Development and Validation of the Functional Difficulties Questionnaire for Assessing Developmental Coordination Disorder.

Dr. Carol Clark, Lecturer in Physiotherapy, Bournemouth University, Bournemouth, U.K;
Dr. Sarah Thomas, Senior Research Fellow, Bournemouth University, U.K;
Professor Eloise Carr, Professor of Nursing, University of Calgary, Calgary, Canada;
Professor Alan Breen, Professor Institute of Musculoskeletal Research and Clinical Implementation, Anglo European College of Chiropractic, Bournemouth, UK.

Programme tracks:
1 Neuroscience, Neuroplasticity and Neurophysiology
3: Manual Therapy – Assessment and Diagnosis
Theme: Research, Targeted level of learning: Multiple

**Purpose:** The purpose of this study is to describe the development and preliminary psychometric evaluation of the Functional Difficulties Questionnaire (FDQ-9) an instrument designed to aid clinicians in the assessment of developmental coordination disorder (DCD) in adults.

**Relevance:** There are currently no tools to assess DCD in adults with musculoskeletal pain. DCD is a neurodevelopmental disorder characterised by functional motor impairments described in childhood which, for some persist into adulthood. Skill impairments in those with DCD include impaired perception and biomechanical dysfunction.

**Methods:** The questionnaire was developed utilising existing questionnaires, the Diagnostic and Statistical Manual for the Diagnosis of Mental Disorders (DSM-IV) criteria for the diagnosis of DCD, International Classification for Diseases (ICD-10) and International Classification of Functioning Disability and Health (ICF). An initial 13-item pool was reviewed by an expert panel for face and content validity. This resulted in a 9-item questionnaire which was piloted on three groups (n=257):- 1) Individuals with joint hypermobility syndrome; 2) convenience samples from a commercial company; 3) staff and students of a university. Exploratory factor analysis was employed to assess the underlying factor structure. Aspects of validity and reliability were assessed.

**Results:** Factor analysis using principal axis factoring with oblimin rotation yielded two factors relating to fine and gross motor function. Overall internal reliability was high ($\alpha=0.81$). Preliminary findings suggested satisfactory construct validity and test-retest reliability (ICC 0.96) [95% CI 0.92-0.98].

**Conclusions:** Psychometric properties of this questionnaire appear promising but further research is required to evaluate the validity of the questionnaire in new samples and audit its application in clinical practice.

**Implications:** This questionnaire has the potential to aid clinicians in their assessment of DCD and functional impairments in adults and therefore contribute to improved care planning.

**Key-words:** 1. Developmental coordination disorder 2. Assessment tool 3. Validity

**Funding acknowledgements:** Unfunded.

**Ethics approval:** The study protocol was approved by the National Hospital for Neurosurgery and Neurology and the Joint Institute of Neurology Research Ethics Committee, UK. (ref 09/H0716/5).