Evaluation of Perspectives of Life Quality of Children with Developmental Coordination Disorder Compared with Typically Developing Peers

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ABSTRACT
Rehabilitating the children and moving them away from impairment and focusing them towards changing body’s function and structuring the body will change the disablement and enhance the quality of life. Life’s quality is not a single component to attain and aim for, it is a multidimensional measure which aims to capture the subjective perception of well being for the child. The current study examines child and parents perspectives of life quality in children with and without developmental coordination disorder. Data was collected using KIDSCREEN-27. For child with DCD in group A total of 10 children and 10 parents were included and in control group in Group B, a total of 12 children and 10 parents were examined. Life quality dimensions were examined in 5 domains and children with DCD lies in an average range on all life quality domains and dimensions examined. On comparing parents and children with DCD, Children had higher score in physical impairment domain and parents considered that environmental steerers and personal habits negatively impact the child’s life quality. Children with DCD had poor life quality when compared with Peer group children.

INTRODUCTION
Rehabilitating the children and moving them away from impairment and focusing them towards changing body’s function and structuring the body will change the disablement and enhance the quality of life. This shift is in relation with ICF-CY- international classification of functioning for children and youth, which gives a detailed understanding of multiple process of disablement. Disability is the result of interaction between child’s impairment and environmental barriers. Previous researchers have identified that children’s wellbeing is affected by their engagement in specific activity they prefer (American Psychiatric Association, 1994).

Enhancing child’s wellbeing is the primary goal for majority of therapist worldwide. Life’s quality is not a single component to attain and aim for, it is a multidimensional measure which aims to capture the subjective perception of well being for the child. The factors that enhance and constrain the child’s participation in physical activity will be related to the state of health, educational state of parents or caregivers, standard of living, guidance from the parents. These factors need understanding to enhance the child’s life quality (Ganapathy Sankar and Monisha, 2018).

All these factors and life quality is always a subjective phenomenon to be assessed using the self reported measures. The current research used a generic life quality measure KIDSCREEN. It helps in evaluating the situations positively or negatively and identifies how it influences child life qual-
ity (GanapathySankar and Monisha, 2019c). When assessing a child with developmental coordination disorder, there is a reported poor life quality when compared with typically developing children. Many researchers have analyzed the quality of life in children with cerebral palsy, only few researchers have identified life quality among children with other neuromuscular disorders. For children with DCD, quantitative studies conclude the type of motor intervention protocol benefits the children with motor coordination difficulty (GanapathySankar and Monisha, 2019c). Children with DCD have gait impairment, when examined in detail, they found to have problems with walking with bilateral hand swing. Dr.U.Ganapathy Sankar elaborates that walking from place to place without tripping or falling over is an essential skill needed in everyday life. When gait pattern is evaluated in detail, they found to have difficulty in walking, when certain new object has been interfered in their walking space in a familiar environment (Goulardins et al., 2015). They reported to have frequent sway, stumbling and hitting to objects in the pathway. It is noteworthy that, these researches on Indian children with DCD highlighted the gait deviations and postural instability and the correlates of sensory and visual perceptual skill.

When the child with DCD experiences difficulty in walking have poor physical well being and these children experiences pain over joints and numbness all over the body and they experience poor life quality when compared to the typically developing peer groups. There is much debate on how the children with DCD experiences pain over joints, whether it is related to psychological impact or it can be related to poor life quality? Many studies are needed in this area to conclude the debates (Cantell et al., 2008). This study is a part of the project that involves development and validation of gold standard assessment tool for Tamilnadu children with developmental coordination disorder. The current objective of this study are assessment of life quality of children with DCD as self evaluated by the children themselves and their parents and the study also aims to compare the life quality of children with DCD with typically developing children in Tamilnadu.

MATERIALS AND METHODS

Participants were selected from the counselling center and therapy centers in Kancheepuram, where the records of the children with impairments were stored in the data base. Eligible children were found to have IQ greater than 80 and age group lies between 5-10 years at the time of the study. The criterion of selection includes children with DCD, who can respond to the questionnaire read by the primary researcher. Totally 20 children and their parents participated in the study. Parents as well as children answered the questionnaire and they denoted the life quality in relation to the multiple domains. Children as well as parents reported the poor life quality experienced by children with DCD. Table 1 shows the characteristics of children included in the study.

Data was collected using KIDSCREEN-27. This is a self reported measure used to assess the multi dimensional concept of life quality. The measure assesses 27 domains containing 5 life quality domains: physical wellbeing, relation and anatomy of parent, support from peer groups, environmental influences and psychological well being. Each domain is rated using Likert response scale, which contain scoring 1 to 5. Child with DCD answered the self reported questionnaire with correct responses ranging from not at all, extremely, never, always. Answers provided by each child with DCD is recorded and audio taped. The child had a choice to listen to the pre-recorded questions. Before questioning parents and children, they should be instructed to answer how they felt last few weeks. They have to recall and answer each domain.

Comparative study design is used and it is a cross-sectional study. At the baseline, introductory letters were mailed to all the therapy centers for the enrollment of children and parents of children with DCD. Current study employed filling the questionnaire electrically, during the baseline emails which contains introductory letter, along with that a link will be provided for filling up the questionnaire. After week duration of time, all participants were interview using the phone calls. This telephonic interview will add more details regarding the nature of the child life quality. Mailing the participants contains online agreement form which is considered as consent for participation in the study. The child is participated in the study after filling the consent approval online. The brief description of the study and the advantages of conducting the study were elaborated in the letter. It is assured in the mails that no personal identity is disclosed in the electronic mail and in any other data base; their personal information will not be stored. The primary researcher is experienced in treating children with DCD. The study was approved by SRM College of Occupational Therapy, SRM Institute of Science and Technology.
### Table 1: Characteristics of the participating children and parents in group A and B

| Characteristics                  | Children DCD-Self Report | Parents of Children Self Report | Typically Developing Children Self Report | Parents Report Group B |
|----------------------------------|--------------------------|---------------------------------|-------------------------------------------|------------------------|
| Gender                           |                          |                                 |                                           |                        |
| Boy                              | 6                        | 6                               | 3                                         | 3                      |
| Girl                             | 4                        | 4                               | 7                                         | 7                      |
| Age Range                        | 5-10                     | 30-40                           | 5-10                                      | 30-40                  |
| Type of Impairment               | DCD                      | DCD                             | -                                         | -                      |
| Residence                        |                          |                                 |                                           |                        |
| Urban                            | 5                        | 5                               | 5                                         | 5                      |
| Rural                            | 5                        | 5                               | 5                                         | 5                      |
| Type of School Setting           |                          |                                 |                                           |                        |
| -Special Education Class         |                          |                                 |                                           |                        |
| Primary Schools                  | 6                        | 6                               | 4                                         | 4                      |
|                                 |                          |                                 |                                           |                        |

### Table 2: Comparison of children and parents ratings: t-test in Group A

| Characteristics                  | Children Self Report (Mean) | Parent Report (Mean) | T       | P     |
|----------------------------------|-----------------------------|----------------------|---------|-------|
| Physical well being              | 42.09                       | 32.67                | 3.321   | 0.001 |
| Psychological state              | 50.09                       | 40.87                | 3.761   | 0.001 |
| Parent relations                 | 55.09                       | 52.76                | 2.987   | 0.222 |
| Peer support and social interaction | 50.12                     | 45.23                | 2.098   | 0.023 |
| School environment               | 51.87                       | 45.34                | 2.088   | 1.865 |

### Table 3: Comparison of children and parents ratings: t-test in Group B

| Characteristics                  | Children Self-report (Mean) | Parent report (Mean) | T       | P     |
|----------------------------------|-----------------------------|----------------------|---------|-------|
| Physical well being              | 54.55                       | 50.76                | 4.323   | 0.001 |
| Psychological state              | 52.34                       | 50.56                | 4.123   | 0.001 |
| Parent relations                 | 51.23                       | 50.36                | 1.234   | 0.001 |
| Peer support and social interaction | 50.13                     | 49.23                | 1.387   | 0.123 |
| School environment               | 52.09                       | 51.87                | 1.654   | 0.098 |
RESULTS AND DISCUSSION

Data was analyzed using SPSS. Raw score obtained in KIDSCREEN-27 was converted into rasch score and then into T-Value. Classifying life quality as within average range or below average range was set. Independent sample t-test was used to compare the mean value between group A and B.

Tables 2 and 3 provides t test value, when comparing Group A and B in self reported life quality scales. When physical well being domain is examined the child’s mean score is less than average value and t test showed significant difference (t=3.200, p<0.001). When parents of children with DCD is evaluated, it has been proved that life quality is poor in two domains, physical well being and in psychological wellbeing (50.76, 50.56, p<0.001). Children with typical development scored high on all domains on life quality.

The current study adds knowledge that children with DCD were very conscious regarding their impairment in motor coordination difficulties and trouble with performing every activity of daily living skills. They were positive in considering the life quality by self analysis. In KIDSCREEN-27 the children were allowed to evaluate their self perception of life quality by electronic means in five domains. The results revealed that overall negative experience and no fulfillment in life. They experience social isolation in peer group interaction and lack of motivation to engage in physical activity from parents or caregivers and experience emotional crisis. Overall negative emotion and zero satisfaction towards life were reported by majority of children with DCD. When school environment is considered, children with DCD have negative impact (Cairney et al., 2006).

When a parent of children with DCD is examined in detail, it has been proved that, parents were less positive towards their child’s life quality mainly in psychological wellbeing. They evaluated the life quality of their child with DCD below average in two domains, physical wellbeing and psychological wellbeing. Thus it is proved that every parent is concerned regarding their child’s psychiatric and emotional wellbeing.

When comparing the scoring done by parents of children with DCD with children with DCD, it has been concluded that self reported scoring of children is high than parents rating regarding their children in four domains of life quality, that includes physical wellbeing, psychological wellbeing, peer support and school environment (Ganapathy Sankar and Monisha, 2019a; Sumner et al., 2016).

study goes in relation with the study done by Linda Bjork Olafsdottir et al., 2018, she concluded that children with impairment exhibits low scores among life quality domains.

It has been concluded that any children who exhibits developmental coordination disorder with impairment in physical and psychological well being needs almost attention by therapist. When children with DCD reported to face diminished life quality, there is an assumption that whether there is any cultural or environmental influence plays a role? Future studies are warranted to elaborate on the same and conclude with evidence the idea which is under debate. Many therapists spend their maximum time and attention over the child’s body function and structure (Ganapathy Sankar and Monisha, 2019b,d). There is a need to address social norms of wholeness of a child. The current study had limitation that only few children were enrolled into the study and the sample selected for comparison is population based.

CONCLUSIONS

This study adds evidence and delivers understanding of life quality among children with developmental coordination disorder. Further research is needed to examine the key factors to assess and address in life quality among children with and without DCD.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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