Association between Motor and Language Skills in Children with Autism Spectrum Disorder: A Scoping Review

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INTRODUCTION
An emerging body of literature has established that early motor skills may be a key predictor of language development in children with autism spectrum disorder (ASD) (Bedford, Pickles, & Lord, 2016); however, the characteristics of subject groups, targeted skill areas and its assessments tools, and methodological approaches significantly vary across previous studies. This scoping review aimed to map out the associative nature of motor and language skills among children with ASD according to different age groups and ancillary attributes by investigating empirical studies published in the past 20 years.

METHODS
We searched research articles published in peer-reviewed journals between January 2000 and October 2020 using four search engines, including PsycINFO, PubMed, Linguistics and Language Behavior Abstracts (LLBA), and Google Scholar. Search terms included a mixture of the key and close variants (e.g., “motor”, “movement”, “language”, “literacy”, “autism”, “ASD”) as well as secondary terms (e.g., “association”, “prediction”, etc.). A total of 18 studies underpinning the relationship between motor and language development in children with ASD were selected and analyzed through Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

RESULTS
Available evidence suggested that studies on infants with or at risk of ASD particularly aimed to identify the stages of motor and language skills acquisition for preventive purposes while studies on school-age children focused on practical implications of motor and/or language delay in this population for intervention development. Despite lack of agreement among available instruments for motor and language skills assessments, the positive relationship between motor and language development were shown in which both gross and fine motor skills may predict the rate of expressive and spoken language development in children with ASD.

CONCLUSIONS
This scoping review highlighted an array of research on motor and language skills in children with ASD as a building block for healthy development. Findings support early link between the two skills in that early motor difficulties may forecast the subsequent language delays in children with ASD. More studies on such relationship in later childhood and adolescence are warranted to draw practical assistance, which can assist children with ASD to achieve successful transitions to adulthood.

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