Development and psychometric evaluation of the Musculoskeletal Pain Intensity and Interference Questionnaire for Musicians.

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ABSTRACT

Introduction
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.[1,2] The aim of the present study was to develop and validate a self-report instrument for professional orchestra musicians to measure musculoskeletal (MSK) pain and pain interference in terms of function and psychosocial constructs.

Methods
183 professional orchestra musicians in Scotland were eligible to participate in the study, of which 101 (55% response rate) took part. Development of the Musculoskeletal Pain Intensity and Interference Questionnaire for Musicians (MPIIQM) involved the selection and modification of the most appropriate instruments measuring MSK pain, followed by psychometric evaluation of the new instrument. Guidelines from the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) checklist were followed.[3] Psychometric evaluation was then carried out, focusing on face and content validity,[4] construct validity using exploratory factor analysis, internal consistency, and test-retest reliability.[5,6]

Results
Face and content validity were ascertained by expert panels. Point prevalence of PRMDs was 36.6% (n = 37). The percentage of missing scores was very low (2.7%). Exploratory factor analysis revealed that the MPIIQM had a strong and stable two-factor structure, with nine retained items explaining 71.3% of the variance in the data set (Table 1). "Pain intensity" and "pain interference" were the two emerging factors. High internal consistency was achieved for each subscale (Cronbach's alpha = 0.91). Substantial test-retest reliability for the pain intensity items (range 0.78 – 0.82), and moderate to substantial test-retest reliability for the pain interference items (range 0.56 – 0.76) were obtained.

Conclusions and recommendations
The MPIIQM is a valid and reliable self-report instrument for the measurement and evaluation of MSK pain and pain interference in a population of professional orchestra musicians. It is compliant with the principles set out by the World Health Organisation in the international classification of functioning, disability and health (ICF).[7] Due to its evaluative properties,[8] this instrument could also be used as a screening or injury surveillance tool within the context of health and safety in professional orchestras.

Keywords: Musculoskeletal, Musicians, Psychometrics, Questionnaire.

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Table 1 Factor loadings for 9 items of the MPIIQM following PAF analysis with oblique rotation (direct oblimin)

	Factor 1 Pain intensity	Factor 2 Pain interference
Worst pain	0.830	
Least pain	0.814	
Average pain	0.979	
Pain right now	0.783	
Mood		0.848
Enjoyment of life		0.818
Using your usual technique		0.797
Playing because of symptoms		0.695
Playing as well as you would like		0.895