Forskningsnytt

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Temporal stability in the prevalence and pattern of co-occurring musculoskeletal pain among people with persistent low back pain: population-based data from the Norwegian HUNT Study, 1995 to 2019

Cecilie K. Øverås[a,b,*], Tom I. L. Nilsen[b,c], Karen Søgaard[a,d], Paul J. Mork[b], Jan Hartvigsen[a,e]

Abstract

People with persistent low back pain (LBP) often report co-occurring persistent musculoskeletal (MSK) pain in other body regions that may influence prognosis as well as treatment approaches and outcomes. This study describes the prevalence and patterns of co-occurring persistent MSK pain among people with persistent LBP based on consecutive cross-sectional studies over 3 decades in the population-based HUNT Study, Norway. The analyses comprised 15,375 participants in HUNT2 (1995-1997), 10,024 in HUNT3 (2006-2008), and 10,647 in HUNT4 (2017-2019) who reported persistent LBP. Overall, ~90% of participants in each of the HUNT surveys with persistent LBP reported persistent co-occurring MSK pain in other body sites. The age-standardized prevalence of the most common co-occurring MSK pain sites was consistent across the 3 surveys: 64% to 65% report co-occurring neck pain, 62% to 67% report shoulder pain, and 53% to 57% report hip or thigh pain. Using latent class analysis (LCA), we identified 4 distinct patterns of persistent LBP phenotypes that were consistent across the 3 surveys: (1) "LBP only," (2) "LBP with neck or shoulder pain," (3) "LBP with lower extremity or wrist or hand pain," and (4) "LBP with multisite pain," with conditional item response probabilities of 34% to 36%, 30% to 34%, 13% to 17%, and 16% to 20%, respectively. In conclusion, 9 of 10 adults in this Norwegian population with persistent LBP report co-occurring persistent MSK pain, most commonly in the neck, shoulders, and hips or thighs. We identified 4 LCA-derived LBP phenotypes of distinct MSK pain site patterns. In the population, both the prevalence and pattern of co-occurring MSK pain and the distinct phenotypic MSK pain patterns seem stable over decades.

Keywords: Musculoskeletal pain, Low back pain, Chronic pain, Prevalence, Latent class analysis, Comorbidity, Trends and life course perspective
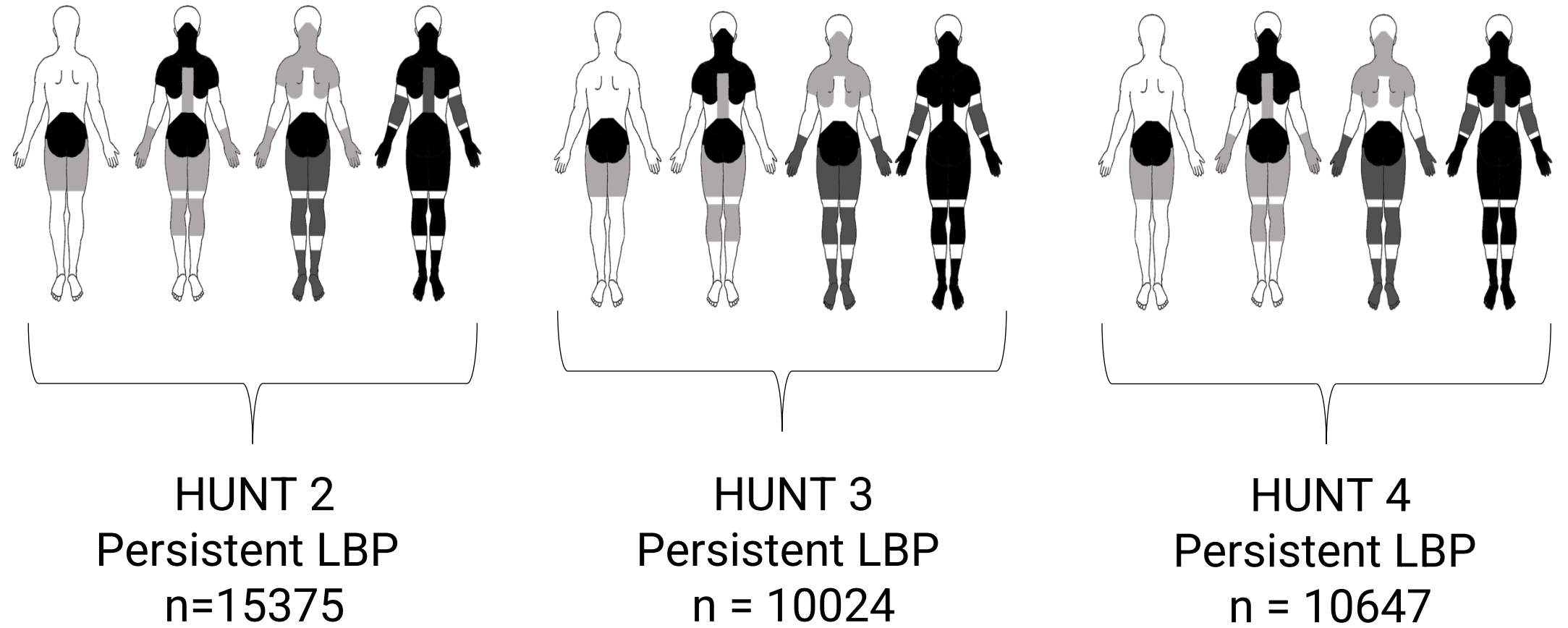
1. Introduction

The global burden of musculoskeletal (MSK) pain is high,[9] and its impact on disability exceeds that of other noncommunicable diseases,[11] resulting in enormous direct, indirect, and intangible costs.[7] Among MSK pain conditions, low back pain (LBP) is the most common, affecting around a third of people globally every year.[28,31] Accordingly, LBP is also a leading cause of disability,[12,59] which is projected to increase due to ageing populations.[40]

Many people with LBP experience ongoing low-grade pain that alternates with periodic flare-ups,[19,34] and co-occurring pain in other body sites alongside persistent LBP is common.[27,29,44,48,52] A recent systematic review of observational studies found that people with persistent LBP often report co-occurring axial, extremity, and multisite pain[48]; however, the included studies were heterogeneous and the assessment of co-occurring pain differed substantially between the included studies and none assessed long-term trends. Hence, a knowledge gap concerning the prevalence and long-term patterns of persistent LBP with co-occurring MSK pain in the general adult population. Moreover, distinct subgroups with different anatomical pain patterns (ie, phenotypes) may exist on the continuum between LBP only and widespread, persistent MSK pain with LBP as 1 component.[15] Identifying LBP phenotypes is relevant because co-occurring MSK pain is associated with more negative consequences, such as reduced workability, increased healthcare utilization, and poorer response to treatment compared with single-site MSK pain.[2,6,19,20,26,29,43,48] However, counting the number of pain sites may be too simplistic because certain pain sites or pain
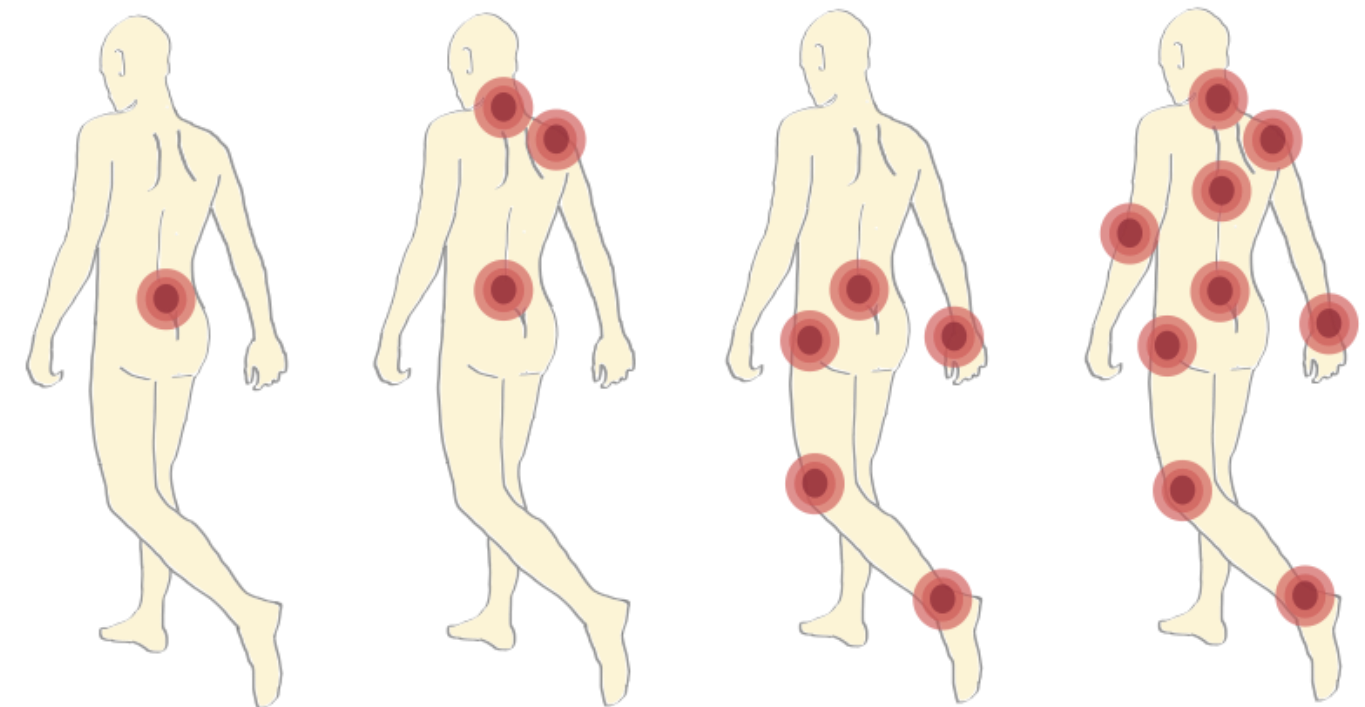
Sponsorships or competing interests that may be relevant to content are disclosed at the end of this article.

[a] Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark, [b] Department of Public Health and Nursing, Norwegian University of Science and Technology (NTNU), Trondheim, Norway, [c] Clinic of Anaesthesia and Intensive Care, St Olavs Hospital, Trondheim University Hospital, Trondheim, Norway, [d] Department of Clinical Research, University of Southern Denmark, Odense, Denmark, [e] Chiropractic Knowledge Hub, University of Southern Denmark, Odense, Denmark

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Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (www.painjournalonline.com).

http://dx.doi.org/10.1097/j.pain.0000000000002981

HUNT 2
Persistent LBP
n=15375

HUNT 3
Persistent LBP
n = 10024

HUNT 4
Persistent LBP
n = 10647

HUNT

Graphical abstract

Cognitive functional therapy with or without movement sensor biofeedback versus usual care for chronic, disabling low back pain (RESTORE): a randomised, controlled, three-arm, parallel group, phase 3, clinical trial.

Kent P, Haines T, O'Sullivan P, Smith A, Campbell A, et al.

1 The study

Participants: 492 adults, 59% female, median age 47 years. Inclusion criteria: low back pain ≥ 3 months, average pain intensity ≥ 4/10, ≥ moderate pain-related physical activity limitation, and sought some care <6 weeks prior for this episode of pain.

Intervention: Cognitive functional therapy (CFT) only or CFT plus movement sensor biofeedback.

Comparator: Usual care.

Primary outcome: Activity limitation at 13 weeks, self-reported by participants using the 24-point Roland Morris Disability Questionnaire, and quality-adjusted life-years (QALYs).

Key limitation: All clinical outcomes and some economic outcomes were self-reported and because participants were not blinded this may have affected expectations and produced some bias. Although, expectations were controlled for in the analysis.

2 Findings

All outcomes were better than usual care by substantial clinically important amounts, improvements were sustained at 12 months follow-up, and both CFT groups were substantially more cost effective than usual care.

| CFT only | 164 participants | CFT + biofeedback | 163 | Usual care | 165 |

Pain-related physical activity limitation
Mean RMDQ score (95% CI)

p <0·0001

Weeks: 0, 13, 52
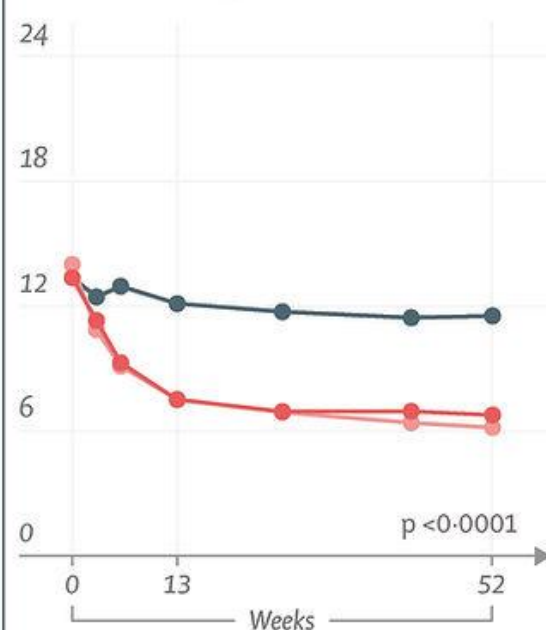
Pain intensity: average pain past 14 days
Mean NRS score (95% CI)

p <0·0001

Weeks: 0, 13, 52
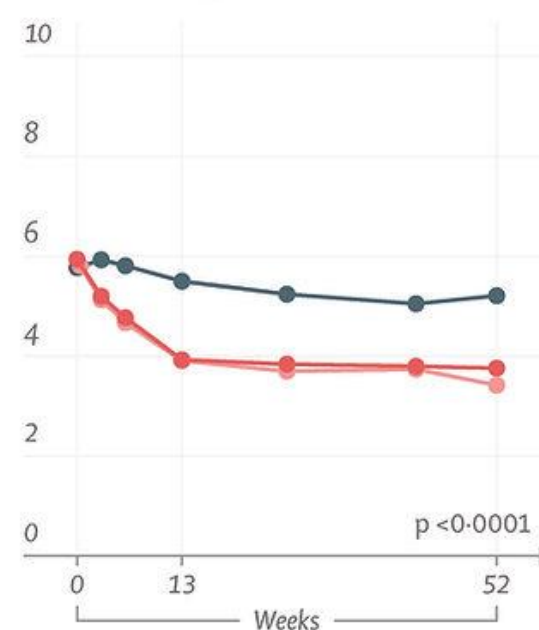
3 Research in context

Before this study
No trials had compared CFT with usual care, included an economic analysis, or the added effect of movement sensor biofeedback.

Added value
CFT was clinically effective, cost efficient and safe. Wearable movement sensor biofeedback did not add to effectiveness.

Implications
CFT might offer a high-value, low-risk, and low-cost clinical pathway for patients with persistent disabling low back pain.

THE LANCET

The best science for better lives

RESTORE

Cognitive functional therapy

- Making sense of pain
- Exposure with control
- Lifestyle changes

Coach & empower people to better self-management

≈ 80 hrs of training over 6 months..

https://www.restorebackpain.com/patient-journey

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PERSON/PEOPLE-CENTRED CARE

Biopsychosocial understanding of the person's experience

Person-focused communication

Supported self-management

Therapeutic relationship

Identification and goal setting

Identification
Shared decision making
Goal setting

Coaching to self-management

General self-management skills
Specific knowledge, skills and tools
(including overcoming barriers)

Evaluation

Evaluating goals
Planning for the future
Follow-up plan

Society

Family

Person

'*How you interact is much more important than the care you deliver*'

Michele Maiers, WFC Congress 2023

Hutting et al 2022 Person-centered care for musculoskeletal pain: Putting principles into practice. doi: 10.1016/j.msksp.2022.102663.

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LIFE STYLE DETERMINANTS OF HEALTH

- Exercise
- Diet
- Risk substances
- Sleep
- Mental health
- Social connections

Lifestyle behavioural change
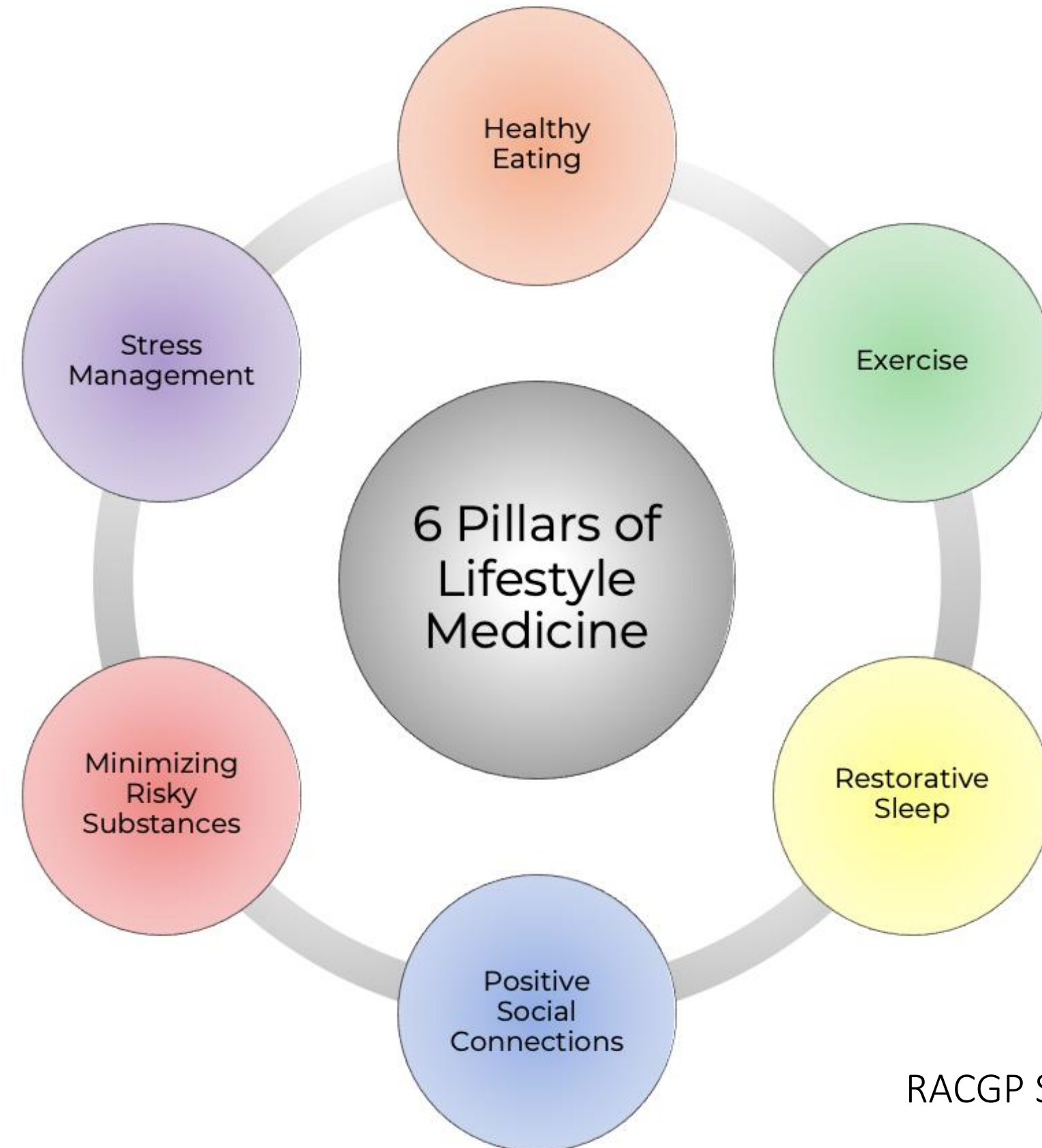
Peter McGlynn

RACGP SNAP tool

A prognostic risk score for development and spread of chronic pain

Christophe Tanguay-Sabourin [1,2,3] ✉, Matt Fillingim[1,3], Gianluca V. Guglietti[1,3,4], Azin Zare [1,4], Marc Parisien [1,3,4], Jax Norman[1,4], Hilary Sweatman [5], Ronrick Da-ano[1,4], Eveliina Heikkala[6,7], PREVENT-AD Research Group*, Jordi Perez[3,8], Jaro Karppinen[6,9,10], Sylvia Villeneuve[11,12], Scott J. Thompson[13], Marc O. Martel[1,3,4], Mathieu Roy[1,3,14], Luda Diatchenko [1,3,4] & Etienne Vachon-Presseau [1,3,4] ✉

Chronic pain is a complex condition influenced by a combination of biological, psychological and social factors. Using data from the UK Biobank (n = 493,211), we showed that pain spreads from proximal to distal sites and developed a biopsychosocial model that predicted the number of coexisting pain sites. This data-driven model was used to identify a risk score that classified various chronic pain conditions (area under the curve (AUC) 0.70–0.88) and pain-related medical conditions (AUC 0.67–0.86). In longitudinal analyses, the risk score predicted the development of widespread chronic pain, the spreading of chronic pain across body sites and high-impact pain about 9 years later (AUC 0.68–0.78). Key risk factors included sleeplessness, feeling 'fed-up', tiredness, stressful life events and a body mass index >30. A simplified version of this score, named the risk of pain spreading, obtained similar predictive performance based on six simple questions with binarized answers. The risk of pain spreading was then validated in the Northern Finland Birth Cohort (n = 5,525) and the PREVENT-AD cohort (n = 178), obtaining comparable predictive performance. Our findings show that chronic pain conditions can be predicted from a common set of biopsychosocial factors, which can aid in tailoring research protocols, optimizing patient randomization in clinical trials and improving pain management.

Pain is the primary reason that individuals seek healthcare and is a leading cause of disability among working adults[1–3]. Unfortunately, the causes of chronic pain and its prognosis are often unknown, as tissue damage following injury is rarely an accurate predictor of clinical outcomes[4]. Instead, it is widely accepted that the interactions between biological, psychological and social factors play a greater role in determining chronic pain conditions and patients' overall functioning[5]. This holistic framework, referred to as the biopsychosocial model for chronic pain[5], can be challenging to define owing to the difficulties of simultaneously measuring and distinguishing multidimensional factors in large groups of patients living with pain. Access to large cohorts of participants with chronic pain has provided unprecedented opportunities to tackle these problems and better understand the determinants of chronic pain[6].

Prognostic studies have shown that certain factors, such as maladaptive pain-coping strategies, somatization and history of pain increase the likelihood of developing chronic back pain[4,7–9]. Additionally, factors including pain severity and duration[9–12], fear of pain[13] and pain catastrophizing[4,14] have been linked to worsening back pain. Brain imaging and genetic studies also suggest that biological factors

A full list of affiliations appears at the end of the paper. ✉e-mail: christophe.tanguaysabourin@mcgill.ca; etienne.vachon-presseau@mcgill.ca

UK biobank
(n = 493,211)

Key risk factors:

- Sleeplessness (rarely/usually)
- Feeling 'fed-up' (no/yes)
- Tiredness (no-seldom/>7d of 14d)
- Seeked help anxiety/depression (no/yes)
- Stressful life events (last 2 yrs no/yes)
- BMI >30 (no/yes)

= Risk of pain spreading (ROPS)

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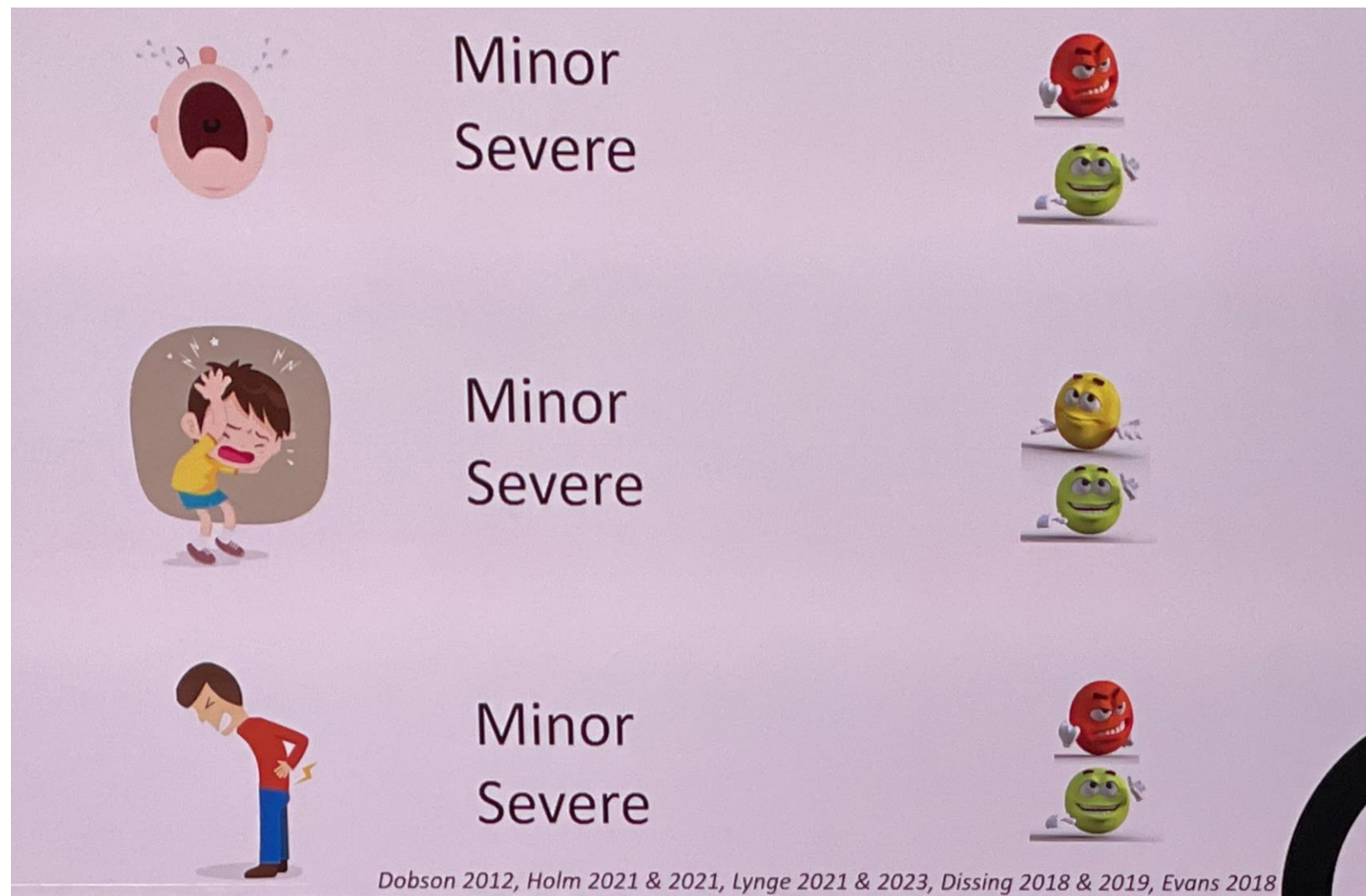*'We need to upskill healthcare professionals to provide psychologically informed treatment'*

MSK CONSIDERATIONS IN CHILDREN & ADOLESCENTS

1-year prevalence (8-14 yoa):
  ≈ LBP 45%, NP 25%, TP 17%, Lower extremity 50%, upper extremity 20%

Dissing 2017, Fuglkjær 2017, Roy 2022

Evidence for SMT

Dobson 2012, Holm 2021 & 2021, Lynge 2021 & 2023, Dissing 2018 & 2019, Evans 2018

We have to be careful about what we treat

- Healthy development is complex

- MSK is an integral part of it

- Treat children in need of treatment
  ...leave the rest alone

Lise Hestbæk

HEALTHY AGING
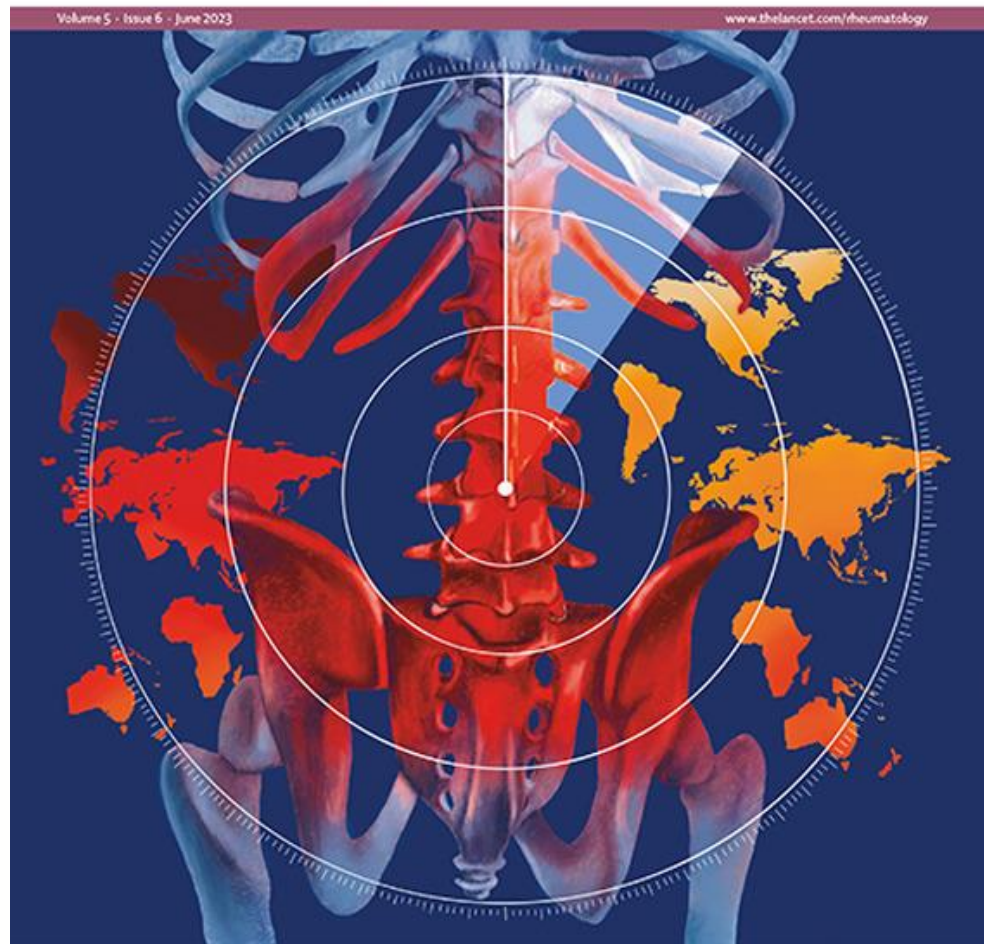
Katie de Luca

Ferreira 2023 Global, regional, and national burden of low back pain, 1990–2020, its attributable risk factors, and projections to 2050
https://doi.org/10.1016/S2665-9913(23)00133-9

GLOBAL SYSTEMS STRENGTHENING FOR MSK HEALTH:

If not now- when?

Towards a global strategy to improve musculoskeletal health

- NCDs (cancer, cardiovascular disease, lung disease and diabetes) account for 80% of the global disability burden.

- MSK conditions leading cause of disability globally, accounting for 16% of all years lived with disability (YLDs).

- MSK conditions frequently co-morbid with other NCDs and increase the risk of developing other NCDs.

- Only half (50%) of countries had policies that explicitly included MSK health in their stated scope.

https://gmusc.com/global-strategy-to-improve-musculoskeletal-health/

Andrew Briggs

Contents lists available at ScienceDirect

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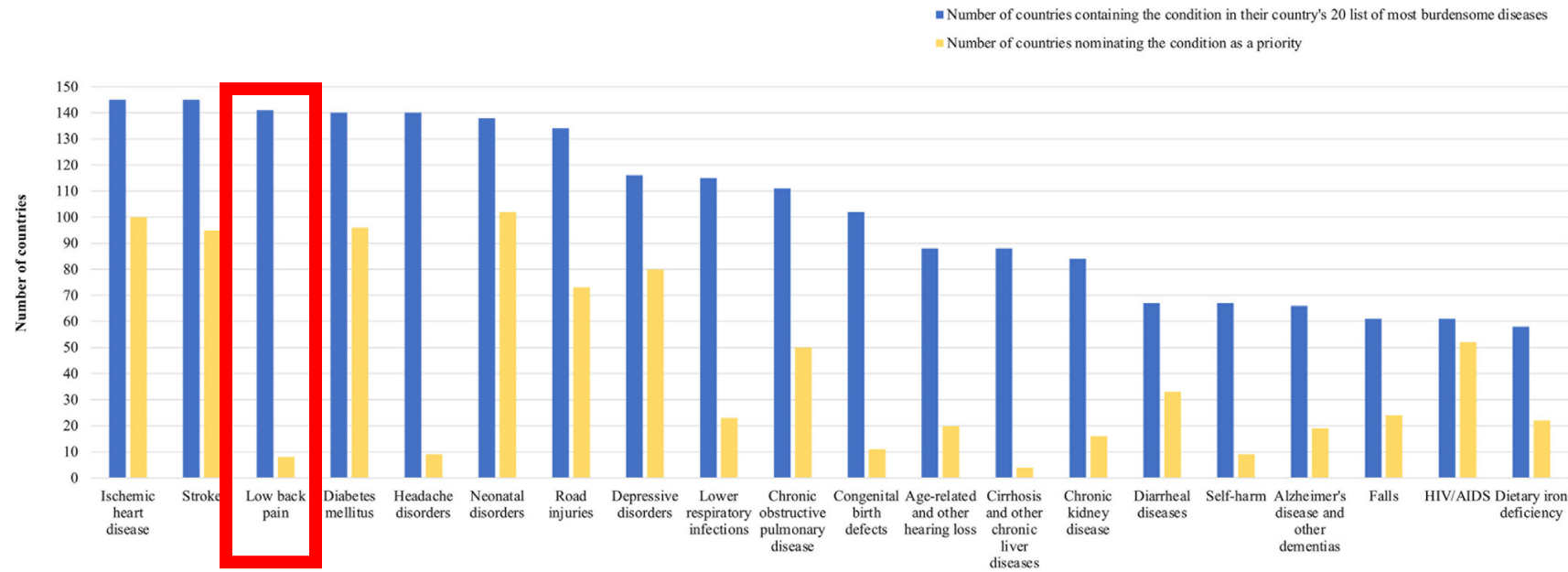journal homepage: www.elsevier.com/locate/puhe

Review Paper

Do national health priorities align with Global Burden of Disease estimates on disease burden? An analysis of national health plans and official governmental websites

C.B. Oliveira [a,b,c,*], G.E. Ferreira [c,d], R. Buchbinder [e], G.C. Machado [c,d], C.G. Maher [c,d]

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[b] Physical Therapy Department, Faculty of Science and Technology, São Paulo State University, Presidente Prudente, Brazil
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[e] Musculoskeletal Health and Wiser Health Care Units, School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia

Oliveira et al 2022 Do national health priorities align with Global Burden of Disease estimates on disease burden? An analysis of national health plans and official governmental websites
https://doi.org/10.1016/j.puhe.2023.06.038

BMC Medicine

RESEARCH ARTICLE   Open Access

Disease-specific health spending by age, sex, and type of care in Norway: a national health registry study

Jonas Minet Kinge[1,2*], Joseph L. Dieleman[3], Øystein Karlstad[1], Ann Kristin Knudsen[1], Søren Toksvig Klitkou[4], Simon I. Hay[3], Theo Vos[3], Christopher J. L. Murray[3] and Stein Emil Vollset[3]
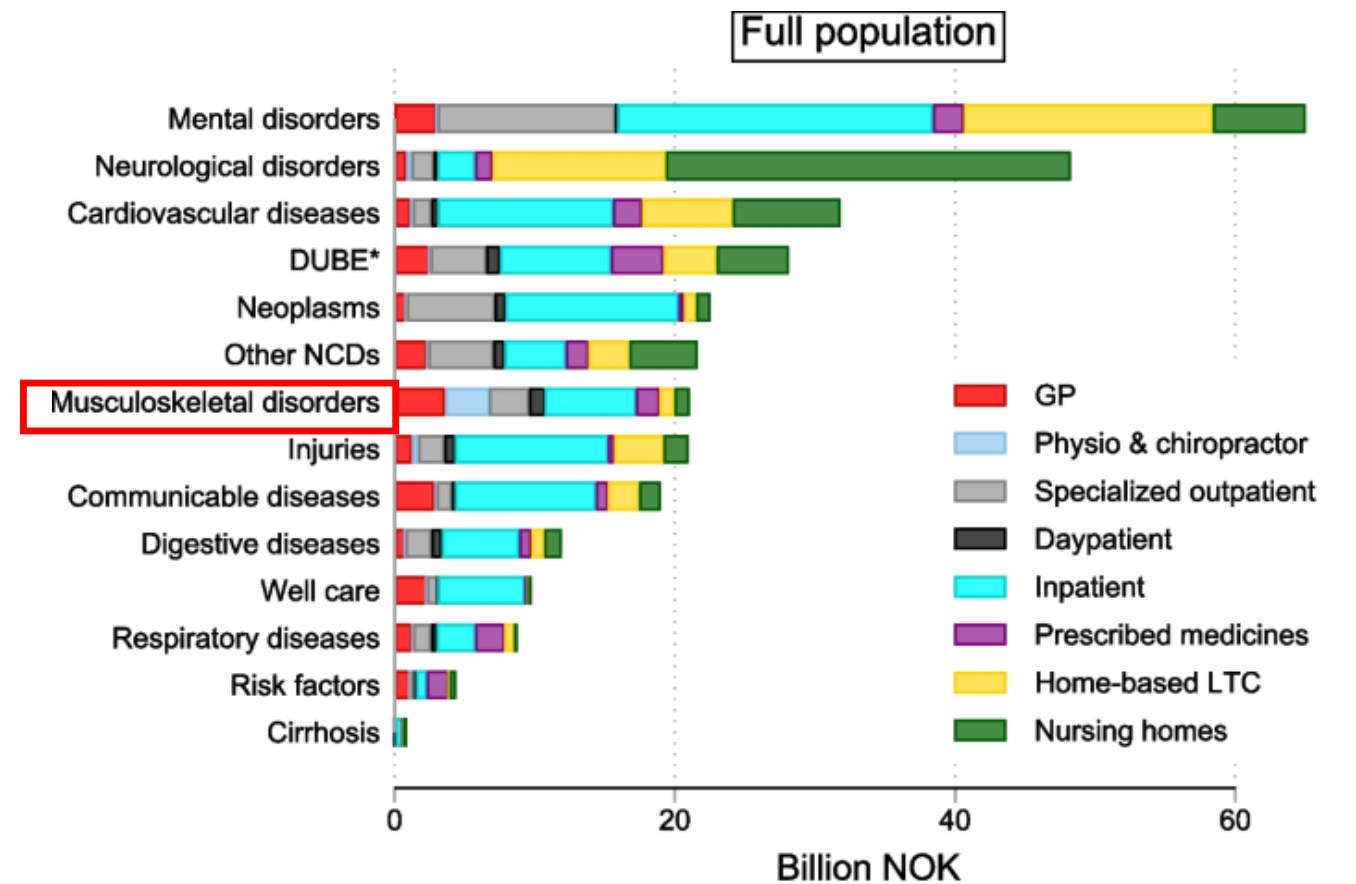
Kinge et al 2023 Disease-specific health spending by age, sex, and type of care in Norway: a national health egistry study
https://doi.org/10.1186/s12916-023-02896-6

Takk for oppmerksomheten!
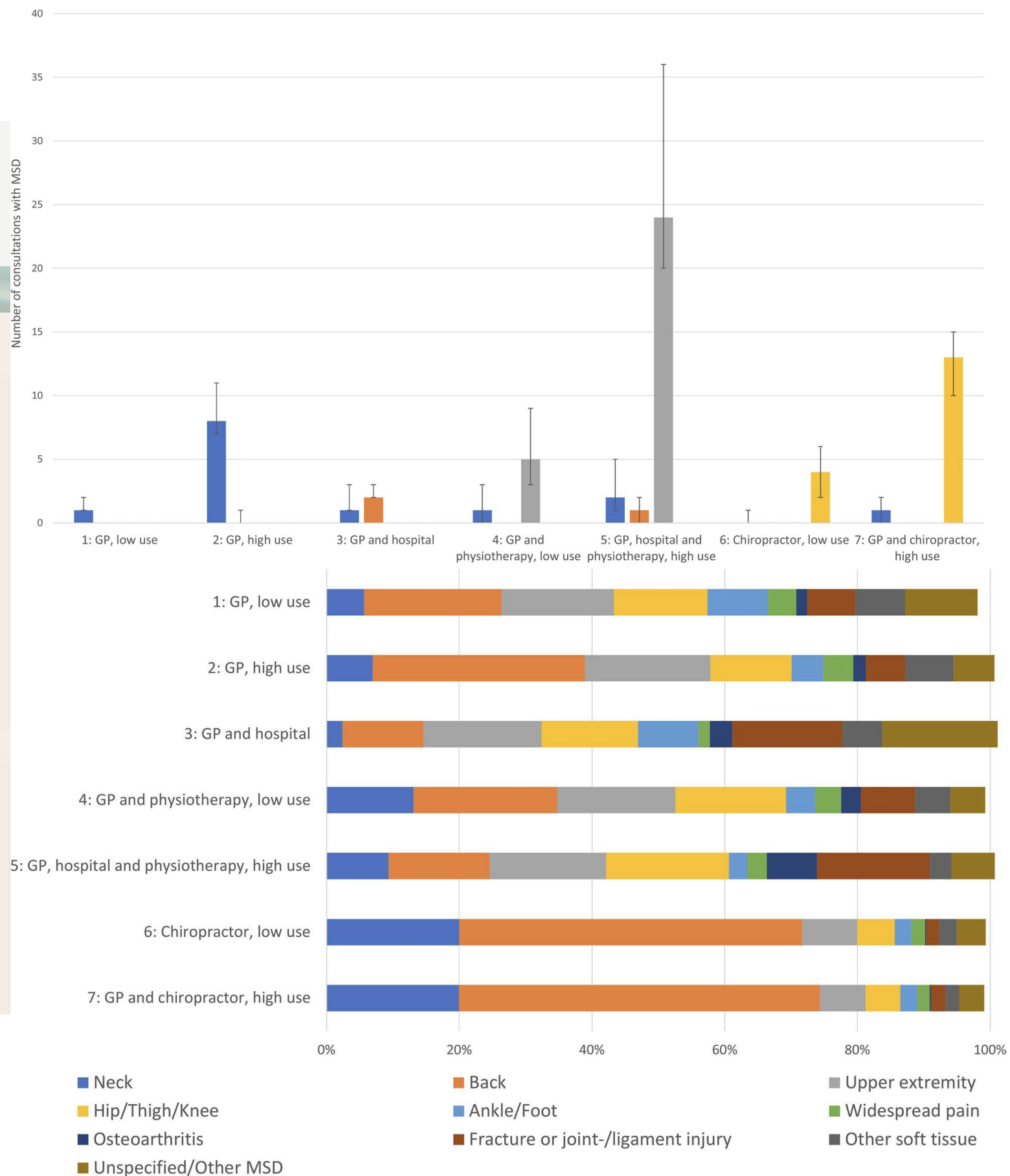
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