The Perceived Efficacy and Goal Setting System (PEGS) : Validation and Application for the Children with Developmental Coordination Disorder in Hong Kong

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Background

- Children with Developmental Coordination Disorder (DCD) lack the motor coordination necessary to perform tasks that are considered to be appropriate for their age and intellectual ability, with the absence of other neurological disorders (American Psychiatric Association, 2000).

- A child with DCD may demonstrate significant difficulty with:
  1. Self-care tasks.
  2. Academic tasks.
  3. Leisure activities.
Its prevalence has been estimated to be 6% in the age range of 5-11 years (American Psychiatric Association, 2000).

Studies had shown that most of the DCD children were able to learn the cognitive strategies e.g. verbal self guidance (VSG).

And to use them in learning a variety of functional motor skills that had been identified as difficult for them (i.e. throwing a ball, writing) (Martini, 1994; Wilcox, 1994).

One of the prerequisites for the approach is that the child is required to identify occupational goals for himself/herself in order to get the maximum benefit from the training (Polataijko, Mandich, Missiuna, et al. 2001).
Need for Self Perception Test

Studies have shown that children’s active participation in the process of establishing goals for therapy will lead to:

1. Increase in goal commitment.
2. Improve in outcome of intervention.
3. Improve in perceived competence.
4. Foster the setting of new goals.
   (Beery & West, 1993).

In order to get the child involved, self-perception test is needed to help him/her in identifying tasks that:

1. Are difficult for him/her.
2. He/she is motivated to improve.
Current Children Self-Perception Tests

Limitations for young children:

1. Rely heavily on the child’s ability to read and to respond in writing.

2. Include items that address other constructs e.g. cognitive competence, social & maternal acceptance (Missiuna, Pollock, Law, et al, 2006).

3. Binomial scales that limiting them to discriminate across children.

- The Perceived Efficacy and Goal Setting System (PEGS) (Missiuna, Pollock & Law, 2004) was developed with reference to the above drawback.

- The original PEGS was an English version that has not yet translated into Chinese.

- Its content was not culturally adapted for local application.
The Perceived Efficacy and Goal Setting System (PEGS)

- A pictorial scale validated as a method to assess:
  1. Children with disabilities of 6-9 years old.
  2. On their perception of own competence in performing daily activities.
  3. To identify goals for therapy.

- Main Components:
  1. PEGS Cards
  2. Child Score Sheet
  3. Parent Questionnaire
  4. Teacher Questionnaire
The Perceived Efficacy and Goal Setting System (PEGS)

- The first 24 pairs of cards that depict children engaged in the following activities were used for this study:
  1. Self-care (5)
  2. School/productivity (9)
  3. Leisure activities (10)

- Each pair of cards showed a child who was more competent in the activity and the other one was less competent.
The Perceived Efficacy and Goal Setting System (PEGS)

- The child was asked to select the card that was more like him or her.
- He/she was then asked if he or she was ‘a lot’ or ‘a little’ like that child.
- It was an ordinal scale with score from 1 to 4 for each item.
- Score of 1 represented the least competent and a score of 4 represented the most competent whilst 2 and 3 were in between.
- After the child reviewed the cards, therapist will work on identifying child’s goals for therapy in collaboration with the parent and teacher.
- The whole process took about 20 minutes to complete.
Aims of Study

The aims of the project were to study the validity and reliability of the Chinese version of Perceived Efficacy and Goal Setting System (PEGS) for the 6-9 years old children with developmental coordination disorder (DCD) and compare its perceptual difference with the normal children in Hong Kong.
Objectives of the Study

1. To translate the original PEGS into Chinese version.

2. To examine the linguistic and content validity of the Chinese PEGS.

3. To study the discriminating ability of the Chinese PEGS for the DCD and normal children in HK.

4. To evaluate the internal consistency and test-retest reliability of the Chinese PEGS.
Study Samples

- 2 groups of children were involved in the study:

1. The DCD group - Consisted of 26 children of age 6 to 9 years diagnosed to have DCD in the Child Assessment Service.

2. The normal group - Consisted of 26 mainstream primary children of age 6 to 9 years in Hong Kong.
Translation

1. The descriptive statements of the complete set of sixty PEGS cards,

2. The alternative wording suggestions for PEGS cards in the manual were translated into Cantonese.
Translation

1. The Child Score Sheet

2. The Caregiver Questionnaire

were translated into Chinese.
Discriminating Ability of the Chinese PEGS

- There were significant differences in total mean PEGS scores (caregiver: 55.96 vs 79.31, child: 65.96 vs 79.15) and mean sub-categories scores between the DCD group and normal group for the children and caregivers.

- The results matched with the findings in Canada for the scale “All About Me”, the predecessor of PEGS. (mean scores for child: 64.50 vs 85.29)

- These findings suggest that the Chinese PEGS is a valid measure to distinguish between children with and without motor impairments.

- It was also found that the differences in Caregivers were more significant than the children.
Reliability of the Chinese PEGS

- Item 4 “playing video games” was found to have low item-total correlation from both the caregivers and children’s perspectives in the DCD group.

- That might imply that children with DCD were not necessary to have trouble with playing with video games.

- Clinically, we found some children with DCD were actually good at playing video games with the computer.

- Probably it might be due to the motor demand for playing video games was not advance enough to cause impairment for the DCD children.
Reliability of the Chinese PEGS

**Internal consistency:**

- Item 10 on “trying new playground activities”, we got negative item-total correlation for the children in the DCD group.

- That might be related to our DCD sample as we had 38.5% of the children functioned at disorder range in fine motor and at a milder problem range in gross motor.

- Another possible reason was that, part of the children with DCD **liked trying** new playground activities despite of their coordination problems.

- Further investigation was required in order to address to this question.
Internal Consistency:

- When we looked at the corrected item-total correlation for each item, majority of the items were lied in the fair to moderate range in the DCD group and caregivers of the normal group.

- However, it was found that there were almost half of the items (42%) were of low corrected total-item correlation ($r = -0.15 - 0.18$) for the children in the normal group.

- This showed that the Chinese PEGS was good for children with disabilities and might not be as good for the normal kids in Hong Kong.
Reliability Study of the Chinese PEGS

Internal Consistency:

- In the DCD group, optimal internal consistency were found in the Chinese PEGS for both caregivers (r = 0.85) and children (r = 0.87).

- The Cronbach’s alpha reliability coefficient for the total measure in “All About Me“ was 0.91, which again matched with the present findings.

- These suggested that the items were good at assessing different aspects of children’s daily functions without redundancy.

- In the normal group, acceptable internal consistency were found for the caregivers (r = 0.79) and children (r = 0.75), but were lower as compared with the DCD group.

- The fact is the Chinese PEGS was designed for the children with disabilities such as DCD, developmental delay, physical impairment or attention deficit disorder and not for normal children.
Clinical Implication

- As the PEGS was being translated into Chinese, its validity and reliability were being established in this study, clinical use of it is recommended.

- It is simple and quick that takes about 20 minutes to complete.

- The discriminating ability of the test indicated that it is a useful tool in distinguishing children with and without disabilities.

- The total PEGS scores can be used as an outcome measure for intervention during our clinical practice.

- With the diversity of problems in children with DCD, the Chinese PEGS is also useful in setting priority for the goals for therapy.
References


References

