Motor progress facilitating socio-psychological adaption model for preschoolers with musculoskeletal disorders and their families

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Abstract

Objective of the study was to test and analyze benefits of a new motor-progress-facilitating socio-psychological adaption model for the musculoskeletal-disorders-diagnosed preschoolers and their families.

Methods and structure of the study. We sampled for the motor-progress-facilitating socio-psychological adaption model testing experiment the musculoskeletal-disorders-diagnosed children and their family members (n=122+122). Progress of the sample was tested by seven survey methods, including two questionnaire surveys of our own design to rate the motor progress and self-serving skills. The experimental model was designed to advance the family socio-psychological adaption by three adaptive physical education courses for the children with the family counseling on every issue of the musculoskeletal-disorders-diagnosed child upbringing and training.

Results and conclusion. The motor-progress-facilitating socio-psychological adaption model was tested to improve the family socio-psychological adaption resource, with the group motor skills tested to grow by 2.19 points and self-serving skills to 9.65 points on average. The model with the test data and analyses is recommended for application by the adaptive physical education specialist community in the preschool education, rehabilitation and other relevant establishments.

Keywords: *children with musculoskeletal disorders, motor skills, self-serving skills, socio-psychological adaption.*

Background. Musculoskeletal-disorders-diagnosed children may be defined as the clinically, psychologically and didactically polymorphic group since the disorders may be due to a wide range of ailments and conditions including cerebral palsy, polio, clubfoot, torticollis, congenital dislocation of the hip and other deformities of the feet, plus spine/ vertebral disc/ limb/ fingers developmental malformations, arthrogryposis, injuries, polyarthritis, etc. [2]. It should be emphasized that the clinical pictures of these diseases/ disorders are rooted in some motor defect with the snowballing malformations and motor functionality regresses up to disability in some cases. In particularly severe cases of musculoskeletal disorders, the child may be fully unable to walk and serve oneself [2].

Objective of the study was to test and analyze benefits of a new motor-progress-facilitating socio-psychological adaption model for the musculoskeletal-disorders-diagnosed preschoolers and their families.

Methods and structure of the study. We used, for the purposes of the study, the N.P. Fetiskin Self-development Agenda Realization Probe [8]; S. Maddi Resiliance Test adapted by D.A. Leontiev [3]; K. Shriner Stress Test [1]; N.N. Melnikova Adaptive Behavioral Strategies survey [4]; A.Y. Varga and V.V. Stolin Parental Attitude test [5]; Motor Skills Formation Progress test [7]; and the Self-serving Skills Rating matrix [6]. The tests were run at “Nadezhda” Club in Yekaterinburg city.

We sampled for the motor-progress-facilitating socio-psychological adaption model testing experiment the 3-7-year-old musculoskeletal-disorders-diagnosed children (n=122) from kindergartens plus their unemployed family members (n=122, 116 mothers and 6 fathers). The sample was split up into Experimental Group (EG, n=62) and Control Group (CG, n=60). Children in the both groups were pretested with

preserved intelligence and minor-to-moderate motor disorders. Moderate motor disorders imply violations of muscle tone, developmental asymmetry, limited self-serving skills, and (not necessarily) hyperkinetic movements. Unassisted walking is normally at formation stage, with the children moving only with walkers or canes and/or holding an adult's hand, although standing on their own; with heavy retardations in the self-service skills.

The study included pre-experimental, progress and post-experimental tests. The pre-experimental motor skills were tested mostly medium and low in 60 and 44 children, respectively; high in 18 children; and 51 children were tested with basic self-serving skills.

Test data correlation analysis found a direct correlation of the children's skills with their parents' personal resource elements as follows: Behavioral Strategies with motor skills (R=0.185, p=0.041) and Self-serving Skills (R=0.235, p=0.008). The parent's behavioral strategies were found directly correlated with their children's motor skills and self-serving skills in the following elements: Environment Changing Activity with the children's motor skills (R=0.371), and Active Self-improvement with the self-serving skills (R=0.189; p=0.036); plus an inverse correlations between the parents' Environment Leaving to Find a New One behavioral strategy with the self-serving skills (R=-0.219, p=0.015); and Abstract from the Environment to Immerse in the Inner World behavioral strategy with the motor skills (R=-0.365, p=0.000).

Note that the tests found around half of the parents prone to the infantile behavioral strategy – apparently in in response to the child's health issues. This may be the key reason for the direct correlation between the Passive Self-presentation behavioral strategy and the child's motor skills (R= 0.371, p = 0.000). Generally the higher is the child's motor progress the higher is the parental self-presentation and self-assertion standing. On the whole, 94.3% of the parents were tested prone to this strategy.

The Passive Submission to Environment behavioral strategy was found inversely correlated with the child's motor skills (R=-0.306, p= 0.000) – that means that the lower is the parent's dependence on environment the higher is the child's motor progress. This strategy may be interpreted as the avoidance of any unpleasant environmental influences [4], and it was tested in every parent regardless of the motor skills and self-serving skills rates, although was the lowest in the parents (n=40) of the children tested with low-to-moderate motor skills.

In the new model testing experiment, we strived to improve the family socio-psychological adaption by special trainings to make the families fit for efficient adaptive physical education service to their children, with counseling on every issue of upbringing and training of the musculoskeletal-disorders-diagnosed children to facilitate their motor progress. Parents were also trained to monitor variations in motor skills to effectively manage the individual motor progress programs by the adaptive physical education toolkit.

Results and discussion. The EG test data correlation analysis found progress in the parents' behavioral strategy of facilitating effects on the children's self-serving skills. As a result, the children were tested with progress in motor and self-serving skills due to the active contributions of the families in their upbringing and education process. The tests found motor skills progress in every test including lower/ upper limbs control; walking; spatial control test rates; hygienic habits; eating and dressing; and movement coordination abilities: see Table 1 hereunder.

On the whole, the new motor-progress-facilitating socio-psychological adaption model for the musculoskeletal-disorders-diagnosed preschoolers and their families was found to encourage positive transformations in the family personality resource with improvements in the child-parent relations, socio-psychological adaption, and the children's motor and self-serving skills.

Table 1. *Post-experimental test data correlations between the parent's behavioral strategy and child's motor progress in the EG, p≤0,05 / R (Spearman 's ratio), significant progress*

Behavioral strategies	Motor skills		Self-serving skills	
	R	p	R	p
Self-improvement	0,037	0,771	***0,293***	***0,020***
Abstraction from environment	-0,053	0,681	***-0,305***	***0,015***
Immersion in the own self	-0,177	0,167	***-0,251***	***0,048***
Passive submission	-0,228	0,074	***-0,380***	***0,002***
Passive wait	-0,144	0,261	***-0,374***	***0,002***

Conclusion. The new motor-progress-facilitating socio-psychological adaption model for the musculoskeletal-disorders-diagnosed preschoolers and their families was found beneficial for the children's motor progress due to the effective psychological and training service to their families; motor-progress-facilitating counseling and adaptive physical education basics training course for the families; step-by-step individual motor progress instructions and other elements that contributed to the children's motor progress. Tests in the model piloting experiment found the EG motor skills growing by 2.19 points and self-serving skills growing to 9.65 points on average. The family socio-psychological adaption was tested to grow to high level in 49 (79%) of the EG families.

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