Reliability and validity of the Finnish version of Motor Observation Questionnaire for Teachers (MOQ-T-FI)

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Aim: Despite the fact that DCD is so common, teachers lack tools to identify children who have motor learning problems. The Motor Observation Questionnaire for Teachers (MOQ-T) is an observational questionnaire for teachers developed in the Netherlands. The culture and language adaptation into Finnish was carried out and psychometric properties of this Finnish version (MOQ-T-FI) were studied. The aim of this study was to test the reliability and validity of the Finnish version of Motor Observation Questionnaire for Teachers (MOQ-T-FI).

Method: Item consistency, test-retest and inter-rater reliability, predictive and concurrent validity of the MOQ-T-FI were examined. Teachers were asked to complete the MOQ-T-FI. In this pilot study, teachers’ ratings were compared to students’ (n=193, aged 6–12 years) performance on the Movement Assessment Battery for Children-2. The factor structure (principal component analysis with varimax rotation) was examined in a standardization children’s sample (n=850, aged 6–9 years). Reliability was studied in two additional samples (n=25 and n=66).

Results: The psychometric properties of the Finnish version were comparable with those of the original MOQ-T. The internal consistency of MOQ-T-FI was excellent (Cronbach’s alpha = .97). The same factor structure was found, the 18 items could be divided into two components: general motor functioning and handwriting. The components explained 77.2 % of the variance. Concurrent validity with MABC-2 test was moderate, but statistically significant (r=.33 p<.001). The original MOQ-T had better concurrent validity with MABC test (r=.57). Sensitivity 89.9 % and specificity 62.9 % were slightly better in MOQ-T-FI than in the original MOQ-T (Schoemaker et al. 2008). MOQ-T-FI test-retest was good [r=.616, p<.001; ICC (95 % CI) = 90%(71–96)] and inter-rater reliability was moderate [r=.68, p<.001; ICC (95 % CI) = .67 (.51–.78)].

Discussion: The MOQ-T-FI can be considered as a valid and fast screening tool for Finnish children at risk of DCD. It has good psychometric properties, but further research is required to evaluate more specifically and with larger data sets the reliability of the Finnish version.


Keywords: DCD; MOQ-T; Questionnaire; Validity; Reliability.

Motor perseveration and variability as markers of learning difficulties of bimanual coordination in teenagers with Developmental Coordination Disorder

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Aim: There is a large consensus that developmental coordination disorder (DCD) presents an alteration of motor control, particularly in bimanual coordination. However, studies relative to motor learning are scarce and not consensual. We propose to test the learning of a new bimanual coordination in teenagers with DCD.

Method: Ten typically developed (TD, 13.49 +/- 1.76 yo) and 10 DCD (13.47 +/- 1.39 yo) teenagers were assessed with neuropsychological tests: WISC-IV, CPT-II and M-ABC. During Pre-test, teenagers were required to produce three coordination modes by tapping with their thumbs on a Xbox joystick in synchrony with visual stimulations specifying two pre-existing coordination: Inphase and Antiphase, and a New non pre-existing coordination. Then, teenagers were required to practice 25 trials of the New coordination only, they had to improve its accuracy and stability thanks to a visual feedback of the performance delivered after each trial. Finally, a Post-test assessed the three coordination modes. A Group x Test x Coordination ANOVA were carried out on (1) the Absolute Error (AE) of the produced coordination reflecting accuracy, (2) its Standard Deviation (SD) reflecting variability and (3) the number of additional taps of the both right and left thumbs (N), reflecting motor perseveration. Correlation between behavioural and neuropsychological results were tested (p<.05).

Results: Significant Coordination and Test x Coordination were found on AE: AE of the New coordination decreased whereas the AE of Antiphase increased between the Pre- and Post-test. Group and Coordination effects were found on SD which SD was higher for DCD compared to TD, and for Antiphase and New compared to Inphase coordination. Group, Coordination and Group x Coordination were significant on N: N was higher for Antiphase and New compared to Inphase coordination only for the DCD Group. Correlation tests revealed that teenagers with the highest M-ABC scores presented the highest N for the Antiphase and New coordination.

Discussion: Results reveal that the accuracy of the new coordination improved similarly in both groups. However, teenagers with DCD present more perseveration and variability without improvement with practice. This suggests that they preserve the ability to improve accuracy but alter the stabilization of a new bimanual coordination. Moreover, motor perseveration also represents a good marker of motor learning difficulties and are even more numerous that the general motor ability (M-ABC) is low.

Keywords: Synchronization; finger tapping; procedural learning; accuracy.