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Motivation and paediatric interventions: Is it a predisposition, a mechanism for change, or an outcome?

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SIR–The recent article by Tatla et al.[1] attests to the growing awareness of, and interest in, the role of motivation in the delivery of interventions for children with developmental disabilities such as cerebral palsy. In this article the authors undertook a systematic review to evaluate the impact of 'purportedly' motivational interventions on outcomes of children with cerebral palsy. For this purpose motivational rehabilitation intervention was defined as one that 'promotes the initiation and persistence of goal-directed motor behaviour'. As such, the focus was on the motivating or engaging effects of motor-based rehabilitation interventions. We commend the authors in this undertaking and wish to raise several challenges to be faced in further advancing this important line of enquiry.

We were struck by the potential confusion about the construct under investigation and more importantly how it is conceptualized in the process of delivering interventions. At times, Tatla et al.[1] appeared to be discussing children's achievement motivation as a trait, at other times motivation appeared to be an aspect of the intervention provided or the 'right level of challenge' (person-environment fit), and at other times motivation was considered an outcome.

There are numerous theories about motivation and it is clearly important to articulate theories in order to advance research in this field. Our own work has drawn on Self-Determination Theory as a way of understanding the key mechanisms which can affect how effectively a child engages in therapy.[2] In this conceptualization Autonomy (individual goal choice), Relatedness (connection with meaningful others) and Competence (belief in and ability to achieve goals) are presented as ways of understanding children's motivation to engage in therapy. Thus, motivation to engage is optimized by various elements of the therapeutic intervention, including providing choice, social interaction and support, and fostering self-confidence to achieve goals. Theory, therefore, provides direction concerning the key elements of a range of interventions that describe themselves as motivational. Various client-centred approaches and interest-based interventions include these basic motivational elements.

We would suggest that motivation is not inherent in a specific activity but is a changing state that results from the interaction between an individual's interests, social environment, and nature of the activity involved. Hence there is probably no one size fits all description of an intervention as being motivational or engaging.

Interestingly, eight of the nine interventions reported by Tatla et al.[1] employed a virtual-reality-based product. Only one intervention was described as addressing skills within the context of a child's family environment which parents felt their child was motivated to improve. Our own research has provided evidence of the satisfaction of needs for autonomy, competence, and relatedness as key motivators for engagement with video games.[3] This research was conducted with adults in a non-therapeutic setting so it would be necessary to determine if similar findings apply to children and whether satisfaction of these needs also improves motivation for engagement with therapeutic activities embedded in virtual environments.

We have also reported on current limitations in the way motivation is measured for children with motor difficulties.[4] Without psychometrically sound measures of motivation it is difficult to ascertain the extent of individual differences, aspects of individual strengths which may be better addressed by specific intervention strategies, or the extent to which motivational disposition can be modified over time. As with all things that are perceived to be

important contributors to outcome, robust measurement is necessary. We have also begun to consider the nature of engagement in paediatric rehabilitation interventions (rather than motivation per se) drawing on preliminary work in mental health.[5] Engagement can be considered to be a multifaceted state of affective, cognitive, and behavioral investment in the client role over the intervention process, rather than an intervention-specific state. The construct of engagement may be useful in understanding changes in motivational state over a single session and/or a series of sessions.

We look forward to research which further describes interventions in light of a motivational rationale, addresses the measurement of motivation and engagement, includes a means of examining engagement in therapy over time, and looks at the interaction between intervention and level of engagement on therapeutic outcomes.

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The impact of methylphenidate on seizure frequency and severity in children with attention-deficit–hyperactivity disorder and difficult-to-treat epilepsies

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SIR–Santos et al.[1] convincingly demonstrate that methylphenidate (MPH) is effective in improving attention-deficit–hyperactivity disorder symptoms in children with active seizure disorders.

Among a group of 163 individuals with Dravet syndrome, a difficult-to-treat epilepsy, we recently showed that up to two-thirds of children have inattention/hyperactivity symptoms, highlighting that treatment with MPH might be a valuable contribution in their management.[2]

However, the study design of Santos et al. does not allow a conclusion that MPH improves seizure severity. The study had a 3-month baseline period without MPH followed by a 3-month trial period with MPH. Seizure frequency and severity decreased during the adjustment of antiepileptic drugs (AEDs) measured after 2 months of the baseline period. After this further adjustment of AEDs was undertaken for another month right up to the point when MPH was started. The next measurement of seizure frequency and severity was not done until 1 month into MPH treatment. It is therefore impossible to say whether the improvement in seizure frequency and severity was due to MPH treatment or AED adjustment. Table SI (online supporting information) clearly showed that in six previous studies (including a total of 174 patients) there was no MPH effect on seizures and the present study of 22 patients certainly does not refute these findings.

In addition, it remains debateable whether the individuals examined in the Santos et al. study truly had difficult-to-treat epilepsy. Inclusion criteria state that participants had 'active epilepsy manifested by at least one seizure in the 3 months preceding inclusion on adequate doses of at least one AED judged appropriate for the epilepsy syndrome'. Table SII (online supporting information) showed that 10 out of 22 participants were on AED monotherapy at study onset and during the AED adjustment period 10 out of 22 individuals achieved complete seizure control. The term active epilepsy might be more appropriate in this context rather than difficult-to-treat epilepsies as mentioned in the title.