Although maternal presence did not directly influence maternal catastrophizing or self-efficacy perceptions during infant pain, it was associated with more stable stress-related physiological parameters in both mother and neonate. These findings suggest that maternal presence during painful procedures, regardless of their mental state, may exert a protective effect on the infant stress responses.

Keywords: neonatal pain, catastrophization, mother, heart rate variability, salivary cortisol, skin conductance.