**Appendix** **1**: Search strategy for Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <1946 to March 05, 2019>

1 chronic pain/ or pain, intractable/ (17384)

2 exp pain/ and (exp chronic disease/ or (chronic\* or constant\* or continual\* or continuous\* or ceaseless\* or endless\* or incessant\* or interminabl\* or recur\* or longterm or long-term or nonstop\* or non-stop\* or perpetual\* or persist\* or sustained or relentless\* or unabat\* or unceasing or unending or uninterrupt\* or unrelenting or unrelieved or unremitt\* or intractab\* or refractor\*).tw,kf.) (99500)

3 (CNMP or CNCP or ((noncancer\* or non-cancer or nonmalignan\* or non-malignan\* or nononcolog\* or non-oncolog\*) adj4 pain\*)).tw,kf. (2967)

4 ((chronic\* or constant\* or continual\* or continuous\* or ceaseless\* or endless\* or incessant\* or interminabl\* or recur\* or longterm or long-term or nonstop\* or non-stop\* or perpetual\* or persist\* or sustained or relentless\* or unabat\* or unceasing or unending or uninterrupt\* or unrelenting or unrelieved or unremitt\* or intractab\* or refractor\*) adj4 (pain\* or ache\* or soreness or tenderness)).tw,kf. (89276)

5 Fibromyalgia/ or irritable bowel syndrome/ or exp temporomandibular joint dysfunction syndrome/ or exp migraine disorders/ or exp trigeminal autonomic cephalalgias/ or exp complex regional pain syndromes/ or exp arthritis, rheumatoid/ or exp gout/ or exp osteoarthritis/ or exp diabetic neuropathies/ or exp vulvodynia/ (240869)

6 (fibromyalgi\* or fibrositi\* or fibromyositi\* or fibro-myositi\* or myofibrositi\* or myo-fibrositi\* or ((temporomandibular or temporo-mandibular or tmj or craniomandibular or cranio-mandibular or myofascial) adj2 (disorder\* or syndrome\*)) or tmjd or costen\* or (coliti\* adj2 muco\*) or ibs or irritable bowel or irritable colon or colonospasm\* or spastic colon or spastic colitis or unstable colon or migrain\* or ((reflex\* or sympathetic) adj2 dystroph\*) or crps or algodystroph\* or sudek\* or shoulder-hand or hemicrani\* or sunct or still\* disease or caplan\* syndrome\* or gout or osteoarthr\* or coxarthros\* or beauvais or articular rheumatism or vulvodyni\* or vestibulodyni\* or prostatodyni\* or cpps).tw,kf. (152859)

7 (exp chronic disease/ or (chronic\* or constant\* or continual\* or continuous\* or ceaseless\* or endless\* or incessant\* or interminabl\* or recur\* or longterm or long-term or nonstop\* or non-stop\* or perpetual\* or persist\* or sustained or relentless\* or unabat\* or unceasing or unending or uninterrupt\* or unrelenting or unrelieved or unremitt\* or intractab\* or refractor\*).tw,kf.) and (whiplash injuries/ or headache disorders/ or headache disorders, primary/ or tension-type headache/ or headache disorders, secondary/ or post-traumatic headache/ or vascular headache/ or burning mouth syndrome/ or exp cumulative trauma disorders/ or arthritis/ or exp spondylarthritis/ or fasciitis, plantar/ or polyneuropathies/ or radiculopathy/ or brachial plexus neuritis/ or neuritis/ or exp sciatic neuropathy/ or exp nerve compression syndromes/ or exp neuralgia/ or erythromelalgia/) (28975)

8 ((chronic\* or constant\* or continual\* or continuous\* or ceaseless\* or endless\* or incessant\* or interminabl\* or recur\* or longterm or long-term or nonstop\* or non-stop\* or perpetual\* or persist\* or sustained or relentless\* or unabat\* or unceasing or unending or uninterrupt\* or unrelenting or unrelieved or unremitt\* or intractab\* or refractor\*) adj4 (headache\* or neckache\* or backache\* or backpain\* or whiplash or myalgi\* or polymyalgi\* or myodyni\* or dorsalgi\* or lumbago\* or cervicalgi\* or arthralgi\* or cephalgi\* or cephalalgi\* or neuralgi\* or neurodyni\* or iliotibial band syndrome\* or ilio-tibial band syndrome\* or it band syndrome\* or repetiti\* strain\* or repetiti\* stress or overuse injur\* or over-use injur\* or repetiti\* motion disorder\* or overuse syndrome\* or over-use syndrome\* or cumulative trauma or arthritis or arthritides or polyarthriti\* or oligoarthriti\* or arthritic or spondylarthriti\* or spondyliti\* or bechterew\* or marie-struempell or spondylarthropath\* or arthropath\* or neuropath\* or polyneuropath\* or mononeuropath\* or neuriti\* or polyneuriti\* or mononeuriti\* or diabetic amytroph\* or neurodyni\* or morton\* disease or neuroma\* or metatarsalgi\* or (piriformis adj2 syndrome\*) or (nerve adj2 (compress\* or entrapment\* or avulsion\* or inflammat\*)) or sciatic\* or ischialgi\* or polyarthralgi\* or precordial catch or texidor\* or praecordial catch or praecordialgi\* or precordialgi\* or angina or stenocardia\* or earache\* or toothache\* or alveolalgi\* or odontalgi\* or dentalgi\* or ophthalmodyni\* or glossodyni\* or glossopyros\* or glossagi\* or stomatopyros\* or stomatodyni\* or burning mouth\* or pharyngalgi\* or rachialgi\* or mastodyni\* or mastalgi\* or mammalgi\* or symphysis pubis dysfunction\* or phantom limb\* or pseudomelia\* or dysmenorrhea\* or dysmenorrhoea\* or cramp or cramps or cramping or causalgi\* or zoster)).tw,kf. (44631)

9 ((chronic\* or constant\* or continual\* or continuous\* or ceaseless\* or endless\* or incessant\* or interminabl\* or recur\* or longterm or long-term or nonstop\* or non-stop\* or perpetual\* or persist\* or sustained or relentless\* or unabat\* or unceasing or unending or uninterrupt\* or unrelenting or unrelieved or unremitt\* or intractab\* or refractor\*) adj4 (costalgi\* or omodyni\* or orodyni\* or adenalgi\* or coccydyni\* or coccygodyni\* or metralgi\* or metrodyni\* or ostealgi\* or osteodyni\* or xiphodyni\* or arthrodyni\* or gastrodyni\* or gastralgi\* or carotidyni\* or fay syndrome\* or hepatodyni\* or hepatalgi\* or levator ani syndrome\* or puborectalis syndrome\* or practalgi\* or levator syndrome\* or proctodyni\* or achillodyni\* or clitorodyni\* or hysterodyni\* or omalgi\* or otalgi\* or coxodyni\* or coxalgi\* or gonalgi\* or meralgi\* or podalgi\* or plantar fasciitis or talalgi\* or cystalgi\* or rhinalgi\* or rhinodyni\* or sacralgi\* or tarsalgi\* or testalgi\* or orchialgi\* or orchidalgi\* or ovarialgi\* or oophoralgi\* or brachialgi\* or cruralgi\* or erythermalgi\* or erythromelalgi\* or mitchell\* disease\* or thoracodyni\* or thoracalgi\* or epigastralgi\* or epicondylalgi\* or pleuralgi\* or radiculopathy\* or radiculiti\* or allodyni\* or parsonage turner or parsonage aldren or carpal tunnel or tarsal tunnel or cervical rib syndrome\* or naffziger\* syndrome\* or guyon\* syndrome\* or cubital tunnel)).tw,kf. (1872)

10 or/1-9 (460337)

11 self-management/ or exp self care/ or self efficacy/ or self control/ or patient participation/ (92149)

12 ((self or own) adj3 (manag\* or care or efficacy or treat\* or help or monitor\* or medicat\* or administ\* or assess\* or maint\* or control\* or regulat\* or directed)).tw,kf. (189911)

13 (selfmanag\* or selfcare or selfmonitor\* or selfhelp or selfassess\* or selfmedicat\* or selftreat\* or selfmaint\* or selfcontrol\*).tw,kf. (245)

14 ((patient\* or client\*) adj3 (autonom\* or agency or engaged or engagement or empower\* or involved or involvement or participat\* or expert\* or led or directed)).tw,kf. (87691)

15 (personal care or coping or reflexive or reflective).tw,kf. (73584)

16 or/11-15 (385617)

17 Randomized Controlled Trials as Topic/ (121395)

18 randomized controlled trial/ (477053)

19 Random Allocation/ (97828)

20 Double Blind Method/ (149789)

21 Single Blind Method/ (26336)

22 clinical trial/ (514845)

23 clinical trial, phase i.pt. (18675)

24 clinical trial, phase ii.pt. (30158)

25 clinical trial, phase iii.pt. (14691)

26 clinical trial, phase iv.pt. (1667)

27 controlled clinical trial.pt. (92943)

28 multicenter study.pt. (246074)

29 pragmatic clinical trial.pt. (983)

30 Clinical Trials as topic/ (186154)

31 (clinical adj trial\*).tw,kf. (333050)

32 (RCT or RCTs).tw,kf. (40412)

33 ((singl\* or doubl\* or trebl\* or tripl\*) adj (blind\* or dumm\* or mask\*)).tw,kf. (162333)

34 PLACEBOS/ (34251)

35 (placebo\* or sham).tw,kf. (279384)

36 (randomized or randomised or randomly).ab. (781050)

37 trial.ti. (195091)

38 or/17-37 (1870057)

39 Psychometrics/ or exp Health status indicators/ or exp Health care surveys/ or visual analog scale/ or self report/ or diagnostic self evaluation/ or self-assessment/ (412250)

40 exp Health status/ (302929)

41 exp Activities of daily living/ (94528)

42 exp "quality of life"/ or exp Quality-adjusted life years/ or "value of life"/ (185445)

43 "outcome assessment (health care)"/ or treatment outcome/ or exp patient outcome assessment/ (953874)

44 "Patient acceptance of health care"/ or exp patient satisfaction/ (121856)

45 (psychometr\* or psychomimet\*).tw,kf. (43088)

46 (qol or "quality-of-life" or hrql or hrqol or "hr qol" or "h qol" or hqol or hql or pqol or qls or qaly or (quality adj3 life) or quality adjusted life or quality-adjust-life or ("quality adjusted" adj2 survival) or ("quality adjusted" adj2 expectancy) or qaly\* or qald\* or qale\* or qtime\* or daly\* or "disability adjusted life" or daly\*).tw,kf. (259266)

47 (hye or hyes).tw,kf. (64)

48 (health\* adj2 year\* adj2 equivalen\*).tw,kf. (48)

49 ((daily adj2 living) or (daily adj3 activit\*) or daily life activit\* or adl\* or badl\* or eadl\* or iadl\* or (functional adj2 (abilit\* or activit\* or capabilit\* or deficit\* or impair\*))).tw,kf. (113918)

50 (patient-relevant outcome\* or patient outcome assessment\* or patient-centered outcome\* or patient-centred outcome\*).tw,kf. (2969)

51 ((willingness adj2 pay) or (standard adj2 gamble) or sg or "time trade off" or "time tradeoff" or tto or (time adj2 (tradeoff or tradeoff)) or visual analog\* scal\* or "patient reported" or "patients reported" or patient preference\* or patient satisfaction or consumer satisfaction or client satisfaction or self report\* or self evaluat\* or self assess\* or selfreport\* or selfevaluat\* or selfassess\* or self apprais\* or selfapprais\* or burden).tw,kf. (456488)

52 ((illness or sickness or disease) adj2 cost\*).tw,kf. (4422)

53 (nottingham health profile\* or nhp or sickness impact profile\* or qwb or (quality adj2 (wellbeing or well being)) or "index of wellbeing" or "index of well being" or treatment flexibility scale or treatment satisfaction questionnaire or duke health profile or functional status questionnaire\* or dartmouth coop or tsqm or rosser or illness index or karnofsky or ferrans or short form health survey\* or shortform health survey\*).tw,kf. (18740)

54 ((health\* adj3 (utilit\* or accept\*)) or hui or hui\* or disutili\* or nonaccept\* or non-accept\*).tw,kf. (10892)

55 (medical outcome\* survey or medical outcome\* study or mos).tw,kf. (11334)

56 (preference\* adj3 (valu\* or measur\* or health or life or estimat\* or elicit\* or disease or score\* or instrument or instruments)).tw,kf. (9542)

57 (utilit\* adj3 (measure\* or outcome\* or state\* or health or value or score\* or weight\* or analysis or evaluation\* or assessment)).tw,kf. (13990)

58 ((health\* adj2 state\*) or (health\* adj2 status) or (subjective\* adj2 health\*)).tw,kf. (80196)

59 (sf36 or sf 36 or short form 36 or shortform 36 or short form36 or shortform36 or sf thirtysix or sfthirtysix or sfthirty six or sf thirty six or shortform thirtysix or shortform thirty six or short form thirtysix or short form thirty six).tw,kf. (23643)

60 (sf20 or sf 20 or short form 20 or shortform 20 or short form20 or shortform20 or sf twenty or sftwenty or shortform twenty or short form twenty).tw,kf. (390)

61 (sf16 or sf 16 or short form 16 or shortform 16 or short form16 or shortform16 or sf sixteen or sfsixteen or shortform sixteen or short form sixteen).tw,kf. (32)

62 (sf12 or sf 12 or short form 12 or shortform 12 or short form12 or shortform12 or sf twelve or sftwelve or shortform twelve or short form twelve).tw,kf. (5124)

63 (sf8 or sf 8 or sf eight or sfeight or shortform 8 or shortform 8 or shortform8 or short form8 or shortform eight or short form eight).tw,kf. (422)

64 (sf6 or sf 6 or short form 6 or shortform 6 or sf six or sfsix or shortform six or short form six or shortform6 or short form6).tw,kf. (1948)

65 (sf6D or sf 6D or short form 6D or shortform 6D or sf six D or sfsixD or shortform six D or short form six D).tw,kf. (764)

66 (sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sftwenty or shortform twenty or short form twenty).tw,kf. (390)

67 (euroqol or "eq-5d" or eq5d or "eq 5d" or "euro qol").tw,kf. (9208)

68 or/39-67 (2188439)

69 10 and 16 and 38 and 68 (3142)

70 (comment or editorial or news or newspaper article).pt. (1292578)

71 69 not 70 (3130)

72 exp animals/ not humans/ (4553255)

73 71 not 72 (3129)

74 (exp infant/ or exp child/) not (adolescent/ or exp adult/) (1214563)

75 73 not 74 (3119)

76 limit 75 to yr="2009 -Current" (1902)

77 limit 76 to english language (1836)

**Appendix** **2**: Additional summary of characteristics of the included trials

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Study*** ***(period)*** | ***Study registration (funding)*** | **Inclusion criteria** | **Intervention** | **Control** |
| Ackerman 2012 (2006 to 2009) | ACTRN12606000174583 (Non-Pharma funded) | 18 years or over, had a diagnosis of hip or knee OA (from radiology reports or able to be classified according to American College of Rheumatology criteria), were referred to an orthopedic surgeon or rheumatologist, and had sufficient English language skills and vision to self-complete questionnaires and a reasonable expectation of attending the 6 sessions of the ASMP if randomized to the intervention group. | Comprising one 2.5-hour education session each week covering management of pain and fatigue, physical activity, managing emotions, health-related problem-solving, and communication with doctors. Participants also received a copy of the arthritis self-help book at the ASMP. One peer leader and 1 health professional leader led each course. To ensure optimal intervention, course leaders with appropriate training in the Stanford model were recruited. | Received a copy of the arthritis self-help book and no advice was given regarding use of the book. |
| Allen 2019 (May 2016 to August 2017) | NCT02560922 (Non-Pharma funded) | Self-reported Black or African American race, diagnosis of knee or hip OA (based on participant self-report), and self-report of pain, aching, stiffness, or swelling in or around a hip or knee with OA on most days for the past month | A culturally tailored pain coping skills training (CST) program | Waitlist |
| Ariza-Mateos 2020 (July 2018 to April 2019) | NCT03617627 (Not funded) | Women aged 18-65 years and clinical diagnosis of chronic pelvic pain by a gynecologist specializing in pelvic pain through history and physical examination. The diagnostic criteria included lower abdominal noncyclical pain (located within the pelvis, the anterior abdominal wall below the umbilicus, the lumbosacral back or the buttocks), which lasted for six months or more, not caused by pregnancy and not exclusively associate with intercourse, with incomplete relief by most previous treatments and significantly impaired function at home or at work. | Patient-centered intervention that involved patient-proposed activities  | Advice in the form of a leaflet, and usual activities |
| Bennell 2016 (2010 to 2013) | ACTRN12610000533099 (Non-Pharma funded) | Ages >=50 years, knee OA fulfilling the American College of Rheumatology criteria (pain on most days in the past month and radiographic changes) (16), knee pain for >=3 months, average pain during previous week >=0 on 100-mm visual analog scale (VAS), and at least moderate difficulty with daily activities (Western Ontario andMcMaster Universities Osteoarthritis Index [WOMAC] physical function subscale >=25 of 68 units). | PCST involved 10 physical therapist–delivered modules, covering pain education and training in cognitive and behavioral pain coping skills (activity-rest cycling, pleasant activity scheduling, problem solving, identifying and challenging negative thoughts, developing coping thoughts, pleasant imagery, counting backwards, and auditory stimulation) and their application. Exercise comprised 6 exercises to strengthen the quadriceps, hamstrings, and hip abductor muscles (15), performed 4 times weekly for 12 weeks and 3 times weekly thereafter. Weights and resistance elastic bands as well as exercise handouts were provided. Participants also performed homebased practice during the study. | Exercise comprised 6 exercises to strengthen the quadriceps, hamstrings, and hip abductor muscles (15), performed 4 times weekly for 12 weeks and 3 times weekly thereafter. Weights and resistance elastic bands as well as exercise handouts were provided. |
| Bhatia 2020 (Not reported) | Not reported (Not funded) | 50 to 85 years, subjects diagnosed with knee osteoarthritis according to (criteria for OA diagnosis- Altman) posted for elective TKR, subjects were excluded if posted for staged TKR, revision or bilateral TKR. Subjects who scored 16 or more out 52 on pain catastrophizing scale | Biopsychosocial model based rehabilitation (pain coping skill training) | Standard rehabilitation protocol focusing on range of motion and strength training for the operated knee |
| Bourgault 2015 (2009 to 2011) | ISRCTN14526380 (Non-Pharma funded) | Note: Patients suffering from chronic pain disorders other than FMS (e.g., painful diabetic neuropathy) were not excluded from the study as long as the pain associated with FMS was their predominant complaint. Aged 18 years or older, b) were able to read, understand, and complete questionnaires in French, c) had a medical diagnosis of FMS based on the American College of Rheumatology (ACR) classification criteria for at least 6 months, d) reported FMS pain of at least moderate intensity (4/10) in the seven days prior to enrolment, the FMS pain being the chief complaint if the patient suffered from another chronic pain syndrome, e) were motivated to attend all group sessions and to integrate the proposed self-management strategies, and f) agreed to not introduce new pain medications or other new pain treatment modalities during the 11 weeks of the intervention. | Consists of 9 group sessions with 8 participants lasting 2.5 hours each. Each session involved 3 major components—1) psycho-educational tools, 2) CBT-related techniques, and 3) patient-tailored exercise activities. Self-management of the main symptoms of FMS including pain, fatigue, poor sleep quality, and mood fluctuations were targeted during the course of the sessions as well as issues relating to stress management. | Instructed to continue their treatment(s) as usual |
| Cederbom 2019 (September 2016 to August 2018) | NCT02953470 (Non-Pharma funded) | Individuals aged 75 years or older, living with chronic musculoskeletal pain for at least three months, living alone, dependent on formal or informal care at least once a month for individual care or housekeeping activities, able to walk indoors with or without walking aid, able to speak and understand Norwegian, and being free from cognitive impairment | An individually tailored behavioral medicine approach in physical therapy | Recommendation about physical activity  |
| Cheung 2020 (June 2017 to September 2017) | NCT03155737 (Not funded) | Age 50–70 years; a diagnosis of KOA based on fulfilment of any three of the clinical criteria developed by Altman et al.22 (i.e. morning stiffness ⩽30 min, crepitus on active joint motion, bone tenderness, bone enlargement and no palpable joint warmth); Self-rated knee pain ⩾3 and ⩽7 on an 11-point Numeric Rating Scale, lasting for at least 3 months. | Self-administered acupressure training sessions | Knee health education |
| Fanning 2021 (March 2018 to October 2019) | NCT03377634 (Non-Pharma funded) | 55–85 years of age, had a body mass index (BMI) of 30–45 kg/m2, did not engage in regular resistance training and/or more than 20 min of aerobic exercise on 2 or more days per week in the previous 6 months, had not lost or gained more than 5% of their body weight in previous 6 months, had no contra-indication to exercise, owned a smartphone, and had pain in at least two of the following sites on most days in the previous 3 months: back, neck, shoulders, hips, or knees | Weight loss, mindful awareness and frequent bouts of movement | Waitlist |
| Gardner 2019 (2014 to 2015) | ACTRN12614000830695 (Not funded) | 18 years and 65 years, with a history of non-specific low back pain of a minimum duration of 3 months, reported pain intensity of at least 4 on an 11-point NRS and disability of at least 20 points on the QBPDS. | The intervention consisted of five face-to-face sessions (initial session: 1-hour duration, four sessions: 15–30 min duration), conducted at 2 week intervals, followed by two follow-up sessions (30 min duration) spaced 1 month apart. | Participants assigned to the control group were offered three face-to-face sessions (at baseline: 1-hour duration; 2 months: 30 min duration; and 4 months: 30 min duration) with the treating physiotherapist to discuss their CLBP history and receive advice on a standardised exercise programme. |
| Haugmark 2021 (Not reported) | ISRCTN96836577 (Non-Pharma funded) | 20–50 years and FM diagnosed according to the American College of Rheumatology 2010 criteria | Mindfulness-based and acceptance-based group programme followed by physical activity counselling (patient education) session | Diagnostic clarification and the patient education session but were free to attend any treatment and activity at their own initiative |
| Hutting 2015 (2012 to 2014) | NTR3816 (Non-Pharma funded) | Participant is in his/her opinion limited in performing his/her work (related to CANS), Participant suffers from work-related complaints, Complaints must have persisted for at least 12 weeks (either a continuous or intermittent course), Participant works for at least 12 h a week | The meetings were moderated by a moderator. The first session started with an introduction to the programme and of the participants. Each subsequent session started with summary reflection on the action plans made in the previous session, relevant topics were discussed and at the end of each session, participants were asked to set targets. The group sessions were complemented by an eHealth module. Participants were able to log in on a secured website on which the topics of the group training were discussed. Also, additional information was available on self-management and on specific topics of CANS. Participants also allowed to attend all available additional treatments | They could use all usual care and information available within the organisation of the participant. They were also allowed to use all care available outside the organisation |
| Izquierdo-Alventosa 2020 (February to May 2019) | NCT03801109 (Not funded) | Women between 30–70 years old, an age range in which FM becomes more prevalent, diagnoses according to the 2016 American College of Rheumatology criteria for FM [40], and having received pharmacological treatment for more than three months with no clinical improvement | Low-intensity physical exercise program combining endurance training and coordination | No intervention but were asked to perform daily routines |
| Kwok 2016 (Not reported) | Not reported (Non-Pharma funded) | Aged 60 years or over. At least, 3 months of knee pain. VAS score of 40 or above. Able to communicate in Cantonese and therefore had no difficulty participating in activities during the program.  | The key feature of the ASMP is the patient-generated short-term action plan, with patients guided to set realistic goals and action plans, which were to be achieved according to their own needs during the forthcoming week. Program delivered to groups of 6 to 7 | Pamphlets on exercise and joint care |
| Lang 2021 (April 2015 to December 2016) | NCT02284958 (Non-Pharma funded) | Males and females aged 18 years or over, experiencing low back pain (i.e. between the 12th costal margin and gluteal fold with or without associated leg pain) persisting for a minimum of 3 months, and capable of participating in a walking program | Back care advice, individualized 12 week pedometer-driven walking program | Back care advice |
| Littlewood 2014 (2012) | Not reported (Non-Pharma funded) | Age > 18years, willing and able to participate, (iii) Primary com-plaint of shoulder pain with or without referral into the upper limb for >3 months, no/minimal resting shoulder pain, range of shoulder movement largely preserved, and shoulder pain provoked consistently with resisted muscle tests, usually abduction or lateral rotation. | The intervention, self-managed loaded exercise, was pre-scribed by the physiotherapist but completed by the patient independently. It involved exercising the affected shoulder against gravity, a resistive therapeutic band or hand weight over three sets of 10 to 15 repetitions completed twice per day. Exercise prescription was guided by symptomatic response requiring that pain was produced during exercise, but overall, symptoms were no worse upon cessation of that exercise | Usual physiotherapy treatment might include a range of interventions including advice, stretching, exercise, manual therapy, massage, strapping, acupuncture, electrotherapy, corticosteroid injection at the discretion of the treating physiotherapist |
| López-López 2021 (September 2016 and January 2019) | NCT02904668 (Non-Pharma funded) | Patients with chronic neck pain (>6 months) aged between 18 and 65 years | The self-management intervention was aimed to give more control to patients that should be responsible for the daily self-management of their chronic neck pain. Physical therapy program aimed at improving soft tissue and joint function, postural control, coordination and movement patterns, and decreasing any restrictions in movement at single or multiple segmental levels in the cervical spine. The sessions included muscular mobilization techniques, specific stretching, articular mobilization, and coordination and stabilization techniques | Physical therapy program aimed at improving soft tissue and joint function, postural control, coordination and movement patterns, and decreasing any restrictions in movement at single or multiple segmental levels in the cervical spine. The sessions included muscular mobilization techniques, specific stretching, articular mobilization, and coordination and stabilization techniques |
| Manning 2014 (2009 to 2010) | ISRCTN14268051 (Non-Pharma funded) | People with RA (by American College of Rheumatology 1987 revised criteria) of 5 years’ duration who were age 18 years and had no contraindications to upper extremity exercise | Comprising 4 (1-hour) group education, self-management, and global upper extremity exercise training sessions supplementing the first 2 weeks of a 12-week individualized, functional home exercise regimen in addition to usual care. | Continued to be managed by their medical team. Any pharmacologic, physical, or other therapy interventions required during the study were documented. |
| Marconcin 2018 (2014) | NCT02562833 (Non-Pharma funded) | Knee osteoarthritis (clinical and radiological criteria according to the American College of Rheumatology), an age ≥60 years, being functionally independent, and full Portuguese language proficiency | 90-minute intervention twice a week for 12 weeks. The first 30 minutes of each session constituted the self-management component, and the following 60 minutes were allotted for the exercise component. Also received a supplement of glucosamine (1500 mg) and chondroitin (1200 mg) sulfates, harpagophytum extract (100 mg), and hyaluronic acid (10 mg) with a recommendation for the use of two sachets per day. | Received a book, 12 telephone calls, and three education sessions. Also received a supplement of glucosamine (1500 mg) and chondroitin (1200 mg) sulfates, harpagophytum extract (100 mg), and hyaluronic acid (10 mg) with a recommendation for the use of two sachets per day. |
| Marconcin 2021 (August 2014 to January 2015) | NCT02562833 (Non-Pharma funded) | Knee osteoarthritis, according to clinical and radiological criteria of the American College of Rheumatology, aged 60 years or over, and could fully understand and speak Portuguese. | A 90‐min intervention, the first 30 min for the self‐management component and the last 60‐min for exercise. The self‐management component is based on the Chronic Disease Self‐Management programme. The contents of the programme included: self-management principles, managing symptoms, exercise and physical activity, communication skills, healthy eating, and managing medicines | Three 1‐h educational sessions (one per month) and received an information book on knee osteoarthritis |
| Molinari 2018 (2013 to 2016) | NCT02375061 (Non-Pharma funded) | Inclusion criteria established that patients must be 18 years and older and had to be diagnosed with FMS by a rheumatologist according to the American College of Rheumatology criteria | The Best Possible Self (BPS), which combines positive imagery with goal setting in different self-domains. An information and communication technology-based computerized system supported by a web-based online platform with a brief automated short message service to provide therapist support and encourage exercise practice in FMS patients. | Daily activities |
| Morone 2016 (2011 to 2015) | NCT01405716 (Non-Pharma funded) | 65 years or older, spoke English, had intact cognition (Mini-Mental State Examination score, ≥24), had functional limitations owing to their chronic LBP (defined as a score of ≥11 on the Roland and Morris Disability Questionnaire[RMDQ]; range, 0-24,with higher scores indicating increased limitations), and had self-reported moderate chronic pain levels on a verbal descriptor scale (Pain Thermometer; measured on a visual scale as pain as bad as it could be, extreme, severe, moderate, mild, or no pain) occurring daily or almost every day for at least the previous 3 months. | Four methods of mindfulness meditation will be taught. These techniques take regular activities like sitting, walking, and lying down and transform them into a meditation through directed breathing and mindful awareness of thoughts and sensations. The intervention is modeled on the Mindfulness-Based Stress Reduction program. Participants were seen in a group format once a week for 90 minutes for 8-weeks. Group size was 10–12 participants per class. The sessions were led by an experienced MBSR teacher who has undergone teacher training | 10 Keys™ to Healthy Aging developed at the University of Pittsburgh Center for Healthy Aging, a successful community-based health education program that teaches older adults about topics relevant to their health. Pain information is not a component |
| Muller 2020 (March and May 2015) | NCT02459028 (Non-Pharma funded) | 16 years to 100 years (Child, Adult, Older Adult). Individuals who experience an average disability-related pain intensity of ≥ 4 on a 0-10 numeric rating scale in the past week | 4 personalized positive psychology exercises  | Mindfulness of life activities/events |
| Nelligan 2021 (July 2018 to August 2019) | ACTRN12618001167257 (Non-Pharma funded) | OA clinical criteria (age≥45 years, activity-related knee pain, and morning knee stiffness ≤30 minutes); knee pain on most days for 3 months or more; average overall knee pain severity of 4 or greater on an 11-point numeric rating scale (NRS) during the previous week; own a cell phone with text messaging; home internet access; and ability to consent, participate, and complete assessments. | Knee exercise website plus automated text messages | Knee education website  |
| Nost 2018 (2015 to 2017) | NCT02531282 (Non-Pharma funded) | Adults 18 years or older, with self-reported pain for three months or more who were able to take part in group discussions in Norwegian | The intervention included education introducing cognitive and behavioural strategies for pain management, pain theory, discussions of barriers in everyday life due to chronic pain, and techniques to deal with fatigue, poor sleep, frustration and isolation. For the movement exercises concluding each session, principles from psychomotor physiotherapy were applied | This was an existing activity at the HLC. This activity was chosen because it offered a group activity with an opportunity to meet others with similar health challenges and because physical activity has shown beneficial effects on chronic pain conditions |
| Rodriguez-Torres 2020 (November 2013 to December 2016) | NCT01994343 (Non-Pharma funded) | Women between 18 and 80 years old with a medical diagnosis of CPP and the presence of a significant postural impairment evaluated by the Corbin method | Individualized comprehensive rehabilitation program involving face-to-face physical therapy sessions | A leaflet with ergonomic information |
| Sit 2021 (Not reported) |  Not reported(Non-Pharma funded) | Community-dwelling older adults aged ≥65 years; mobile >10 metres with or without a walking aid; presenting with chronic MSK pain over a consecutive 3-month period; pain intensity score ≥3 on a numerical rating scale of 10; stable baseline activity; and ability to understand written and verbal Chinese. | A supervised neuromuscular exercise programme | Waitlist |
| Yang 2019 (Not reported) | Not reported (Not funded) | People with nonspecific low back pain due to musculoskeletal origins. Also, the subject should have a smart mobile phone operated by the Android system or Apple store that allows the download of the APPS, and they should be able to perform a brief exercise during regular working hour. | Self-management exercise plus physiotherapy | Physiotherapy |

**Appendix 3**: Meta-analysis of SMPs compared with usual care for overall HR-QoL immediately post intervention by pain type

**Fibromyalgia**

Molinari 2018

Izquierdo-Alventosa 2020

**Subtotal (I-squared=69.2%, p=0.072**)

**Knee osteoarthritis pain**

Marconcin 2018

Bennell 2016

Cheung 2020

Kwok 2016

**Subtotal (I-squared=79.5%, p=0.002)**

**Low back pain**

Yang 2019

Gardner 2019

Morone 2016

**Subtotal (I-squared=14.7%, p=0.310)**

**Pelvic pain**

Muller 2020

**Spinal cord injury pain**

Rodriguez-Torres 2020

**Study**

Spain

Spain

Portugal

Australia

Hong Kong, China

Hong Kong, China

Hong Kong, China

Australia

USA

Switzerland

Spain

**Country**

0.15 (-0.32, 0.62)

-0.63 (-1.34, 0.08)

-0.19 (-0.95, 0.57)

0.17 (-0.31, 0.65)

-0.05 (-0.39, 0.29)

-1.12 (-1.83, -0.40)

0.67 (0.07, 1.27)

-0.05 (-0.61, 0.52)

-0.34 (-1.79, 1.10)

0.49 (0.03, 0.95)

0.14 (-0.10, 0.37)

0.21 (-0.04, 0.47)

0.01 (-0.39, 0.41)

0.01 (-0.39, 0.41)

-0.21 (-0.85, 0.43)

-0.21 (-0.85, 0.43)

**SMD (95% CI)**

56.13

43.87

100.00

26.18

28.96

21.27

23.60

100.00

3.17

26.69

70.14

100.00

100.00

100.00

100.00

100.00

**Weight**

**%**

0.15 (-0.32, 0.62)

-0.63 (-1.34, 0.08)

-0.19 (-0.95, 0.57)

0.17 (-0.31, 0.65)

-0.05 (-0.39, 0.29)

-1.12 (-1.83, -0.40)

0.67 (0.07, 1.27)

-0.05 (-0.61, 0.52)

-0.34 (-1.79, 1.10)

0.49 (0.03, 0.95)

0.14 (-0.10, 0.37)

0.21 (-0.04, 0.47)

0.01 (-0.39, 0.41)

0.01 (-0.39, 0.41)

-0.21 (-0.85, 0.43)

-0.21 (-0.85, 0.43)

56.13

43.87

100.00

26.18

28.96

21.27

23.60

100.00

3.17

26.69

70.14

100.00

100.00

100.00

100.00

100.00

**Favours usual care**

**Favours SMP**

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**Appendix 4**: Meta-analysis of SMPs compared with usual care for overall HR-QoL one to four months post intervention by pain type

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**Fibromyalgia**

Molinari 2018

Haugmark 2021

**Subtotal (I-squared=42.4%, p=0.188)**

**Hip and knee pain**

Ackerman 2012

**Knee pain**

Marconcin 2021

**Low back pain**

Gardner 2019

Lang 2021

**Subtotal (I-squared=62.5%, p=0.102)**

Pain due to obesity

Fanning 2021

**Pelvic pain**

Ariza-Mateos 2020

Rodriguez-Torres 2020

**Subtotal (I-squared=41.7%, p=0.190)**

**Rheumatoid arthritis pain**

Manning 2014

**Spinal cord injury pain**

Muller 2020

**Undefined non-cancer pain**

Nost 2018

**Study**

Spain

Norway

Australia

Portugal

Australia

Canada

USA

Spain

Spain

UK

Switzerland

Norway

**Country**

0.31 (-0.16, 0.78)

-0.07 (-0.39, 0.25)

0.08 (-0.29, 0.44)

-0.29 (-0.70, 0.12)

-0.29 (-0.70, 0.12)

0.61 (0.12, 1.10)

0.61 (0.12, 1.10)

0.54 (0.08, 1.00)

0.05 (-0.31, 0.41)

0.28 (-0.20, 0.75)

-0.51 (-1.27, 0.24)

-0.51 (-1.27, 0.24)

-0.52 (-1.12, 0.08)

0.07 (-0.57, 0.70)

-0.23 (-0.81, 0.34)

0.09 (-0.29, 0.46)

0.09 (-0.29, 0.46)

-0.03 (-0.43, 0.37)

-0.03 (-0.43, 0.37)

-0.23 (-0.58, 0.13)

-0.23 (-0.58, 0.13)

**SMD (95% CI)**

39.24

60.76

100.00

100.00

100.00

100.00

100.00

45.59

54.41

100.00

100.00

100.00

51.64

48.36

100.00

100.00

100.00

100.00

100.00

100.00

100.00

**Weight**

%

0.31 (-0.16, 0.78)

-0.07 (-0.39, 0.25)

0.08 (-0.29, 0.44)

-0.29 (-0.70, 0.12)

-0.29 (-0.70, 0.12)

0.61 (0.12, 1.10)

0.61 (0.12, 1.10)

0.54 (0.08, 1.00)

0.05 (-0.31, 0.41)

0.28 (-0.20, 0.75)

-0.51 (-1.27, 0.24)

-0.51 (-1.27, 0.24)

-0.52 (-1.12, 0.08)

0.07 (-0.57, 0.70)

-0.23 (-0.81, 0.34)

0.09 (-0.29, 0.46)

0.09 (-0.29, 0.46)

-0.03 (-0.43, 0.37)

-0.03 (-0.43, 0.37)

-0.23 (-0.58, 0.13)

-0.23 (-0.58, 0.13)

39.24

60.76

100.00

100.00

100.00

100.00

100.00

45.59

54.41

100.00

100.00

100.00

51.64

48.36

100.00

100.00

100.00

100.00

100.00

100.00

100.00

**Favours usual care**

**Favours SMP**

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**Appendix 5**: Meta-analysis of SMPs compared with usual care for overall HR-QoL six to twelve months post intervention by pain type

**Fibromyalgia**

Haugmark 2021

**Hip and knee pain**

Ackerman 2012

**Knee pain**

Bennell 2016

Nelligan 2021

**Subtotal (I-squared=0.0%, p=0.689)**

**Low back pain**

Lang 2021

Gardner 2019

Morone 2016

**Subtotal (I-squared=64.4%, p=0.060)**

**Rheumatoid arthritis pain**

Manning 2014

**Undefined non-cancer pain**

Nost 2018

**Study**

Norway

Australia

Australia

Australia

Canada

Australia

USA

UK

Norway

**Country**

0.00 (-0.32, 0.32)

0.00 (-0.32, 0.32)

-0.12 (-0.53, 0.30)

-0.12 (-0.53, 0.30)

0.15 (-0.20, 0.50)

0.24 (-0.03, 0.52)

0.21 (-0.01, 0.43)

0.04 (-0.38, 0.47)

0.65 (0.18, 1.11)

0.03 (-0.20, 0.26)

0.20 (-0.15, 0.56)

-0.08 (-0.46, 0.29)

-0.08 (-0.46, 0.29)

-0.14 (-0.50, 0.21)

-0.14 (-0.50, 0.21)

**SMD (95% CI)**

100.00

100.00

100.00

100.00

37.86

62.14

100.00

29.91

27.57

42.52

100.00

100.00

100.00

100.00

100.00

**Weight**

**%**

0.00 (-0.32, 0.32)

0.00 (-0.32, 0.32)

-0.12 (-0.53, 0.30)

-0.12 (-0.53, 0.30)

0.15 (-0.20, 0.50)

0.24 (-0.03, 0.52)

0.21 (-0.01, 0.43)

0.04 (-0.38, 0.47)

0.65 (0.18, 1.11)

0.03 (-0.20, 0.26)

0.20 (-0.15, 0.56)

-0.08 (-0.46, 0.29)

-0.08 (-0.46, 0.29)

-0.14 (-0.50, 0.21)

-0.14 (-0.50, 0.21)

100.00

100.00

100.00

100.00

37.86

62.14

100.00

29.91

27.57

42.52

100.00

100.00

100.00

100.00

100.00

**Favours usual care**

**Favours SMP**

0

-1

-.5

-.2

0

.2

.5

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