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Mastery motivation in adolescents with cerebral palsy

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ABSTRACT

The aim of this study is to describe motivation in adolescents with cerebral palsy (CP) and factors associated with motivation level. The Dimensions of Mastery Questionnaire (DMQ) measures motivation in mastering challenging tasks and expressive elements. It was completed by 153 parents and 112 adolescents with CP. Adolescents (GMFCS in $n = 146$ – I:50, II:43, III:13, IV:15, V:25) were assessed using the Leiter IQ and Gross Motor Function Measure. Parents completed the Vineland Adaptive Behavior Scale and the Strengths and Difficulties Questionnaire. Motivation scores were highest for mastery pleasure and social persistence with adults and lowest for gross motor and object-oriented persistence. Socio-demographic factors were not strongly correlated with DMQ. Higher gross motor ability ($r = 0.24$–0.52) and fewer activity limitations ($r = 0.30$–0.64, $p < .001$) were associated with persistence in cognitive, motor and social tasks, but not mastery pleasure. Higher IQ was associated with persistence in object-oriented tasks ($r = 0.42$, $p < .001$). Prosocial behaviors correlated with high motivation ($r = 0.39$–0.53, $p < .001$). Adolescents' motivation scores were higher than parents' scores. Adolescents with CP express high mastery pleasure, not related to abilities. High motivation was associated with fewer activity limitations and prosocial behaviors and aspects of family environment. Findings elucidate those at-risk for low motivation, which can influence treatment adherence and participation in challenging but meaningful activities.

1. Introduction

Motivation is an intrinsic psychological energy or force that directs our level of persistence and intention to pursue challenging tasks or activities. When motivation is authentic and driven by internal values and interests rather than external

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desires and expectations of others, it can be instrumental in generating action (Ryan & Deci, 2000). Intrinsic motivation is associated with greater confidence, creativity and interest in participating in particular tasks. Motivation is therefore a vital determinant of the outcomes and success of rehabilitation efforts. Providing an environment that supports and enhances motivation to engage in either therapeutic (rehabilitation) or everyday meaningful activities is critical (Poulsen, Rodger, & Ziviani, 2006).

Self-determination theory recognizes that in order to optimize one's level of engagement or participation in particular activities, it is key to satisfy the individual's need for autonomy, competence and relatedness (Ryan & Deci, 2000). *Autonomy* refers to an intrinsic desire to choose the activities that are most meaningful, captivating and enjoyable and promoting volition and ownership. *Competency* results from believing in oneself (self-efficacy) and having confidence in one's ability to succeed. Finally, *relatedness* or feeling connected and supported by others involved in an activity further supports greater participation and well-being (Gilmore, Ziviani, Sakzewski, Shields, & Boyd, 2010; Poulsen et al., 2006). These three intrinsic needs that underlie self-regulation and self-determination collectively influence the level of persistence in the face of challenge for children and youth with activity limitations, and ultimately their level of personal growth, participation and well-being (Ryan & Deci, 2000).

Motivation is recognized as an essential attribute that influences the level of functioning and participation for children and youth with disabilities. In the conceptual model proposed by Bartlett and Palisano (2002), motivation was highlighted as a key intrinsic determinant of change in motor abilities for children with Cerebral Palsy (CP). The importance of motivation to participation and occupational achievement is also emphasized in the literature on novel rehabilitation interventions such as virtual reality (Harris & Reid, 2005) and constraint-induced movement therapy (Gilmore et al., 2010). Although recognized as a vital attribute influencing functioning and participation, there is a paucity of evidence on motivation levels in children and youth with CP and the factors that may influence mastery motivation. Knowledge of these factors may contribute to the development of interventions and rehabilitation strategies to promote motivation within this population.

The objective of this study was to describe mastery motivation in adolescents with CP. In addition, intrinsic and extrinsic factors that may be associated with motivation were identified. We hypothesized that severity of impairments and activity limitations would negatively influence mastery motivation levels at this stage of development, such that adolescents would give up more easily if they had greater limitations. This would support the findings documented in school-age children with CP. Given the importance of contextual factors on functioning and health as framed by the International Classification of Functioning, Disability and Health (ICF), we further hypothesized that family environment may be associated with motivation levels (Majnemer, Shevell, Law, Poulin, & Rosenbaum, 2010).

2. Method

2.1. Participants

Adolescents 12–20 years of age with CP were recruited to a study on determinants of quality of life and leisure participation (QUALA study). Participants were recruited from two pediatric hospital CP or neurology clinics, several pediatric rehabilitation centers and local community programs in the province of Quebec. Participants represented all Gross Motor Function Classification System (GMFCS; Palisano, Rosenbaum, Bartlett, & Livingston, 2008) and Manual Ability Classification System (MACS; Eliasson, Krumlinde-Sundholm, & Rösblad, 2006) levels of functioning with distributions comparable to population-based samples in Quebec (Shevell, Dagenais, & Hall, 2009). There was a broad representation of socioeconomic status in our sample. The diagnosis of CP was confirmed by formal examination by a pediatric neurologist. This study was approved by the hospital's Institutional Review Board, and was also reviewed and approved by local ethics committees of each of the rehabilitation centers. A parent provided consent, and when feasible, the adolescent provided written assent.

2.2. Primary outcome measure

Mastery motivation was measured using the Dimensions of Mastery Questionnaire (Morgan, Leech, Barrett, Busch-Rossnagel, & Harmon, 2010). This self-completed questionnaire contains 45 items that are rated on a 5-point Likert scale (e.g. 'not at all typical' to 'very typical'). This measure captures two domains of mastery motivation: (1) instrumental attributes which refer to the level of persistence that the child demonstrates in performing challenging tasks, and (2) expressive attributes, which refer to the emotional characteristics of mastery motivation. Subscales within the instrumental dimension include level of persistence in (a) object-oriented tasks (cognitive, problem-solving), (b) social activities with adults, (c) social interactions with peers and (d) gross motor tasks. Within the expressive domain, subscales include mastery pleasure (positive emotion) and negative reaction to failure (negative emotion). This instrument has good reliability (0.68–0.89, median 0.84) and discriminant and concurrent validity is supported. The measure is appropriate for children 6–19 years of age. A parent or proxy completed the proxy version of the DMQ, and when feasible (dependent on the cognitive and language ability), the adolescent completed the self-report version. Higher scores on the DMQ reflect greater (a) persistence in the face of challenge (instrumental subscales, different activity types) or greater (b) emotional experiences and expressiveness related to mastery (greater mastery pleasure, greater negative reaction to failure).