

conditions, results in significant losses in productivity at work and incurs billions of dollars in medical expenditure annually. LBP and other musculoskeletal disorders have therefore been prioritized as a global health concern during the Bone and Joint decade (2000-2010, WHO). Despite the GBD 2010 and WHO reports, LBP and other musculoskeletal conditions remain less prioritized in low-to-middle income countries (LMICs), due to more pressing health issues like HIV/AIDS.

**Purpose:** A better understanding of the current burden of LBP in African LMICs was therefore required. An updated search of the current literature into the prevalence of LBP among African nations was therefore conducted. Specific challenges faced in retrieving epidemiological information in Africa, the methodological quality of reported African studies and on conducting meta-analyses of LBP data were also highlighted.

**Methods:** (Protocol reg.#:CRD42014010417) A comprehensive search of all accessible bibliographic databases via the Stellenbosch University's Medical and Health Sciences Library website was conducted (April 2014–October 2014); updated March 2015. Population-based studies into the prevalence of LBP among children/adolescents and adults living in Africa were included. Methodological quality of included studies was appraised using an adapted tool. Meta-analysis were conducted using methods described by Neyeloff et al (2012). Subgroup analyses, sensitivity analyses, publication bias and meta-regression analyses were also conducted.

**Results:** Fifty-four studies were included in this review. The majority of the studies were conducted in Nigeria (n=22;41%) and South Africa (n=15;28%). Thirty-six included studies (66.7%) were found to be of higher quality. The lifetime, one-year and point prevalence of LBP in Africa was 55.8 (95% CI 19.8;91.8); 57.5 (95% CI 51.6;63.5) and 41.9 (95% CI 29.2;54.6), respectively. There was little difference in LBP prevalence between African males (48.6%,95% CI 36.1;61.1) and African females (49.5%,95% CI 38.6;60.5). The prevalence of LBP was estimated to be higher among African adults (54.3%; 95% CI 44.9;63.7) compared to African children and adolescents (32.1%; 95% CI 18.9;45.3).

**Conclusion:** This review found that the lifetime, one-year and point prevalence of LBP among African nations was considerably higher than or comparable to global LBP prevalence estimates reported.

**Implications:** Despite the high burden of LBP in Africa, African healthcare budgets and systems may generally be ill-prepared to deal with the management of LBP. Successful development and implementation of strategies and policies to address the burden of LBP on poorer countries or countries with emerging economies, like those in Africa, is therefore warranted.

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**Ethics Approval:** This study was exempt from ethical approval since it was a systematic review.

**Disclosure of Interest:** None Declared

**Keywords:** Africa, Epidemiology, Low back pain

### Health promotion/Public health

#### PO3-LB-044

#### WHO GETS UPPER BODY AND/OR LOW BACK PAIN IN MIDDLE AGE?

U. Aasa, B. Aasa\*. *Umeå University, Umeå, Sweden*

\* Corresponding author.

**Background:** It is important to show which factors are related to good upper body and low back health in middle age since upper body pain is costly for the society and causes much suffering for the individual. Few studies using a longitudinal design have follow-up periods of more than five years and few studies have investigated both work-related and individual factors in a general population.

**Purpose:** This longitudinal study investigated the ability of work-related measurements, body composition, physical activity and fitness levels to predict neck/shoulder pain (upper body pain, UBP) at the age of 52 years. Another aim was to investigate the cross-sectional relationships between reporting current pain, work-related factors and individual factors at the age of 52 years.

**Methods:** We followed a randomly selected cohort of 429 adolescents that was recruited in 1974 (baseline), when they were 16 years old. The

participants completed physical fitness tests, questions about socio-demographic and life-style factors at 16, 34 and 52 years of age, and questions about work-related factors and pain in the follow-ups. Logistic regression analyses were used to examine the associations between neck/shoulder pain and the other variables.

**Results:** Univariate logistic regression analyses showed that high body mass index (BMI) and social support and control at the age of 34 years were related to pain at the age of 52 years. Cross-sectional relationships at the age of 52 differed from the longitudinal in the sense that measures of joint flexibility and work posture were also significantly associated with pain.

**Conclusion:** The fact that the cross-sectional differed from the longitudinal relationships strengthens the importance of performing longitudinal studies when studying factors that might influence development of musculoskeletal pain. Patients who already have developed pain seem to have lower flexibility and lower muscular strength than those who have not. Measurements of flexibility and strength in adolescent and young adulthood do however, not influence on the development of pain.

**Implications:** Preventative measures might need to include both life-style (such as dietary habits and physical activity to ensure that the individuals are not developing overweight) and work-related factors such as social support.

**Funding Acknowledgements:** The study was supported by grants from the Swedish Research Council for Health, Working Life and Welfare and the Swedish National Centre for Research in Sports.

**Ethics Approval:** The study protocol was in accordance to the Helsinki Declaration of 1975 as revised in 1983 and received ethical approval from the Ethical Board, Umeå, Sweden, Dnr 09-082M. Participation was voluntarily and all participants signed an informed consent form.

**Disclosure of Interest:** None Declared

**Keywords:** Longitudinal design, Prevention, Risk factors

### Health promotion/Public health

#### PO3-LB-046

#### SPINAL PAIN IN FIELD HOCKEY PLAYERS: A CROSS SECTIONAL STUDY

N.A. Roussel<sup>1,2,\*</sup>, I. Demeure<sup>3</sup>, C. Demoulin<sup>4,5</sup>, L. Pitance<sup>6,7</sup>. <sup>1</sup>Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium; <sup>2</sup>Pain in Motion International Research Group, Vrije Universiteit Brussel, Brussels, Belgium; <sup>3</sup>Medicine and Rehabilitation Sciences, University of Antwerp, Antwerp, Belgium; <sup>4</sup>Physical Medicine and rehabilitation, Liege University Hospital Center, Belgium; <sup>5</sup>Department of Sport and Rehabilitation Sciences, Université de Liege, Liege, Belgium; <sup>6</sup>Institute of Clinical Research (IREC), Université Catholique de Louvain, Louvain, Belgium; <sup>7</sup>Oral and Maxillofacial Surgery, Cliniques Universitaires Saint-Luc, Brussels, Belgium

\* Corresponding author.

**Background:** Hockey is a popular sport. In Belgium the participation in field hockey increased from 20.000 members in 2007 to 35.000 members in 2014. Epidemiological studies have consistently shown that injuries in field hockey are numerous. In addition to injuries to the extremities and the head, spinal pain is frequently mentioned in the scientific literature. However, studies examining spinal pain in field hockey players are lacking.

**Purpose:** The main aim of the present study was to examine the prevalence of spinal pain in amateur field hockey players and its relationship with pain catastrophizing.

**Methods:** Belgian male field hockey players from first to third division were recruited in nine clubs. Hockey players were included if they had a minimum age of eighteen years, had an hockey experience for at least three years in the first to third division, were fluent in French or Dutch speaking and were willing to sign the informed consent. The participants were asked to fill in a battery of questionnaires. The Nordic Musculoskeletal Questionnaire was used to examine the prevalence of low back pain (LBP) and neck pain and activity limitations due to back or neck pain. The Dutch and French translations of the Pain Catastrophizing Scale (PCS) were used to assess pain catastrophizing.

**Results:** Eighty-eight male players volunteered for the study (mean age = 28.8 +/- 7.6 years). They played on average 5h hockey per week and played since 17.8 +/- 9 years. The lifetime and 12-month prevalence of LBP were 46% and 36%, respectively. Half of the players which suffered from LBP the

previous year indicated that the LBP interfered with their hockey play. The lifetime and 12-month prevalence of neck pain were 40% and 20%, respectively. Only six players reported that their neck pain influenced their hockey play. No significant differences were observed in total PCS-scores between players with and without LBP or neck pain during the last 12 months ( $p > 0.05$ ).

**Conclusion:** Low back pain is common in field hockey players and interferes with the game in 18% of the field hockey players. However, it appears unrelated to pain catastrophizing. Neck pain is less common, and does not seem to influence hockey playing.

**Implications:** Low back pain should be further examined in both amateur and elite field hockey players as it might influence hockey playing in a fifth of the amateur players. Further research should examine contributing factors.

**Funding Acknowledgements:** The work was unfunded

**Ethics Approval:** The study was approved by the Ethics Committee of the Cliniques Universitaires Saint-Luc

**Disclosure of Interest:** None Declared

**Keywords:** Hockey, Low back pain, Neck pain

#### Health promotion/Public health

##### PO4-AP-007

#### DEVELOPMENT OF AN INJURY RISK ASSESSMENT WORKPLACE WELLNESS SCREENING TOOL

A. Markowski\*, M. Watkins, L. Thompson, J. Vasquez. *Physical Therapy, Northeastern University, Boston, United States*

\* Corresponding author.

**Background:** Health promotion is in the forefront of healthcare reform in the USA and prevention of health disparities remains a global initiative. With emerging workplace wellness programs (WWP) there is a need for a screening tool to identify employees at risk for injury.

**Purpose:** Review the evidence on the most common injuries among individuals participating in WWP. Identify evidence-based cardiovascular and musculoskeletal assessments specific to these common injuries. Create a comprehensive screening tool to identify at risk individuals who would benefit from a medical or physical therapy referral.

**Methods:** A review of the literature identified common medical and physical injuries associated with WWP in middle age adults. Eleven peer reviewed articles were identified. Physical injuries most commonly described are knee and back pain, ankle sprains, shin splints, and shoulder tendinitis.<sup>3</sup> A second literature review identified specific evidence based medical and physical screening tools used to identify risk factors for common injuries and cardiovascular disease. Articles were searched from 2005-present using the following databases: EBSCOhost Sports Discus, PubMed, and CINAHL.

**Results:** More than 100 articles utilizing examination or assessment tools specific to these common injuries were identified. From the identified articles, 47 were used to compile the screening tool, based on the strongest evidence, demographics and feasibility for our specific workplace population. The tests chosen for inclusion in the screening tool were shown to be individually reliable and valid at identifying associated risk factors.

**Conclusion:** The Wellness Program Screening Tool (WPST) is a comprehensive cardiovascular and musculoskeletal screening tool developed to be administered by a physical therapist or trained medical professionals. This tool compiles evidence informed risk assessments for medical, cardiovascular events and upper extremity, lower extremity and spine injuries. The WPST includes a detailed history, vitals, biometric measurements, Heart Rate Recovery Bike Test, Flexibility test, Scapular stability test, Single Leg Squat, Navicular Drop, Star Excursion Balance test and a Side Bridge test. Detailed instruction and interpretation documents accompany the data sheet. Future directions includes establishing reliability and validity for the screening tool.

**Implications:** The WPST will provide an important individualized risk assessment, which can be used to modify exercise programs and/or to identify the need for a referral to the appropriate medical personnel to address these potential health concerns. With the emphasis for

preventative medicine, the WPST will help promote health and safety, while still encouraging workers to participate in physical activity and exercise. Physical therapists or trained medical professionals have the education and skills to administer, interpret the results and recommend modifications or referrals.

**Funding Acknowledgements:** Unfunded

**Ethics Approval:** Ethical approval not required

**Disclosure of Interest:** None Declared

**Keywords:** Health promotion, Screening tool, Workplace wellness

#### Health promotion/Public health

##### PO4-CS-017

#### PLAYING-RELATED MUSCULOSKELETAL DISORDERS AMONG PROFESSIONAL ORCHESTRA MUSICIANS IN SCOTLAND – A PREVALENCE STUDY USING A VALIDATED INSTRUMENT: THE MUSCULOSKELETAL PAIN INTENSITY AND INTERFERENCE QUESTIONNAIRE FOR MUSICIANS (MPIQM)

P. Berque.

**Background:** Many epidemiological surveys on playing-related musculoskeletal disorders (PRMDs) have been carried out among professional musicians, but none have evaluated or confirmed the psychometric properties of the self-report instruments that were used.

**Purpose:** The aim of this study was to evaluate the prevalence of PRMDs among professional orchestra musicians in Scotland, and to gather information on pain intensity and pain interference (impact of pain on function and psychosocial variables) using a self-report instrument developed specifically for a population of professional orchestra musicians, and psychometrically validated by the present authors in a previous study.

**Methods:** Out of 183 professional orchestra players, 101 took part in the study (55% response rate), and completed the Musculoskeletal Pain Intensity and Interference Questionnaire for Musicians (MPIQM). Statistical tests were performed using a 5% level of significance ( $\alpha = 0.05$ ).

**Results:** Lifetime prevalence of PRMDs was 77.2%, one-year prevalence was 45.5%, and point prevalence was 36.6% ( $n = 37$ ). Although no statistically significant relationship was found between gender and the number of reported pain sites ( $\chi^2 = 2.571, p = 0.463$ ), 68.8% of males in the PRMD group ( $n = 11$ ) reported two or less pain sites whilst 52.4% of the females ( $n = 11$ ) reported three or more pain sites. The most commonly reported locations of PRMDs were the right upper limb, the neck, and the left forearm and elbow. However, predominant sites of PRMDs varied between instrument groups. The mean pain intensity score for the PRMD group was  $12.4 \pm 7.63$  (out of 40). The mean pain interference score was  $15.2 \pm 12.39$  (out of 50), increasing significantly in relation to an increase in the number of reported pain locations ( $F = 3.009, p = 0.044$ ). There were no statistically significant differences between males and females for the pain intensity ( $t = 0.145, p = 0.882$ ) and pain interference ( $t = 0.434; p = 0.064$ ) scores.

**Conclusion:** This study confirms that musculoskeletal complaints are common in elite professional musicians. Future studies are required to investigate the interactions of the constructs “pain intensity” and “pain interference” with other demographic variables and potential risk factors of PRMDs, and to compare the population of professional musicians to other professions involving repetitive movements and prolonged static and dynamic loading of neuromusculoskeletal structures.

**Implications:** The use of an operational definition of PRMDs and a self-report instrument specifically developed and validated for professional orchestra musicians contribute to the determination of more accurate and meaningful estimates of pain prevalence in this population.

**Funding Acknowledgements:** Work was unfunded.

**Ethics Approval:** The study was approved by the Research Ethics Committee of the School of Health and Life Sciences at Glasgow Caledonian University, Glasgow, Scotland, UK.

**Disclosure of Interest:** None Declared

**Keywords:** Musculoskeletal pain, Musicians, Prevalence