



**International Journal of Biology, Pharmacy
and Allied Sciences (IJBPAS)**

'A Bridge Between Laboratory and Reader'

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**EFFECTIVENESS OF DANCE MOVEMENT THERAPY ON A PATIENT
OF DOWN'S SYNDROME TO IMPROVE COGNITIVE ABILITIES,
COMMUNICATION AND QUALITY OF LIFE: A CASE REPORT**

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Received 15th June 2021; Revised 10th July 2021; Accepted 24th Aug. 2021; Available online 25th Jan. 2022

<https://doi.org/10.31032/ijbpas/2022/11.1.2038>

ABSTRACT

Background: Down syndrome is the most common chromosome abnormality in humans. It is typically associated with physical growth delays, characteristic facial features, and mild to moderate intellectual disability. Many studies provided effectiveness of Dance movement therapy in Pediatric conditions like autism, and other behavioral and emotional problems and other mental health related problems. It is used as a psychotherapeutic or a healing tool, focusing on understanding and expressing one's emotions.

Aim: The aim of this study is to find out the efficacy of Dance Movement Therapy on a Down's syndrome patient along with other therapeutic exercises for improving cognitive abilities, communication and quality of life. So here the effectiveness of Dance movement therapy on a Down's syndrome patient will be seen.

Outcome: Cognitive Scale for Down's syndrome (CS-DS), Pediatric Quality Of Life Inventory (PedsQL) & Social Communication Questionnaire (SCQ) are taken pre and post intervention and analysed.

Result: Pre-Intervention Cognitive Scale (CS-DS) score was 67, PedsQL score was 61 and SCQ score was 24. Post- Intervention Cognitive Scale (CS-DS) score was 83, PedsQL score was 72 and SCQ score was 33.

Conclusion: The finding at the end of this study is, the Dance Movement Therapy along with other therapeutic exercise is effective for improving cognitive abilities, communication and quality of life in a case of Down's syndrome. And clinically the Dance Movement therapy can be implicated for the treatment in case of Down Syndrome.

Keywords: Down's syndrome, Dance movement therapy, Cognitive abilities, Cognitive Scale for Down's syndrome (CS-DS), Pediatric Quality Of Life Inventory (PedsQL) & Social Communication Questionnaire (SCQ)

INTRODUCTION:

Down syndrome (DS) is the most common chromosomal abnormality. The estimated global incidence of this chromosomopathy is around 0.1% in live births. It is characterized by a variable degree of intellectual disability (ID), some effects on health and development, and peculiar physical features.(1)

It was first described by Edwar Seguin and later by John Langdon Haydon Down between 1846 and 1866. The condition is characterized by moderate to severe mental impairment.(2)

A wide range of co-morbidities can be present in these people, affecting the respiratory, cardiovascular, sensory, gastrointestinal, hematological, immunological, endocrine, musculoskeletal, renal and genitourinary systems, as well as at the neurological level.

Other genetic variation includes translocations in which chromosome 21 has attached to another chromosome, such as number 14, and mosaics in which the person has two cell lines, one normal and other with 47 chromosomes, also called Down syndrome or mongolism (an old term).(3)

The improvement in the survival rate can be attributed to factors such as the advancement of medicine in general. Advances in detection and prenatal diagnosis have enabled early intervention and adequate health care, as well as changes in attitude in society towards the normalization of the lives of people with DS.

Within the multidisciplinary team is the figure of the physiotherapist, who begins to intervene in the first days of life. Physical therapy (PT) starts from the movement as the basis of the whole development process,

without separating it from the sensory and psychic aspects. As previously stated in the literature, DS is related to several medical complications, such as congenital heart diseases, type 1 diabetes mellitus, obesity, hypotonia or osteoarthritis. In that way, the co-morbidities derived from these conditions can be improved with specific physical activity program.

Cognition deals with the understanding of a person. It deals with the abilities, skills or processes that are part of every human action. Cognitive abilities are skills based on the use of brain. The cognitive abilities deal with learning and understanding rather than with actual knowledge these are the abilities which allow perception.(3)

Cognitive deficit is a term that describes defects in intellectual functioning (e.g., mental retardation). Sometimes it may be used to describe specific defects of cognitive abilities (e.g., certain learning disabilities such as dyslexia).

Speech production in Down syndrome is associated with significant impairments in spoken language. Speech problems in individuals with DS may be related to peripheral factors such as anatomic differences in the vocal tract, impaired hearing acuity during recurrent otitis media, and impaired motor function (dysarthria

and/or apraxia) or to central factors such as language and cognitive dysfunctions.(4)

The World Health Organization (WHO) defines “quality of life” as the perception that individuals have of their position in life within their cultural and value systems, their objectives, expectations and concerns.

There are various forms of therapies for children with disabilities, including physical therapy, speech therapy, and alternative therapies such as music and dance therapy. Movement-based therapy is an effective form of therapy, primarily due to its sensori-motor integration. For children with Down syndrome, movement-based therapy is beneficial.(5)

Physical activity and physical therapy are both beneficial and successful for individuals with Down syndrome. However, they only address the mechanical needs of individuals and can become a very tedious experience. This is because physical therapy is often administered one-on-one as a continuous series of exercises and children, in particular, may become bored and neglect these exercises entirely.

There is a consistent lack of motivation, lack of interest, and decreased levels of social participation identified in physical activity for individuals with Down syndrome. Dance as a performing act is valued as a means of

self-expression and as an important way of exploring individuality across all cultures (Dunphy & Scott, 2003). It gives individuals the opportunity to increase their physical activity and social participation levels.

Hence, the objective of study to find the effectiveness of dance movement therapy on a patient of down's syndrome to improve cognitive abilities, communication and quality of life.

CASE REPORT

Here reported case is of 12 years old male suffering from Down syndrome. Patient is obese with weight of 78 kg. He has problem in communication, cognitive abilities and quality of life. Prior consent was taken from patient's parents. Total study duration was 8 weeks. First 3 weeks- 1hr / session, 3 sessions/ week, following 5 weeks – 1.5 hr/ session, 2 sessions/ week was given. Pre and Post measurement of outcome were done, which includes Cognitive Scale for Down's syndrome (CS-DS), Pediatric Quality of Life Inventory (PedsQL), Social Communication Questionnaire (SCQ).

Treatment protocol (Fig-1)

Warm-Up (10 min): Activities included in this phase are Chace-Circle, a circle formation where the therapist gives some elements to participant and asks the patient to throw or try them out.

Dyadic movement part (about 20 min): A dyad consisted of either two participants or one therapist/assistant and one participant. First, participant was asked to lead, the other followed; then upon the second song the partner was asked to lead and the participant followed; and upon the third song both were asked to move freely but to always stay in contact with each other.

Baum-circle (about 20 min): Next, participant and partner/therapist came back together in a circle. The movement part then continued with a "Baum-circle". For this part of the session, participant was encouraged to bring a piece of their own music, which was meaningful to him. **Verbal processing part**

(about 10 min): Finally, participant was asked to sit and reflect on the session, moderated by the therapist. In this context, the participant can verbally express their feelings and their opinion regarding the session in his/her words.



Fig-1: Dance Movement Therapy

DISCUSSION:

Dance has been used for healing purposes since ancient times. Although the studies on dance movement therapy (DMT) and neurological impairments are limited, dance has been found to be effective in enhancing the motor functions of individuals who have Parkinson Disease (PD) and Multiple Sclerosis (MS).(6)

Dance movement therapy would provide an increase in the mechanical and qualitative aspects of physical function. The quantitative results indicated that dance movement did influence walking gait for the children with Cerebral Palsy (CP).

There are various forms of therapies for children with disabilities, including physical therapy, speech therapy, and alternative therapies such as music and dance therapy. The format of the session would be as follows: warm-up, concept, repetition of skills, improvisation, and cool-down. Repetition and patterning of language and movement is important in the presentation of concepts and skills.(5)

Short-term and long-term repetitions are both beneficial because they help to develop skills. Concepts could include skipping, jumping, catching, throwing, body-half movement, or core-distal movement. Each week, a new concept can be introduced. This

way, by the end of the program, the children will have accumulated new skills that they can apply to their daily life.

The results of previously published research and literature found improvement in social skill scores of children in dance movement therapy group shows statistically significant.

CONCLUSION: The finding at the end of this study is, the Dance Movement Therapy along with other therapeutic exercise is effective for improving cognitive abilities, communication and quality of life in a case of Down's syndrome. And clinically the Dance Movement therapy can be implicated for the treatment in case of Down Syndrome.

CONFLICT OF INTEREST: There was no conflict of interest at personal or institutional level.

FUNDING: Not required.

ETHICAL CLEARANCE: Informed written signed consent was taken from patient.

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