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Editorial

AIOTA's Fellowship in Neurodevelopmental Disorders and OTICON'2018-Nagpur

Anil K Srivastava[1,2,3,4]

AIOTA's "Fellowship in Advanced OT in Neurodevelopmental Disorders - India: 2017" with moral support from National Trust, Ministry of Social Justice and Empowerment, Government of India, will begin from September 18, 2017. This innovative academic activity of 9-month duration will be completed on June 17, 2018. The fellowship is designed to provide an opportunity to postgraduate occupational therapies (OT's) working in pediatric setup to further learn the subject through didactic and web-based learning to strengthen their clinical base with advanced techniques and treatment methods based on the latest evidence. Most reputed and highly qualified and experienced faculties from the field of pediatric OT from India and overseas are included for in campus and online deliberations and workshops during this academic program. The participants will gain knowledge to choose, administer, and interpret appropriate comprehensive assessment, to implement advanced modalities for the management of neurodevelopmental dysfunctions, besides empowering the caregivers.

It is for the first time in India for the profession of OT that a fellowship of long duration has been planned by AIOTA. Full seats in the fellowship program speak of its wide acceptability by the professionals which have encouraged us to further continue and also plan it for other speciality areas in the coming years.

Dean ACOT Dr. Jyothika Bijlani, Fellowship Co-ordinators Dr. Shriharsh J (Mumbai), and Dr. Lakshmanan (Bengaluru) have done exhaustive groundwork of about 1 year to come up with the format of international standards for this event. The fellowship in advanced OT program would not have been incepted without the valuable contribution and cooperation from AIOTA/ ACOT EC's. I sincerely congratulates Academic Council of OT and the entire organizing team, for taking up this huge responsibility of historical significance for AIOTA. Congratulations to all 20 participants registered and convey my best wishes to them for the successful completion of the fellowship program.

OTICON'2018: The 55th Annual National Conference of AIOTA is being organized by OT School and Center, Nagpur, in collaboration with Nagpur Branch of AIOTA from February 16-18, 2018 at Suresh Bhatt Auditorium, Reshimbagh Ground, Nagpur. OT School and Center of Government Medical College, Nagpur, is completing its 60th year of its beginning. Therefore, the long-awaited occasion is the Diamond Jubilee of the OT program. It is also information of historical significance that Nagpur happens to be the first OT education program of India to start bachelor degree in OT in 1963. The occasion is great, and hence, the celebration will be enriched with zeal and enthusiasm of the faculty, students, and the alumni.

Annual national conferences of AIOTA are primarily focused to promote research culture in India. The conferences carry a "theme" to showcase research work from national as well as international participants, which provide an important channel for exchange of information between researchers. The theme of this conference is "OT – Independence, Empowerment, and Inclusion (Swawalamban, Sashaktikaran, and Samavesh)." Without disability, the OT profession would not exist. Occupational therapists believe that each one has a respectable place in the society including persons with disabilities. The theme signifies the significant contribution of OT in comprehensive rehabilitation of the challenged population of the country.

OTICON'2018 will also be remembered for a new trophy being introduced under the competitive category for the members of AIOTA. This trophy will be known as M.M. Sangoi Trophy to be awarded to the best scientific paper on the theme "Ergonomics, Environment, and Access." AIOTA Trophy for best scientific paper in Mental Health will also now be known as Vijay Suple Trophy for

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Mental Health. Organizing Secretary Dr. Sofia Azad Principal and Professor of OT School and Center, Government Medical College, Nagpur, and the organizing team are working day and night for making this event as a grand gala academic meet. Dr. Neeraj Mishra EC Member AIOTA is doing extensive work in preparing a well-knit scientific itinerary to turn this event into a great academic feast.

We are looking forward to welcome the faculties and students from each of the OT Educational institutions and delegates from all parts of India and WFOT Member Countries at Nagpur. I sincerely wish for a very successful conference at Nagpur.

The issue of IJOT carries 6 research studies and News and Information of professional significance that will be appreciated by occupational therapists at large.

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The Importance of Using Minimum Two Standardized Assessments as Initial Evaluation to Determine the Effective Treatment Plan

Shobana Devi Moorthy

Abstract

Aim: The aim of the study was to study the role of standardized assessments as initial evaluation carried out in occupational therapy to determine the treatment goals.

Methods: A retrospective analysis of sought management had been used in this study between October 2012 and November 2016. We included 295 children who fitted the study criteria, out of which 38 children had two standardized assessments (Winnie Dunn's short sensory profile and Beery visual-motor integration [VMI]), 209 had one standardized assessments and 48 had only nonstandardized assessment as part of their initial evaluation. The number of treatment programs set following the initial evaluation was assessed as the outcome and the group differences were examined. Analyzed score helps to determine the treatment plan focusing on movement, motor integrating, and sensory integrating specifically targeting the affected subtests. For example, if the score was "definite difference" in areas like "auditory filtering" or "sensory seeking" in short sensory profiles and also there is significant delay in Beery VMI test, treatment was planned more on movement, auditory-visual-vestibular triad, music-based therapy, astronaut training, etc.

Results: Children with two standardized assessments had the highest number of treatment-specific goals (P = 0.000, 95% confidence interval [CI] = 0.328-0.537) followed by one standardized assessment (P = 0.017, 95% CI = 0.034-0.240) and then by children with no standardized assessments (P = 0.331, 95% CI = −0.314-0.128). There is a significant difference in the number of treatment-specific goals set among the groups (P = 0.000, 95% CI = 0.591-0.722), indicating an effective and specific goal setting.

Conclusion: It is evident that using standardized assessments during initial evaluation helps occupational therapists to determine specific and effective treatment intervention plan. Using minimum of two standardized assessments during initial evaluation have more and focused treatment goals.

Key Words: Initial Evaluation, Occupational Therapy Assessment Tools, Occupational Therapy Practice in India, Short Sensory Profile, Standardized Assessments, Treatment Goals, Visual-Motor Integration

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Period of Study
From October, 2012 to November, 2016

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INTRODUCTION

The use of standardized assessment measures has the potential to affect all aspects of the profession of occupational therapy including practice, research, as well as academic and continuing professional education.[1] This study would like to focus on highlighting the importance of using standardized assessment tools as initial evaluation to determine the treatment goals and for further assessments. American Occupational Therapists practicing in pediatrics use standardized assessments to determine the eligibility of services, initial evaluation, and evaluation of progress.[2] Furthermore, a survey conducted with 40 service providers in an Ontario Children's Rehabilitation Center determined that 70% of therapists had used pediatric outcome measures in the previous 6 months. However, lack of time and lack of knowledge of measures and measurement properties were the most frequently cited barriers to their use.[3-5] Recent evidence from the United Kingdom and Australia to highlight that the routine use of standardized outcome measures in occupational therapy practice continues to remain low.[6] The principles of person-centered care in which goal-setting and decision-making are shared and are a fundamental principle of occupational therapy practice. There is no reported evidence related to the use of standardized outcome measures in occupational therapy practice in India.

An unpublished email survey to study the use of standardized outcome measures among occupational therapy practitioners in Tamil Nadu, India, had a poor response rate, where only one out of 53 practitioners had responded to the survey. Apart from this survey, there is no documented evidence in the literature, regarding the use of standardized assessments as part of initial evaluation in India, is currently available. Therefore, a study that further investigates the use of standardized assessments by occupational therapists that are not time-consuming but at the same time evaluates specific areas becomes relevant.

A retrospective analysis study was, therefore, performed for the following two key reasons; (1) to explore the importance of using standardized assessments as initial evaluation and (2) to study the number of treatment goals set followed by the standardized assessments and nonstandardized assessments.

Initial Evaluation

The first contact of therapist and child, where the therapist evaluates the child in a comprehensive and individualized manner is considered as initial evaluation in this study.

Standardized Assessment

A standardized assessment is a test that is administered and scored in a consistent, or "standard," manner. Standardized assessments are designed in such a way that the questions, conditions for administering, scoring procedures, and interpretations are consistent (Sylvan Learning Glossary) and are administered and scored in a predetermined, standard manner.[7]

Standardized assessments used in conjunction with clinical observation will provide the most complete information about a patient.[8] The standardized assessments are valued as indicators of professional status.[9] The use of standardized assessments in clinical practice has increased, but barriers to their use such as time, knowledge about measures, and the ability to select the most appropriate measures may have remained constant.[2]

Nonstandardized Assessments

Nonstandardized assessments such as initial interview, clinical observation, and clinical assessment on tasks (gross and fine motor coordination) are assessment look at an individual's performance and do not produce scores that allow the therapists to compare one's performance to another's. It allows obtaining specific information about the client, and this can be in different formats. Nonstandardized assessments are informal testing of a client's ability and functions. Using nonstandardized assessments may unfairly disadvantage some client groups when being assessed for services.[10]

METHODS

Retrospective analysis of data collected between October 2012 and November 2016 in a specific pediatric center located in Chennai. Participants who had an initial evaluation that lasted for not more than an hour were only included in the study and their data were appropriately and retrospectively gathered.

Inclusion Criteria

- Standardized assessments that can be completed within an hour.
- Nonstandardized assessments used on initial evaluation.

Participant Settings

This study was conducted in a Pediatric Therapy Centre located at Chennai, Tamil Nadu, India, where clients arrive as out-patients to avail the services of occupational therapy. Occupational therapy, speech therapy, and special education services are provided in this center. Children between 3 months and 16 years attend the clinic based on their needs; services are offered accordingly.

Procedure

The study was conducted adhering to the "Declaration of Helsinki" guidelines. Two experienced occupational therapists with more than 10 years of work experience (Expert 1 and Expert 2) were requested to rate the treatment goals that had been set on the initial evaluation for all 295 children's data using a rating scale (0-5) where 0 denotes "not accurate" and 5 denotes "very accurate." The goals have been divided into three categories: Sensory goals, motor goals, and other goals. Three parameters related to the goals were rated as follows:

1. Problems identified on the initial evaluation
2. Number of goals set following the initial evaluation and
3. Clarity in the goals set.

Data were analyzed using SPSS software. Spearman's rank order correlation was used to analyze the relationship between number of standardized assessments and outcome variables.

The administration of Winnie Dunn's short sensory profile take approximately 10-20 min as it is a caregiver questionnaire. It takes approximately 10-15 min to administer the "Beery visual-motor integration (VMI)" test. Hence, both the tests take less than an hour to be administered during the initial evaluation. Following the initial evaluation, the numbers of treatment programs set were compared. Table 1 shows the approximate number of treatment programs set for clients who were assessed using two standardized assessments. Table 2 shows the number of treatment programs set for clients who were assessed using nonstandardized assessments.

Winnie Dunn's Short Sensory Profile

The sensory profile provides a standard method for professionals to measure the sensory processing abilities of children 3-14 years old and to profile the effects of sensory processing on functional performance in the children's daily lives. The sensory profile is a judgment based questionnaire designed to contribute to a comprehensive assessment of a child's sensory performance when combined with other evaluations, observations, and reports. The sensory profile uses a sensory integrative and neuroscience frame of reference and supports a family-centered care philosophy by involving the caregivers in the data gathering process. The caregiver who has daily contact with the child completes the questionnaire by reporting the frequency with which behaviors described in the profile items occur. The therapist then scores the responses, and the team serving the child follows up on any relationship between sensory processing and performance difficulties.

Beery VMI

The developmental test of VMI (Beery VMI) is a developmental sequence of geometric forms to be copied with paper and pencil. The Beery VMI is designed to assess the extent to which individuals can integrate their visual and motor abilities (eye-hand coordination). The purposes of the Beery VMI are to help identify, through early screening, children who may need special assistance, to obtain needed services for them, to test the effectiveness of educational and other interventions, and to advance research.[11]

The full form 30-item Beery VMI can be either group or individually administered in about 10-15 min and is used with individual's ages 2 through 18 years. Research indicates that the Beery VMI is virtually culture-free. Because children from

Table 1: Treatment Plan for Children who had Shown Deficits on Short Sensory Profile (Probable and Definite Difference)

Sensory deficits identified	Treatment plans to be carried out
Tactile sensitivity	Sensory integration Wilbarger protocol Sensory diet
Taste/smell sensitivity	Sensory integration Wilbarger oral protocol Therapeutic listening-quickshifts Sensory diet MDT with speech and language pathologist for oral sensitivity programs/feeding programs
Movement sensitivity	Therapeutic listening program Sensory integration-motor and praxis Astronaut training Brain gym programs NDT VMI Core muscles activities
Under responsive/ seeks sensation	Therapeutic listening program Sensory integration-calming senses Sensory diet Astronaut training Brain gym programs Auditory-visual-vestibular triads Core muscles activities
Auditory filtering	Therapeutic listening program Astronaut training Sensory integration-auditory-visual-vestibular triads "For brain" - Bone conduction program Brain gym programs
Low energy	Motor and praxis Brain gym Core muscles activities Astronaut training
Visual and auditory sensitivity	Therapeutic listening program Sensory integration-visual motor Brain gym programs "For brain" bone conduction program

VMI: Visual-motor integration, NDT: Neuro developmental treatment, MDT: Multi disciplinary team

Table 2: Treatment Plans Set for Children following Nonstandardized Assessments

Areas of deficits identified	Treatment plans to be carried out
Gross motor and fine motor	Activities to improve gross motor and fine motor
Poor communication	Increase social and peer interaction skills
Poor attention and concentration	Required further standardised assessments to determine a treatment plan
Poor socializing skills	Group therapy

different backgrounds often have widely varying degrees of experience with alphabets and numbers, geometric forms are used in the Beery VMI rather than letter or numeric forms.

RESULTS

The treatment plans derived at the initial evaluation were analyzed for each client, and the numbers of treatment programs set followed by the initial evaluation on the above groups were analyzed. As per literature reviews, time is one of the factors for practitioner not to use standardized assessments. Therefore, standardized assessments that were taken <1 h to administer were selected. Using standardized assessments as occupational therapy initial evaluation will give more evidence based treatment plans for children. Furthermore, more specific treatment goals were able to set better with two standardized assessment tools. Using standardized assessments are evidence based, client centered, specific, and measurable than the non-standardized tools. Table 3 shows that a statistically significant positive correlation between the number of standardized assessments used and number of goals set (0.431**, $N = 295$). Table 4 indicates that a statistically significant positive correlation between the number of standardized assessments used and identified on initial evaluation (0.515**, $N = 295$) as evaluated by Expert 1. Furthermore, there was significant correlation between the number of standardized assessments used and number of goals set in number of goals set (0.602**, $N = 295$) and clarity in the goal setting (0.663, $N = 295$). Table 5 shows that a statistically significant correlation between the number of standardized assessments used and the three parameters set to evaluate the problems identified, number of goals set and the clarity in the goals as evaluated by Expert 2. Children with two standardized assessments had the highest number of treatment-specific goals ($P = 0.000$, 95% CI = 0.328-0.537) followed by one standardized assessment ($P = 0.017$, 95% CI = 0.034-0.240) and then by children with no standardized assessments ($P = 0.331$, 95% CI = −0.314-0.128). There is a significant difference in the number of treatment-specific goals set among the groups ($P = 0.000$, 95% CI = 0.591-0.722), indicating an effective and specific goal setting.

Standardized assessments give occupational therapists to plan their treatment specific, client centered, focused than of using nonstandardized assessment tools. It has been noticed that setting up occupational therapy treatment plan was much easier and specific for children who had been assessed using standardized sensory and motor tools than the non-standardized assessments.

DISCUSSION

Results of the study indicated that there was a significant impact on determining the treatment plan for clients followed standardized assessments. It is also noticed that two standardized assessments can provide more treatment programs at the initial evaluation itself. However, the number of data collected is very limited to determine the end results. Furthermore, it is a retrospective analysis of clinical data study design had been used in the study instead of a planned study design. It could have been better if the study was a planned, designed one. Literature reviews revealed the importance of using standardized assessment tools in occupational therapy evaluation. Using nonstandardized assessments may unfairly disadvantage some client groups when being assessed for services.[10] Occupational therapists who select the use of nonstandardized measures must be aware of the limitations related to accuracy and reliability and the potential impact on professional credibility and the welfare of service users.[12] Each occupational therapy service should have an active outcome measurement protocol.[13] Using

Table 3: Results of Using Two Standardized Assessments

Standardized assessments	Sensory goals	Motor goals	Other goals	total goals
Spearman rho	0.367**	0.139*	0.142*	0.431**
Significant (two-tailed) *P* value	0.000	0.017	0.015	0.000
N	295	295	295	295
95% CI	0.249-0.480	0.034-0.240	0.037-0.054	0.328-0.537

*Correlation is significant at the 0.05 level (two-tailed). **Correlation is significant at the 0.01 level (two-tailed). CI: Confidence interval

Table 4: Rating of Expert 1 of the Goals Set Used on the Initial Evaluation

Standardized assessments	Problems identified on the initial evaluation	Goals set on the initial evaluation	Clarity in the goals
Spearman rho	0.515**	0.602**	0.663**
Significant (two-tailed) *P* value	0.000	0.000	0.000
N	295	295	295
95% CI	0.431-0.587	0.517-0.672	0.591-0.722

**Correlation is significant at the 0.01 level (two-tailed). CI: Confidence interval

Table 5: Rating of Expert 2 of the Goals Set Used on the Initial Evaluation

Standardized assessments	Problems identified on initial evaluation	Goals set on initial evaluation	Clarity in the goals
Spearman rho	0.575**	0.644**	0.677**
Significant (two-tailed) *P* value	0.000	0.000	0.000
N	295	295	295
95% CI	0.480-0.662	0.556-0.715	0.595-0.750

**Correlation is significant at the 0.01 level (two-tailed). CI: Confidence interval

standardized assessments as initial evaluation can be further studied with larger samples. To provide a valuable feedback with pre- and post-treatment process, standardized tools have measures and scores to be provided to the family members and caretakers who are limited in when using nonstandardized tools. The results indicated that many children's data in all the groups did not have diagnosis, querying that would this be one of the barriers for the practitioners to administer standardized tools. This study indicates whether is there a need to address at the referral source level prior, i.e. doctors, psychologist, and other multi-disciplinary team members who are involved in diagnosing process. It has been observed that many referrals in all the groups were made by parents themselves indicating that practitioners require more valid information from the referral sources before administer standardized assessments. This study had been carried out in one private pediatrics clinic only which was a drawback of collecting data, information and the outcome measurements. Same can be carried out with many practitioners who are practicing in many fields but not restricted to pediatrics only. The use of standardized measures enables occupational therapists to build up a body of evidence for occupational therapy.[14] This is vital both to support the delivery of evidence-based practice and to ensure that robust evidence is available to underpin the development of occupational therapy practice guidelines.

Standard and quality are two important aspects in health care services especially when it comes to children with special needs. As practicing occupational therapist in the area of pediatrics, it is considered more important that improving our standards and quality of services in assessments and treatment will improve the health care of children with special needs related to their developmental disorders. This study emphasizes that using standardized assessments as initial evaluation in occupational therapy to determine the effective treatment plan for children with disorders will enhance the standard and quality of services for children with special needs.

Increasingly, services are becoming integrated, and this provides an opportunity for occupational therapists, by appropriate use and recording of outcomes data, to demonstrate their broad remit across a range of service configurations and requirements.

CONCLUSION

The results indicate that it is always highly recommended to use standardized assessments to be used as occupational therapy initial evaluation to set specific, measurable treatment programs for a better functional outcome of children with disorders. Adding to that, using minimum two standardized assessments as initial evaluation help occupational therapists to set more appropriate and clear treatment goals. The results also indicate that the treatment programs/techniques set following these standardized assessments show better structure, client centered, measurable outcomes than the nonstandardized assessments. It has also been observed that occupational therapists can improve their standards of service providing by addressing the parent group with more evident tools during their treatment plan and discharge planning. Outcome measurement can demonstrate the effectiveness of an intervention for individual service users or population groups. It would be a good practice to focus on evidence-based assessments to be carried out in occupational therapy practice as part of their routine process. Since there is a lack of evidence in India, this study would like to highlight that there is a high need for research recommended to study the use of standardized assessments, initial evaluation, evidence-based assessments and practice, referral sources, multidisciplinary team diagnosis process in India.

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Retrospective Analysis of Work Fitness in Municipal Corporation Employees

Jyotsna Suresh Gaikwad[1], Shailaja S. Jaywant[2], Anuradha V. Pai[2]

Abstract

Background: Work fitness refers to a state, whether physical, mental and emotional, which enables an individual to perform an assigned task competently and safely. Patients were referred to occupational therapy for observation and fitness evaluation. Hence, the need was to assess category of employees and reasons of their ill health, which leads to different levels of work fitness.

Objective: The objective of the study was to observe municipal employees of various categories of occupation for different levels of work fitness and assess the association between reasons of ill health and work fitness.

Study Design: Retrospective analysis of hospital records on fitness evaluation.

Methods: A retrospective analysis of hospital records of reports of 3 years - 2013, 2014 and 2015 on employees of Municipal Corporation referred by Psychiatry Department was conducted in Occupational Therapy Department OPD 23, Lokmanya Tilak Municipal Medical College and General Hospital. Sion Occupational Therapy Work Fitness Evaluation Scale prepared by the department was used in the reports of employees to state their work fitness level. They were then classified based on gender and age of patients to analyze their fitness level. Further patients were categorized into Class I, II, III, and IV based on their occupation. The association between different reasons of ill health and work fitness was then analyzed.

Results: Proportion of receiving fitness in Class I employees is less as compared to Class II and IV as in Class I category, number of employees of psychiatric illness were found to be more and in Class IV category, number of employees of alcoholism and absenteeism were more. The association of reasons of illness with work fitness was found to be significant using Chi-square test with $P \leq 0.05$. Proportion of younger age group patients receiving fitness was observed to be more than that of older age group.

Conclusion: In Class I and II, number of employees of psychiatric disorders were more than alcoholism and absenteeism, so number of fit employees were less and in Class III and IV number of employees of alcoholism and absenteeism were more than psychiatric disorders, so number of fit employees were more because more of repeated observation followed more certification for fitness. More number of lower age group employees got fitness than higher age group employees.

Key Words: Alcoholism, Absenteeism, Fit, Fitness for Work, Ill Health, Occupation, Unfit

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Period of Study
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INTRODUCTION

The AOTA in its uniform terminology defines work or job performance as "performing job tasks in a timely and effective manner, incorporating necessary work behaviors."[1] Fitness for work is defined as the determination of whether an individual is fit to perform his or her tasks without risk to self or others.[2]

Soh *et al.* in their article of work-related well-being aimed to investigate the different dimensions of well-being and their possible predictors. The significant correlation between the dimensions of job satisfaction, engagement and stress and emotional stability and perceived organizational support were identified as significant predictors of wellbeing.[3]

Similar results were observed in study conducted by Rodgers on ambulance drivers and health care professionals.[4]

Work fitness is important as fit employees are also much less likely to get sick – if there is a bug going around the office, are far more likely to fall ill. Encouraging fitness among the staff could not only lead to a fall in the number of short-term absentees but it could also have an effect on long-term absenteeism.[5]

Occupational therapists as an expert combine knowledge of impairment and disability with expertise in job analysis, ergonomics, and functional evaluation to provide customized return-to-work programs that meet the needs of employers, insurance companies and workers. They are skilled in assisting clients with physical, cognitive/neurological and mental health conditions.[6]

A national cross-sectional study conducted in NHS by Shriti Pattani and Nick Constantinovici, it is stated that rates of early retirement were higher in jobs likely to involve more manual work.[7] Furthermore, the study of the impact of menopausal symptoms on workability states that

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menopausal symptoms are negatively associated with work ability and may increase the risk of sickness absence.[8]

Need of the Study

The employees of MCGM are referred from Psychiatry Department to Occupational Therapy Department for work fitness evaluation. Many have long term or repeated absenteeism. The employees may have been suffering from mental disorders or psychosocial problems. It was observed that certain work types are stressful or demanding in patients, which lead to stress and absentia from work, whereas in some patients the absentia was observed due to their bad habits or family stressors. No detail analysis of their fitness status has yet been done.

Thus, this study was designed to analyze an association between employee's class of work and reasons of their ill health, which leads to different levels of work fitness.

Aim

To assess the work fitness status of Municipal employees referred from Psychiatry Department for observation to Occupational Therapy Department in Tertiary Care Hospital.

Objectives

1. To observe the Municipal employees of various categories of occupation for different levels of work fitness.
2. To assess the association between the reasons of ill health and work fitness.

METHODOLOGY

Retrospective analysis of hospital records on fitness evaluation of 3 years - 2013, 2014, and 2015 on employees of Municipal Corporation was conducted in Occupational Therapy Department OPD 23, Lokmanya Tilak Municipal Medical College and General Hospital (LTMMC and GH). Ethics Committee approval was taken to conduct the study.

All the record of reports of employees referred from Psychiatry department for observation of Work fitness were included in the study. Sion Occupational Therapy Work Fitness Evaluation Scale (SOTWES) was prepared by our department with reference from Comprehensive Occupational Therapy Evaluation Scale, and this was used in the reports of employees to state their work fitness level. The scale consists of 5-point Likert scale graded as 0-4. Based on the scores in each component, i.e. quality of skills, the workers were given fitness (no cutoff was indicated in this evaluation scale) (Appendix A). There were 168 reports of the year 2013, 154 of 2014 and 156 of the year 2015.

They were classified into male and females and were analyzed differently for each year. They were further categorized as per level of fitness. The participants' age ranged from 21 to 60 years, and then they were grouped lower age group (21-40 years) and higher age group (41-60 years).

Further, age-wise data were analyzed based on work fitness in each year. The data were also classified as per designation of employees at work as Class I, II, III, and IV. The Class I employees included were educated professionals such as doctors, engineers, teachers and nurses, Class II were the nursing students, medical students, clerks, officers, Class III were all technical staff and Class IV included laborers and sweepers.

Then, these data were categorized based on reasons of absenteeism. Further Chi-square test in SPSS Version 19 statistical analysis software was used to find the association of work fitness and reasons of ill health. The level of significance is at $P \leq 0.05$ and power chosen was at 95% confidence interval.

RESULTS AND DATA ANALYSIS

Tables 1, 2 and Graph 1 show demographic data of total numbers of referred employees according to gender and age. It shows the data of referred and fit employees after observation in different classes of occupation. It is seen that number of fit employees is greater in Class III and Class IV as compared to Class I and it shows that number of unfit females was more than males.

Graph 2 shows the age wise proportion of fitness in the past 3 years and it is observed that lower age group (21-40 years) showed more proportion of fitness that in upper age group (41-60 years).

Table 1: Demographic Data of the Employees

Data	Number of employees in 2013	Number of employees in 2014	Number of employees in 2015
Lower age group (21-40 years)	61	61	63
Higher age group (41-60 years)	107	93	93
Males	147	136	140
Females	21	18	16

Table 2: The Total Number of Employees Referred Each Year and Their Fitness Status

Class	Number of employees referred	Number of employees given fit
Class I		
2013	10	8
2014	10	8
2015	14	12
Class II		
2013	24	21
2014	18	16
2015	30	24
Class III		
2013	50	46
2014	36	34
2015	44	40
Class IV		
2013	84	74
2014	90	86
2015	68	66

Then, the groups were categorized considering reason for absenteeism and association between classes of work and reason for absenteeism was analyzed for evaluating the one-tailed hypothesis of this study, using Chi-square test.

Table 3 shows that calculated critical values of Chi-square were significant at $P \leq 0.05$ and values of upper and lower limits at 95% confidence interval. As observed in Table 3, there is an association between the reasons of ill health and work fitness in different classes of employees. Class I and II show significant association with Psychiatric disorders and Class III and IV with alcoholism and absenteeism.

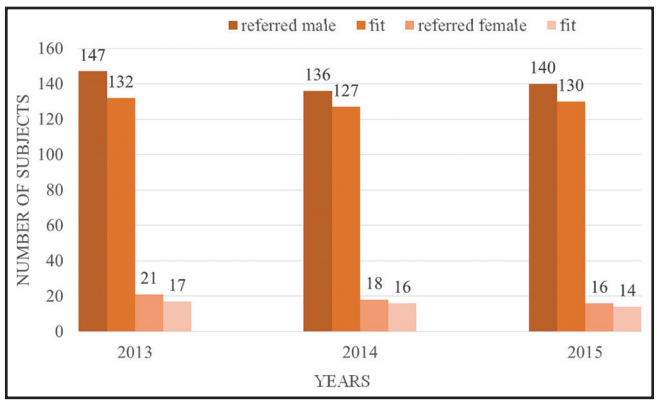
DISCUSSION

This study was conducted in Occupational Therapy Department at LTMMC and GH on the record of employees of the past 3 years of MCGM referred from Psychiatry Department.

The study stated that number of fit employees in Class III and IV was found to be more than Class I and II as shown in Table 2. This was because more number of subjects were of Class III and IV that is 84 subjects in Class IV in year 2013 compared to only 10 subjects of Class I in the year 2013. This could be because more of repeat observation of Class III and IV employees followed by fitness was observed.

The year wise proportion of male-female fitness shown in Graph 1 stated that number of fit females was less than males as the proportion of male and female subjects was unequal. The reason of less number of fit female might be due to the psychiatric disorders like major depressive disorder and schizophrenia, stress at home and workplace, less physical capacity due to aging or menopausal changes. This is supported by study on the impact of menopausal symptoms on workability by Geukes *et al.*, which states that menopausal symptoms are negatively associated with work ability and may increase the risk of sickness absence.[8] In another article on workplace functional impairment due to mental disorders by Els *et al.*, it was stated that majority of individuals with psychopathology and mental disorders continue to be employed. In general, severe and persistent mental illness tends to be more likely

Graph 1: The Proportion of Fit and Unfit Employees Referred for Fitness as per Sex. Males: Referred and Fit; Females: Referred and Fit



Graph 2: The Proportion of Fit and Unfit Employees as per Age. Lower Age Group (21-40 Years): Referred and Fit; Higher Age Group (41-60 Years): Referred and Fit

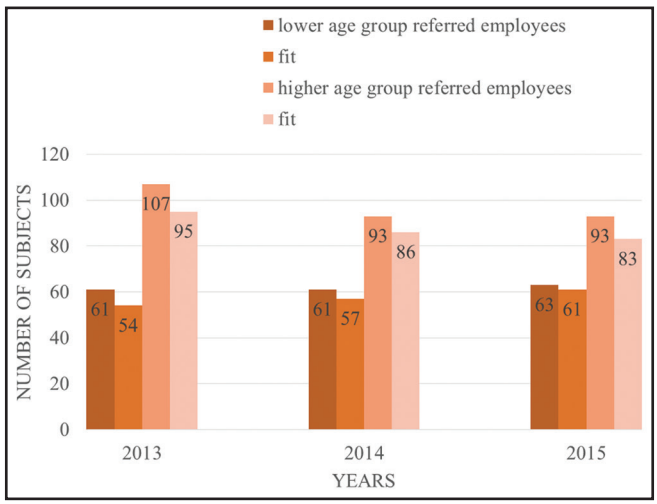


Table 3: Association Between Work Fitness and Reasons of Ill Health

Class	Referred employees	Employees of psychiatric disorders	Fit	Unfit	Employees of alcoholism and absenteeism	Fit	Unfit	χ^2 value	*P* value	95% confidence limit
I										
2013	10	7	5	2	3	3	0	1.92	0.05*	0.68-0.92
2014	10	7	5	2	3	3	0			
2015	14	9	8	1	5	4	1			
II										
2013	24	19	16	3	5	5	0	1.84	0.05*	0.76-0.92
2014	18	14	12	2	4	4	0			
2015	30	25	20	5	5	4	1			
III										
2013	50	20	19	1	30	27	3	2.1	0.05*	0.86-0.94
2014	36	10	10	0	26	24	2			
2015	44	17	16	1	27	24	3			
IV										
2013	84	27	25	2	57	49	8	2.3	0.05*	0.91-0.96
2014	90	37	36	1	53	50	3			
2015	68	16	16	0	52	50	2			

**P* significant if $P \leq 0.05$ using one tailed hypothesis; Confidence interval: At 95% confidence interval

disabling, e.g. bone mineral density (BMD) and schizophrenia. The workers who suffer are unable to compete on equal footing for employed. Most of the females in the study were having psychiatry disorders.[9]

Graph 2 shows that work fitness level of lower age group was more than the upper age group. The reasons of low fitness in upper age group might be due to aging as their physical capacity decreases and alcoholism. Another reason might be due government policies of retirement benefits after certain continues service in the organization. This is supported by the study on who retires early from the NHS because of ill health and what does it cost? A national cross-sectional study by Pattani *et al*. It states that rates of early retirement were higher in jobs likely to involve more manual work (mostly because of musculoskeletal problems), and the scheme allows early retirement because of ill health for employees "incapable of discharging efficiently the duties of their employment by reasons of permanent ill-health or infirmity of mind or body.[7] It also goes in accordance with the study of 5 years comparing early retirements on medical grounds in ambulance personnel with those in other groups of health service staff; Rodgers stated that highest proportion was due to alcohol problems.[4]

In a chapter on physical and cognitive differences between older and younger workers by David, it is stated that older workers differ from their younger counterparts in a variety of physical/biological, psychological/mental, and social dimensions. In some cases, these reflect normative changes of aging (e.g. presbyopia); in others, they represent age-dependent increases in the likelihood of developing various abnormal conditions (e.g. coronary artery disease). In some cases, these age-related differences (whether normative or pathologic) are disadvantageous to the older workers because their work performance is diminished relative to that of younger workers. Its positive impact on work is likely to be greater in 50 years old than 20 years old workers.[13]

Further, the attempt was made to assess the association between the work fitness and reasons of ill health. The values to show the association were analyzed using the Chi-square test. In Class I and II, there were more subjects with psychiatric disorders, and in Class III and IV, there were more subjects of alcoholism and absenteeism. Their association with work fitness was calculated as seen in Table 3 and it was seen that calculated critical values were associated with $P \leq 0.05$. This stated that in Class I and II the work fitness level was associated with psychiatric disorders. In a study by Kessler and Frank on the impact of psychiatric disorders on work loss days, the results reported suggested that work impairment is one of the adverse consequences of psychiatric disorders and effects on work cutback are greater among professional workers than those in other occupations.[10] Class I and II had more of professionals so had more proportion of psychiatry illness and thus lower the level of fitness and in Class III and IV, it is associated with alcoholism and absenteeism. These categories show better level of work fitness. An article on workplace functional impairment due to mental disorders by Els *et al.* had similar findings that majority of individuals with psychopathology and mental disorders continue to be employed. In general, severe and persistent mental illness tends to be more likely disabling, e.g. BMD and schizophrenia. The workers who suffer are unable to compete on equal footing for employed but can continue on work later.[9]

An article on work fitness assessment in psychiatry patients: Factors affecting mental fitness for work in a sample of mentally ill patients by Elsayed *et al.*, the unfit group consisted mainly of schizophrenia and BMD and fitness group was mainly substance use subjects. This suggests that type of psychiatric diagnosis may have direct relation to fitness to work.[11] After Substance abuse, it is suggested that alcohol misuse does affect employment but have shown minimal effect over and above any associated psychiatric illness. This is supported in article on mental ill health and fitness for work by Glozier.[12]

This is supported by the statement written by Soh *et al.*, in their article of work-related well-being aimed to investigate the different dimensions of well-being and their possible predictors. They found significant correlation between the dimensions of job satisfaction, engagement and stress and emotional stability and perceived organizational support were identified as significant predictors of well-being.[3]

It was therapist's skill to judge the fitness level of the employee, as along with the components enumerated in the scale, the individual job skills required were also taken into consideration while providing fitness certificate. As stated in an article on criteria and methods used for the assessment of fitness for work: A systemic review by Serra *et al.*, there is confusion about decision-making process to be used to judge about the fitness to work. There is very scarce scientific evidence based on empirical data, probably because there are no standard or valid methodologies for all professions and circumstances. Task simulation are used to assess functional capacity of patients.[2]

CONCLUSION

Thus, this study was designed to analyze an association between employee's class of work and reasons of their ill health, which lead to different levels of work fitness.

Assessment scale for job fitness was designed in the department using guidelines of Comprehensive Occupational Therapy Assessment Scale.

In Class I category, number of employees of psychiatric illness were found to be more, and in Class IV category, number of employees of alcoholism and absenteeism were more.

The association of reasons of illness with work fitness was found to be significant using non-parametric test. In Class I and Class II, number of employees of psychiatric disorders was more than alcoholism and absenteeism, so less number of employees got fitness certificate at work. Probably the residual symptoms of psychiatry disorders may have affected their job skills. In Class III and Class IV, number of employees of alcoholism and absenteeism were more than Psychiatric disorders, so number of fit employees received fitness certificates, however repeated

observations of same employees were followed by fitness.

The number of fit employees in younger group was more than higher age group.

Recommendations

The sensitivity and reliability of SOTWES can be checked after making it more objective.

Larger data considering employment classification, diagnosis and work fitness from multiple institutes can be compiled and analyzed together.

Terms defined

Absenteeism: Refers to repeated absence from work, duties, or obligations.

Fit to work: Is a medical assessment done when an employer wishes to be sure an employee can safely do a specific job or task.

Fitness for work: Is defined as the determination of whether an individual is fit to perform his or her tasks without risk to self or others.

Unfit to work: Is defined as the employee is incapable or incompetent to safely do a specific job or task.

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APPENDIX A

OCCUPATIONAL THERAPY DEPARTMENT

L.T.M General Hospital, Sion, Mumbai - 400022, Maharashtra, India

SION OCCUPATIONAL THERAPY WORK FITNESS EVALUATION SCALE (SOTWES)

Name: Sex: Male/Female

Age: Date:

O.T. No.: Occupation:

O.T. observation: Diagnosis:

Period of observation:

Activities given in the department:

Activity accomplishment scale: 0 - None, 1 - Minimal, 2 - Mild, 3 - Moderate, 4 - Extensive

A. General behavior
1. Attitude: Degree of co-operation:
2. Appearance: Neatness and tidiness:
3. Regularity and punctuality:

B. Social/interpersonal behavior
1. Reaction to authority:
2. Sociability with group:

C. Task behavior
1. Comprehension of direction:
2. Execution of direction:
3. Retention of direction:
4. Industry:
5. Productivity:
6. Initiative:
7. Personal neatness:
8. Activity neatness:
9. Interest in activity:
10. Interest in accomplishment:
11. Coordination:
12. Concentration:
13. Performance standard:
14. Skill:
15. Decisiveness:

Observation and comments:

Occupational Therapist

Effectiveness of Modified Constraint Induced Movement Therapy-bimanual Intensive Therapy in Improving Upper Extremity Function in Children with Obstetric Brachial Plexus Injury

Sudipta Padhihari[1], Pragyan Singh[2]

Abstract

Background: Obstetric brachial plexus injury (OBPI) causes partial or total paralysis of the upper limb because of trauma to brachial plexus at birth. Development disregard is likely to occur as a sequel of OBPI in infants and may contribute to the failure to develop the functional use of affected extremity. Constraint-induced movement therapy (CIMT) is an increasingly popular treatment approach used to overcome development disregard, but without a transfer package, the unilateral gains made through CIMT is not transferred to bilateral activities of daily life and play. This affects the functional independence of children as they require the use of both hands in most of the activities. This study aims at finding the effectiveness of modified CIMT-bimanual intensive therapy (mCIMT-BIT) in improving upper extremity function in children with OBPI.

Study Design: Pretest-posttest control group.

Methodology: A total of 30 children with OBPI aged 6-36 months selected for study were randomly assigned to experimental and control group. Experimental group received 60 h of mCIMT and 20 h of BIT. Control group was given conventional therapy and splinting. Active movement scale (AMS) was used as an outcome measure.

Result: Statistical analysis showed that there was a significant difference between both groups after posttest. The experimental group showed statistically significant difference within all components of upper extremity measured with AMS with a level of confidence set at $\alpha \geq 0.05$. The experimental (mCIMT-BIT) group showed statistically significant difference in all components of AMS ($P = 0.00$, 95% confidence interval = 0.92-1.21).

Conclusion: Study concluded that mCIMT-BIT intervention is effective in improving extremity functions. Increased functional use of hand during bilateral activities of play and other activities was also seen in children after the intervention.

Key Words: Bimanual Intensive Therapy, Development Disregard, Modified Constraint Induced Therapy, Obstetric Brachial Plexus Injury

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Presented at 54th Annual National Conference of AIOTA (OTICON'2017) held at Jaipur from 17th to 19th February, 2017 and was presented with KEMOT youth talent award.

INTRODUCTION

Obstetric brachial plexus injury (OBPI) causes partial or total paralysis of the upper limb because of trauma to the brachial plexus during delivery. Incidence varies between 0.15 and 3 per 1000 live births in various series and countries.[1] The literature points to several risk factors for OBPI, including increased weight at birth, prolonged labor, perinatal asphyxia, and forceps delivery. Although the relationship between these factors and OBPI is well established in the literature, factors related to the functional prognosis of the condition are still under investigation and includes injury site and severity.[2]

OBPI has important repercussion for the child as structural deficits that interfere with the use of the upper extremity can result in limitations to the performance of activities of daily living and restrict the participation of the child at school and community.[3] In addition to conservative treatments, several surgical techniques are used to improve child's clinical status but the literature regarding the functional rehabilitation of children with OBPI is remarkably scarce.

A process analogs to learned non-use defined as the diminished use of the affected extremity due to perception of failure during the performance of manual tasks and delaying further progress with functioning of that arm,[4] termed developmental disregard by Gordon 2005, is likely to occur in infants with OBPI and may contribute to the failure to develop functional use of the affected extremity. Repeated failure after initial use of the affected extremity may lead the infant to stop trying. Development disregard may also prevent recovery of function that could have occurred as a result of nerve regeneration.[5]

It could lead to primary activity limitation in children with OBPI relate to an inability to reach grasp and perform tasks requiring bimanual abilities such as catching a large ball or lifting a heavy object. Activities of daily living that require the use of bilateral upper extremity will be compromised. These activities would include donning and removing shirts and pants, tying shoes, and buttoning.

Typical developmental activities could also be compromised as a result of OBPI. Movement from prone to supine, supine to sit may always be done from one side, thereby asymmetrically strengthening one side of the trunk or delaying development of balance reactions. The

development milestone of creeping on all fours may not occur because the child may scoot around in sitting or progress directly to walking at the appropriate age.[6]

Recent evidence suggests that many neurologically disabled children may improve motor performance when provided with sufficient opportunities to practice.[7] One such promising treatment approach that provides those opportunities and becoming increasingly popular is forced use or constraint-induced movement therapy (CIMT). The CIMT consists of constraining movement of the non-affected upper extremity, providing intensive training to the involved extremity and a transfer package. The proposed mechanism of improvement after CIMT is attributed to the overcoming learned non-use of the affected side and the effects of task training on neural plasticity.[8]

Results from studies reporting the clinical changes that accompany an intervention based on CIMT and modified CIMT (mCIMT) have suggested that interventions based on CIMT principles have potential to promote functional gains with OBPI[9-11] but most importantly CIMT is a unimanual intervention and leads to greater unimanual gain. However, increased independence in child's environment requires the use of both hands in cooperation, and it may not improve bilateral coordination deficits.[12] Many studies have used CIMT followed by bimanual intensive therapy (BIT) to transfer unilateral gain into bimanual tasks and found positive results in children with cerebral palsy and hemiplegia.[13-17] However, none of the studies on OBPI have used BIT along with CIMT to transfer unimanual gain of CIMT into bimanual tasks of daily living. Therefore, this study aims at finding the effectiveness of mCIMT-BIT in improving upper extremity function in children with OBPI. It can provide a relevant contribution to the field, as evidence regarding the effectiveness of CIMT based interventions in children with OBPI is quite limited as compared to cerebral palsy.

METHODOLOGY

Study Design

The study was a pretest-posttest control group design. Pre- and post-assessment was done for both experimental (mCIMT-BIT) and control group before and after completion of 1 month of intervention program.

The study was conducted as per the "Declaration of Helsinki" guidelines as institute does not have registered ethical committee.

Hypothesis

mCIMT-BIT is effective in improving upper extremity function in children with OBPI.

Null Hypothesis

mCIMT-BIT is not effective in improving upper extremity function in children with OBPI.

Outcome Measure

Active movement scale (AMS) was used as outcome measure.[18]

Selection Criteria

Inclusion Criteria

- Patient aged between 6 months and 3 years
- Children with confirmed medical diagnosis of OBPI
- Children with no other serious medical complications
- Children with active wrist and finger movements.

Exclusion Criteria

- Children with visual problem as it prevents in active participation
- Child with poor sitting balance
- Child with uncontrolled seizures
- Inability to participate in purposeful play or functional activity
- Fixed contractures or stiffness in affected upper extremity limiting activity engagement
- Dystonia which prevented the child from having any controlled movement with affected extremity
- Child with orthopedic or neurological surgery on their involved upper extremity.

Procedure

- A total of 30 children with OBPI fulfilling the inclusion criterion were selected, and informed consent was taken from parents after explaining the treatment protocol
- Pre-test was taken for all the children included in the study. Then, children were randomly allotted to mCIMT-BIT and control group through lottery system
- mCIMT group received 60 h mCIMT over a period of 3 weeks followed by 20 h of BIT in 1 week.[19] Therapy was given for 4 weeks with a frequency of four sessions daily, each lasting 60 min, on 5 days/week, amounting to a total treatment time of 80 h. No splinting or any other intervention was given during intervention period. Some of the activities shown in Figures 1-3 in illustrations
- Control group received conventional treatment including sensation with tactile stimulation of hand and fingers several times daily for 10 min, mobilization of joints and muscles and splinting.

RESULTS

After completion of posttreatment evaluation data was analyzed using SPSS version 23.0. setting a level of confidence at sp0.05. The raw score of pre-treatment and posttreatment data of shoulder (flexion, abduction, and external rotation), elbow (flexion and extension), and forearm supination using AMS were analyzed using nonparametric statistics; Mann–Whitney U-test to determine mean values and difference between experimental (mCIMT-BIT) and control group and Wilcoxon test to determine significant changes in pre- and post-treatment within the experimental (mCIMT-BIT) and control group.

Figure 1: (a and b) Child is Seen here Lifting her Affected Arm to Reach for Hanging Toy while Unaffected Arm is constrained

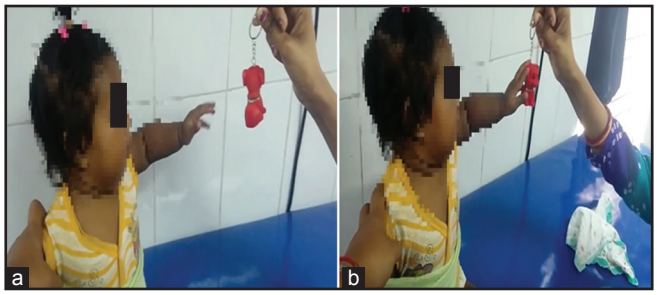

Figure 2: Child Doing Bilateral Ring Activity

Figure 3: Child is Seen Actively Using Bilateral Arm for Play

Descriptive characteristics of patients are mentioned Table 1 in illustrations. The result from Table 2 suggests improvement in both groups on AMS. Table 3 shows that there is significant difference in post-test between experimental and control group (P = 0.00, 95% confidence interval [CI] = 0.92-1.21). Graph 1 shows a comparison between two groups in illustration.

DISCUSSION

The results of this study suggest that mCIMT-BIT is effective in improving upper extremity function in children with OBPI as compared to control group. Significant improvement in motor function as compared to control group which could be explained by the intervention program facilitating motor skills learning via intensive practice for 4 weeks that was directed toward enhancing affected arm use. mCIMT-BIT interventions were based on motor learning model which focused on the importance of usage and practicing of self-generated voluntary action in playful and motivational setting.

Graph 1: Comparison between Experimental (Modified Constraint Induced Movement Therapy-Bimanual Intensive Therapy) and Control Group. In this Modified Constraint Induced Movement Therapy-Bimanual Intensive Therapy Group showing Higher Values in All Components on Active Movement Scale as Compared to Control Group

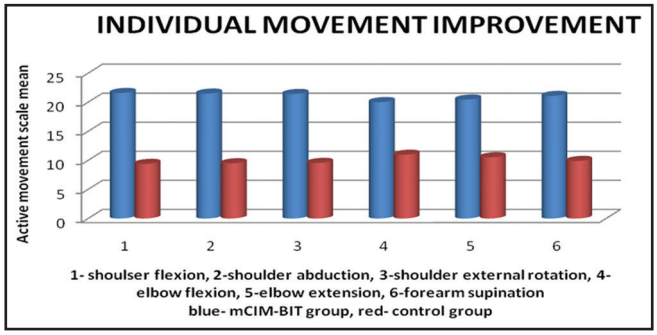

Table 1: Descriptive Characteristics of Patients

Baseline characteristics	Experimental (mCIMT-BIT) group	Control group
Number of subjects	15	15
Age range (months)	6-30	6-30
Gender (male/female)	8/7	7/8
Age (mean)	9.67	9.87

mCIMT-BIT: Modified constraint-induced movement therapy-bimanual intensive therapy

mCIMT-BIT group showed better improvement in all individual movements of shoulder, elbow, and forearm as compared to control group. Evidence suggest that this better improvement has to do with the kind of motor practices in therapy compared with hand and arm use in children's natural environment. Considering its specific and repetitive exercise character, CIMT leads to a better outcome in selected functions of paretic arm. Another important consideration is that it is not restraint that induces changes; rather it is the environment that is used to solicit intensive practice.[19]

It was also observed during the study that mCIMT-BIT leads to better improvement in isolated movements of the arm as well as the active and spontaneous use of affected hand was observed during play and other activity of daily living in children, same was also reported by the parents. This could be due to the fact that in everyday life the paretic arm and hand are not used in isolation. Most of the activities of play and daily living are more or less bimanual, but not with the equal demand for both upper limbs. The affected arm mainly serves to assist the dominant hand. Many functions trained in CIMT are not entirely required. Therefore, it is understandable that considerable gains in unilateral functions are not transferred automatically into bimanual activities. Moreover, bilateral coordination is often as significantly impaired in children with OBPI as unilateral functions.

Table 2: Wilcoxon Rank Test of Experimental (mCIMT-BIT) Group and Control Group

Groups	Shoulder flexion	Shoulder abduction	Shoulder external rotation	Elbow flexion	Elbow extension	Forearm supination
mCIMT group						
Pre-test	3.60±1.12	2.73±1.03	2.07±0.70	3.40±1.18	3.80±1.01	2.20±0.77
Post-test	5.73±1.22	4.73±1.28	3.80±1.20	5.13±1.30	5.87±1.24	4.07±1.38
Z	−3.53	−3.47	−3.44	−3.50	−3.45	−3.44
P	0.00*	0.00*	0.00*	0.000*	0.00*	0.00*
95% CI	2.41-1.84	2.36-1.63	2.12-1.34	2.06-1.40	2.50-1.62	2.28-1.45
Control						
Pre-test	2.80±1.37	2.53±1.30	1.87±0.91	2.67±0.72	2.47±1.06	1.87±0.91
Post-test	3.87±1.50	3.33±1.58	2.47±1.30	3.73±.79	3.53±1.35	2.47±1.18
Z	−3.77	−3.20	−2.71	−3.77	−3.55	−2.71
P	0.00	0.00	0.00	0.00	0.00	0.00
95% CI	1.21-0.92	1.11-0.49	0.95-0.25	1.21-0.92	1.32-0.81	0.95-0.25

*Indicate level of significance. CI: Confidence interval, mCIMT-BIT: Modified constraint-induced movement therapy-bimanual intensive therapy

Table 3: mCIMT-BIT Group have Higher Mean Ranks as Compared to Control Group

Groups	Shoulder flexion	Shoulder abduction	Shoulder external rotation	Elbow flexion	Elbow extension	Forearm supination
mCIMT group rank	21.60	21.50	21.43	20.03	20.47	21.10
95% CI	1.74-2.40	1.64-2.36	1.34-2.12	1.40-2.06	1.62-2.51	1.46-2.28
Control group rank	9.40	9.50	9.57	10.97	10.53	9.90
95% CI	0.92-1.21	0.49-1.11	0.25-0.82	0.92-1.21	0.81-1.32	0.40-1.06
P	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*

*Indicates the level of significance. CI: Confidence interval, mCIMT-BIT: Modified constraint-induced movement therapy-bimanual intensive therapy

Practicing and repetition are considered important in motor learning. mCIMT-BIT intervention provides those opportunities with activities of appropriate level of difficulty and repetition. Motivation and self-intention for success were considered the most important in sustainability in practicing and training for a long period of time without complaints. For adults with CIMT, the internal drive for improvement is the main impetus for the motor skill achievement. But with children, motivation can be kept and persisted throughout maintaining their interest using funny playing environment, creating an enjoyable situation that would involve sufficient challenge and numerous opportunities for repetition.

Intervention used in this study was child-friendly and intervention techniques were embedded into functional and play activities in which children typically participate, and ample social interaction is allotted. Children who received intervention mostly belonged to younger age group with a mean age of 10 months. It was observed during the study that younger children were not as cooperative as their older counterparts who have better motivation to perform than the younger ones who have little motivation. However, this limitation could be countered by greater potentiality for central nervous system neural plasticity and better prognosis due to their stage of development.

As far as upper limb preference is concerned only 17% of children affected by right OBPI prefer the right upper limb for overall movement whereas, in the general population, it is expected that 90% of children would prefer the right upper limb.[20] Furthermore, children with left OBPI did not significantly differ from the general population in the upper limb preference which was also seen in this study in which mostly children used their unaffected hand as their dominant hand and affected arm as assisting hand.

Hand preference was found to be a matter of concern for parents of children with right OBPI who even after repeated counseling wanted their child to use his/her right upper extremity as dominant hand, especially during eating. This emphasis on using the right upper extremity by parents could be because of the culture of our India where the use of the right upper extremity for overall activity especially eating is considered more socially and culturally appropriate than left hand.

Results suggest that greater improvement was seen in shoulder flexion, abduction movements as compared to shoulder external rotation and forearm supination in children with OBPI which were also last to recover. Children with active external rotation and supination at the beginning of the study showed better neurologic recovery than those with poor muscle strength of these muscles. Children with total plexus paralysis showed poor recovery during both the interventions. This finding is in line with the study of Hoeksma *et al*.[21] who suggested that active shoulder external rotation and supination at 3 months of age has showed the highest correlation with eventual neurologic recovery.

It was observed that even though children exhibited different motor function, most of them showed improvement in bilateral arm use in play activities as well as activities of daily living in mCIMT-BIT. But outcome measure used in this study only measures the motor abilities of children. It does not measure

the effectiveness of the intervention in improving functional use of affected hand in play and other activities of daily living. As independence in activities of daily living is important, a more functional and activity based outcome measure may be used to find the implication of these in therapy on hand use and participation level in functional and play activity as well as the spontaneous use of affected extremity in everyday use. It might help to find and understand the type of functional gains which can be achieved through these treatment techniques and can add further to pool of evidence.

Another weakness of the study is that it does not measure existing bilateral hand use abilities and bilateral coordination in children and how it may impact the outcomes in different intervention. A more severely affected child can benefit more especially in mCIMT-BIT, as in these patients the improvement of isolated motor function also led to the better bilateral arm use and coordination than those who already exhibit some useful amount of bilateral hand use abilities. This link between impairment severity and preferable treatment method can be further researched to find the appropriate treatment method as per the impairment and existing abilities of the child. Probably, a combination of both or a selection according to the child's individual conditions would be best.

Recommendation and Limitation

- The study only measured the improvement of isolated movements. It does not measure the effect of intervention on function and activity of daily living
- Sample size taken for the study was small therefore further studies with larger population may be done for generalization
- Scale which measure function and spontaneity of movement may be used in future to find the effect of these intervention on functional independence.

Intervention can be used across different age group along with different combination to measure the further effectiveness of these interventions.

CONCLUSION

Children in mCIMT-BIT showed better improvement in the upper extremity function as compared to control group. Children in mCIMT-BIT group also showed increased functional use of the hand. Therefore, from the obtained results of the study it can be concluded that mCIMT-BIT is better in improving upper extremity function in children with OBPI, thus experimental hypothesis is proved, and null hypothesis is rejected.

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Functional Dynamic Eyelid Crutches for Modulating Visual Field Deficit in Third Nerve Palsy

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Abstract

Background: Eyelid crutches are indigenously designed functional dynamic splinting strategy for augmenting the eyelid function, improving visual field, and modulating visuomotor field deficit allowing the voluntary closure and assisted opening of the eyelid.

Aims and Objectives: The aim of this study is to see the effectiveness of eyelid crutches for modulating visuomotor functional deficit in patients with 3rd cranial nerve (CN) involvement.

Method: This study was of experimental control design (pre-post-intervention). A total of 60 participants of age group 10-50 years were included in this study. The baseline evaluation was done for oculomotor movement, ocular alignment, mobility, gaze, and visual function. The participants were allocated to two strata (strata 1 [10-30 years] and strata 2 [30-50 years]) with two treatment groups having 30 participants each (Group A, functional dynamic eyelid crutches [FDEC] group and Group B, conventional treatment group). The intervention was given for 12 weeks with a frequency of 3 sessions per week of 30 min duration each.

Result: Between-group comparison was done and *P* value was found to be more significant for in Group A (i.e. FDEC group).

Conclusion: Eyelid crutches are found to be effective for augmenting and modulating visual field deficit in patients with 3rd CN involvement.

Key Words: Eyelid Crutches, Functional Performance Abilities, Ptosis, Visuomotor Field Deficit

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INTRODUCTION

The upper eyelid drapes over the eye to protect and help keep the surface moist. The upper eyelid function is to protect the eye yet get out of the way for vision. The muscles responsible for eyelid retraction are the levator palpebrae superioris, Müller's muscle, and the frontalis muscle. Gravity, eyelid tone, and the orbicularis occuli muscles close the eye. When the eyes are closed they are protected, but one cannot see very much through the eyelid. To see one must lift the upper lid out of the way. The levator and Muller muscles perform most of the work to get the upper eyelid out of the way for vision. The levator muscle starts back above the eyeball, courses over the top, descends in the eyelid, and attaches to the eyelid margin. Its function is to lift the eyelid out of the line of vision. It can be weakened by disease, ripped by trauma, or separated by age. If it is working the upper eyelid rests just under the iris, moves more than 16 mm, and can close all of the way (when the levator is relaxed). While the Muller's muscle a short muscle controlled by the sympathetic nerves and contributes to 1-2 mm of eyelid elevation, if gets paralyzed causes mild ptosis. It generally is contracted while awake so that it lifts the eyelid. When tired or asleep, it is relaxed letting the eyelid sag and droop. The frontalis muscle lifts the eyebrow and is a muscle of facial animation and minor contributor to eyelid retraction and lifts the eyelid in the secondary fashion. It can compensate for eyelid muscles to a certain degree. It is innervated by cranial nerve (CN) VII (facial nerve). Patients with ptosis arising out of CN III (oculomotor nerve) palsy will frequently lift their brows to slightly elevate their eyelids, which consequently may result in a brow ache from overuse.

Of the above, the levator muscle is the predominant muscle of eyelid retraction. It is a skeletal muscle that is under voluntary control from CN III (oculomotor nerve) only. The levator muscle traverses the orbit; it broadens and becomes a fibrous aponeurosis that inserts on the anterior aspect of the tarsal plate. When the above muscle gets paralyzed they result in ptosis.

Ptosis (pronounced "TOE-sis") is defined as drooping of the upper eyelid. It is the distance the eyelid is below its normal position. At rest, the lid is just below the top part of the iris (the color Part of the eye). The eyelid droops too low and cannot get out of the way enough for the eye to see. The elevation of the eyelid may be just enough for gaze toward the lower visual fields (toward the feet). Looking straight ahead, the lid may obstruct vision. Patients compensate for this deficit by lifting his/her eyebrow when looking up. Ptosis can be bilateral or unilateral. Ptosis is visually disabling and may be a sign of underlying systemic disease. It affects men and women equally, and there is little data regarding incidence differences between races.[1] Comprehensive studies that investigate the incidence and prevalence of ptosis are lacking, but one study looking at individuals

50 years of age and older discovered that 11.5% had ptosis and that the prevalence of ptosis increased greatly with age.[2] Patients with ptosis often subconsciously raise their eyebrows and tilt back their head to compensate.[3-5]

Ptosis may be congenital or acquired. Acquired ptosis can be further categorized as neurogenic, myogenic, aponeurotic, mechanical, or pseudoptosis.[5] Neurogenic ptosis results from 3rd nerve (oculomotor nerve) palsy. It innervates medial rectus, inferior rectus, superior rectus, inferior oblique muscles and levator palpebrae superioris, and carries parasympathetic innervation from the Edinger–Westphal nucleus. Dysfunction results from ischemia, infection, compression, trauma, and demyelinating disease such as multiple sclerosis. Patients may present with any combination of ptosis, ophthalmoplegia, diplopia, and a poorly reactive dilated pupil. The ptosis may be profound. Complete CN III palsies can be subdivided into pupil-sparing and pupil-involved. CN III palsy is commonly due to ischemic injury in patients with vascular risk factors such as hypertension or diabetes and often indicates a compressive aetiology. CN III palsy may involve pupil is attributed to any space occupying lesion or compression from a posterior communicating artery aneurysm mainly characterized by ocular motor disturbances, limited visual gaze, diplopia, and poor functional performance abilities resulting in oculomotor processing deficits. The current management strategies emphasize on medical and surgical intervention (such as suturing, metallic implant, resection, and blepharoplasty), and therapy is confined to symptomatic management only. The residual implications severely affect the quality of life (QOL); therefore, the current study was conducted with an objective to modulate visuomotor functional deficit and restore sensory-motor ocular processing abilities using functional dynamic eyelid crutches FDEC) technique to reinstate normal posturo-oculomotor behavioral responses in patients with 3rd CN palsy.[1,2,5-8]

METHOD

This was an experimental control design. A total of 60 participants of age group 10-50 years with 3rd nerve palsy with ocular motor disturbances and functional deficit were included in this study. The patients with traumatic brain injury, psychiatric illness, and medically unstable were excluded from the study. Subject pool was taken from the hospital setting. Informed consent was obtained and the research was conducted as per the Declaration of Helsinki guidelines. The baseline evaluation was done for oculomotor movement, alignment and mobility, gaze and functional performance abilities, and QOL.

Ocular motor disturbances and functional deficit can be assessed by asking the patient to relax their brows and place their head in a normal position. It is measured with the patient looking straightforward with the head vertical, whereas ptosis was assessed by measuring palpebral fissure height, marginal reflex distance (MRD), and levator function.

The palpebral fissure height/vertical fissure height is the distance between the upper lid and lower lid margins measured in the papillary plane with the eyes in primary gaze. Normal vertical palpebral fissure height is 9-10 mm in primary gaze.

The MRD-1 is the distance in mm between the center of the pupillary light reflex on the patient's cornea to the level of the center of upper eyelid margin with the eye in primary gaze. With the eyes of the examiner and the patient at the same level, a light held between examiner's eyes is directed at the patient. A measurement of 5 mm or greater is considered normal.[3,7]

The levator function/lid excursion is a measure of the levator function. The levator muscle is isolated firmly by placing a finger on the patient's brow to negate the effects of the frontalis muscle (Berke's Method). Have the patient gaze downward and place a ruler at the upper lid margin. Next have the patient gaze upward and measure the new position of the upper lid and record the distance between the two measurements as the levator function. Normal levator function is 13-17 mm.

Functional implication of ptosis, visuomotor functional deficit, and QOL was assessed using functional visual questionnaire.[9]

The strabismus score[10] was also calculated. It has 2 components/ subscales. The first subscale covers psychosocial aspect and second subscale measure physical and emotional function (item 11-20) with grades from 4 (never) to 0 (always). This score of this 5-point Likert scale was transformed to a score of 100-0 (never [100]; rarely [75]; sometimes [50]; often [25]; and always [0]).

Two groups, (i.e. FDEC group and conventional treatment [CT] group) were made with 30 participants in each. The participants in each of the treatment groups were further allocated to two strata (strata-1 [10-30 years] and strata 2 [30-50 years]) with 15 participants in each (FDEC group, strata 1 [n = 15] and strata 2 [n = 15] and CT group, strata 1 [n = 15] and strata 2 [n = 15]) using inverse sampling method. With Group A eyelid crutches along with oculomotor training and Group B CT alone was given for 12 weeks with a frequency of 3 sessions per week of 30 min duration each. The statistical analysis was done.

FDEC Technique

FDEC technique is a strategy to facilitate, activate, and augments the voluntary action of muscles responsible for eyelid opening. Initially, it allows assisted opening and voluntary closure of the upper eyelid. It is based on the principles of movement dynamics with an aim to elicit adaptive visuomotor response by sequentially grading the stretch, resistance, assistance, and line of pull of extraocular muscles (EOM) with an aim to elicit adaptive response.

The treatment aims at normalizing tonal characteristics, increasing passive and active mobility of structure, promoting symmetry and alignment through facilitatory and inhibitory techniques, positioning to elicit static and dynamic visuomotor responses, and promoting task-related performances based on the Neurofacilitation of Developmental Reactions Technique. The intervention is divided into 3 treatment phases:

1. Facilitatory phase
   This phase aimed at maintaining symmetry and facilitating muscle contraction in desired direction by allowing assisted opening and voluntary closure of the upper eyelid by applying eyelid crutches.
2. Enhancement phase

This phase aimed at facilitating and augmenting the synergistic action of eyelid muscles (levator palpebral superioris and orbicularis oculi) and modulation of muscle behaviors by altering interaction dynamics and influencing visuomotor and postural adjustment responses. This phase incorporates principles of movement dynamics for regulating tonal behavior using neurofacilitatory contact points, vestibular, proprioceptive, and kinesthetic input to enhance active contraction of intraocular and EOM synergistically in desired ranges. Eyelid crutches were removed intermittently followed by bilateral active contraction of levator muscle along with visual saccades and pursuits with no added resistance.

3. Resistive phase

   This phase aimed at strengthening the recovering paralyzed muscle against resistance and increasing hold time of the affected muscles while contracting.

Conventional Treatment (CT)

The CT strategies include ROM oculomotor exercises, environmental modification and restructuring, use of assistive aids and appliance (such as eye glasses, and eye patches), and use of compensatory approaches and strategies.

Statistical Analysis

Between-group's comparisons were done (pre-post-intervention) using parametric independent *t*-test at different timelines.

RESULTS

Between-group analysis was done for each time point, that is, at baseline, 6 weeks, and 12 weeks. The alpha (α) was set at 0.05 with power of test 90.

Between-group analysis revealed significant difference among the groups. For strata 1 (10-30 years), the *P* value for eye movement score was significant ($P < 0.05$) for Group A (i.e. FDEC group) at 12 weeks for eye movement score (95% CI: 0.7-2.2, $P < 0.001$), strabismus score (psychosocial [95% CI: 1.7-10.2, $P = 0.008$] and function subscale [95% CI: 1.2-9.3, $P = 0.012$]), functional visual questionnaire (general function implications [95% CI: −7.8-−3.2, $P < 0.001$] and clinical symptom [95% CI: −2.5-−0.81, $P < 0.001$]), and ptosis measure (MRD [95%, CI: −1.4-−0.2, $P = 0.011$], palpebral fissure height [95% CI: −0.6-2.8, $P = 0.004$], and levator function [95% CI: 1.1-3.7, $P = 0.001$]) (Table 1).

For strata 2 (30-50 years of age), the *P* value was significant for eye movement score (95% CI: 0.8-2.4, $P < 0.001$), strabismus score (psychosocial [95% CI: 0.50-14.15, $P = 0.036$] and function subscale [95% CI: 0.1-12.4, $P = 0.049$]), functional visual questionnaire (general function implications [95% CI: −12.01-−1.98, $P = 0.008$] and clinical symptom [95% CI: −2.0-−0.92, $P < 0.001$]), and ptosis measure (MRD [95% CI: −1.9-−0.67, $P < 0.001$], palpebral fissure height [95% CI: 0.4-2.66, $P = 0.009$], and levator function [95% CI: 1.8-4.48, $P < 0.001$]) for Group A, i.e. FDEC group at 12 weeks (Table 2).

DISCUSSION

The improvement in Group A with whom FDEC technique used was remarkable. It could be attributed to various factors which formed the foundation of eyelid crutches technique.

Between-group analysis revealed significant difference among the groups. For strata 1 (10-30 years), the mean scores showed significant improvement in FDEC group (Group A) for eye movement; MRD, palpebral fissure height, levator function, and functional visual questionnaire whereas in CT group, that is, group it was less significant with *P* value ranging from <0.05 to 0.033.

For strata 2 (30-50 years), the mean scores showed significant improvement in FDEC group (Group A) for eye movement; MRD, palpebral fissure height, levator function, and functional vision than CT with *P* value ranging from <0.001 to 0.049.

The eye movement scores, MRD, palpebral fissure height and levator function score increased, and QOL improved as evident by decrease in mean scores on functional visual questionnaire. It also appeared from the mean scores that the participants in strata 1 (with lower age group) showed better results.

The FDEC technique used in Group A utilizes the principles of biomechanics, neuromuscular retraining, and neurophysiology. It states that weak or paralyzed muscle can be reinforced or facilitated through irradiation through temporal and spatial summation. The principle of biomechanics help in explaining the vectors responsible to perform a movement in the facial region, which needs to be balanced to optimize the muscle function in desired direction thereby preventing asymmetry.

FDEC technique utilizes all of the above principles and serves the main purpose of preventing asymmetry; overactivity/overpull of paralyzed muscle and facilitation to reinforce movement in graded fashion and maximize functional use of affected muscles by incorporating functional visual motor activities. The carefully applied stretch/position of eyelid through eyelid crutches during initial stages helped in facilitating the optimal movement patterns of eye globe/ocular muscles affected and also reduced the extraneous effort and labor along with compensatory muscle substitution. Application of eyelid crutches therefore not only facilitated the EOM but also helped in improving the levator palpebrae action. The ocular alignment and saccadic/gaze control exercises were facilitated in Group A due to optimal eyelid stretch and resistance to levator muscle which acted as a proprioceptive facilitatory input/stimulus.

The Group A showed remarkable improvement in terms of improved ROM, MRD, decreased diplopia, increased extraocular movement and improvement in protective responses, and QOL on strabismus questionnaire and functional visual questionnaire. The improvement in oculomotor and sensory processing abilities was evident as a result of sequential training of EOM based on the principles of neurophysiology (Sherrington and Listing law).[1,5,8,11,12]

Table 1: Between group analysis FDEC group versus conventional therapy group (at different timeline) Strata 1

Variable	Time	Mean±SD		t	*P* value	Significant	95% CI of different
		FDEC group	CT group				
Strata 1							
Eye movement	Base	11.5±1.5	11.9±1.2	−0.7	0.514	NS	−1.37-0.70
	6 weeks	13.7±1.1	12.6±1.0	2.7	0.013	*	0.24-1.87
	12 weeks	14.9±0.9	13.5±1.1	4.0	<0.001	***	0.72-2.22
Strabismus score							
Psychosocial subscale	Base	62.7±34.5	64.5±6.5	−0.8	0.423	NS	−6.10-2.63
	6 wks	73.9±23.3	72.8±4.5	0.6	0.525	NS	−2.55-4.88
	12 wks	87.7±9.8	81.8±6.5	2.9	0.008	*	1.72-10.21
Function subscale	Base	64.5±32.6	67.3±7.2	−1.2	0.234	NS	−7.52-1.92
	6 wks	75.8±21.8	73.3±5.6	1.3	0.193	NS	−1.34-6.32
	12 wks	86.8±11.1	81.5±6.4	2.7	0.012	*	1.24-9.28
Functional visual questionnaire							
General function implication	Base	48.4±44.5	44.8±9.8	1.2	0.259	NS	−2.79-9.99
	6 wks	30.6±28.2	33.3±4.5	−1.6	0.118	NS	−6.15-0.74
	12 wks	19.0±17.8	24.5±3.7	−5.0	<.001	***	−7.83-−3.25
Clinical symptom	Base	9.7±9.0	9.3±1.0	1.0	0.344	NS	−0.45-1.25
	6 wks	7.9±7.3	8.3±1.0	−0.9	0.364	NS	−1.21-0.46
	12 wks	6.2±5.6	7.8±1.1	−4.0	<.001	***	−2.48-−0.81
Marginal reflex distance	Base	3.4±0.6	3.6±0.5	−1.0	0.347	NS	−0.63-0.23
	6 wks	1.9±0.7	2.5±1.0	−1.8	0.077	NS	−1.26-0.07
	12 wks	0.6±0.6	1.4±0.9	−2.8	0.011	*	−1.37-−0.20
Palpebral fissure height	Base	2.8±0.9	2.8±0.9	0.0	1.000	NS	−0.67-0.67
	6 wks	5.6±1.6	4.8±1.2	1.5	0.147	NS	−0.31-1.97
	12 wks	8.5±1.5	6.8±1.3	3.2	0.004	**	0.59-2.78
Levator function	Base	3.9±0.8	4.5±1.3	−1.4	0.187	NS	−1.34-0.27
	6 wks	6.9±1.6	6.0±1.5	1.5	0.15	NS	−0.33-2.07
	12 wks	10.4±1.7	8.0±1.6	3.8	0.001	**	1.11-3.69

P<0.05: *Significant, <0.01: **Very significant, <0.001: Highly significant, Wk: Week, FDEC: Functional dynamic eyelid crutches

The fundamental aspects of ocular motility are properties of the EOMs and their associated connective tissue pulleys. The active pulley, that is, rectus and inferior oblique EOMs have connective tissue soft pulleys that are actively controlled by the action of the EOMs' orbital layers. The rectus pulley array constitutes an inner mechanism, similar to which is rotated torsionally around the orbital axis by an outer mechanism driven by the oblique EOMs. This arrangement was enhanced by virtue of optimal positioning through eyelid crutches which mechanically accounted for several commutative aspects of ocular motor control.[11-15]

The path of EOM differentially selected, by incorporating sensory weighting in multiple coordinate axis, and orientation through eyelid crutches also lead to improvement in dynamic control of oculomotor system and sensorimotor performance abilities. Visual motion stimuli are primarily processed in the eye-centered frame of reference, the vestibular signals are directly linked to head orientation in space, neck proprioception indicates only head motion relative to the trunk, and limb proprioception is collected in arm or leg-referenced coordinates. The gaze signals have a powerful control of the vestibule-ocular, vestibule-spinal, and reticulospinal systems. Many neurons of those systems show a tonic or phasic eye position-related activity and also receive cortical inputs. The visual receptive fields of neurons in different cortical regions are modulated by the position of the eye in the orbit and eyelid function. On the other hand, the direction of gaze, that is, the position of the eyes in space is coded on the basis of proprioceptive signals originating from all the body segments involved in a given configuration. Indeed, multimodal signal processing, including neck somatosensory, visual, and vestibular signals, is a characteristic of vestibular responses recorded in single cells of the brainstem vestibular nuclear complex, in vestibular structures of the cerebellum, the thalamus, and cerebral cortex.[5,8,12,13]

The visual, vestibular, and neck proprioceptive pathways interact together to produce normal responses therefore the eyelid crutches technique in Group A which included assisted levator and Muller function and allowed to actively incorporate visual saccade and upward eye gaze movement and helped in processing sensorimotor abilities thereby improving functional performance abilities and QOL.

CONCLUSION

FDEC technique is found to be effective for augmenting visuomotor function and modulating visual field deficit thereby contributing toward improving QOL in patients with 3rd CN involvement.

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Table 2: Between group analysis FDEC group versus conventional therapy (CT) group (at different timeline) Strata 2

Variable	Time	Mean±SD		t	*P* value	Significant	95% CI
		FDEC group	CT group				
Strata 2							
Eye movement	Base	11.5±1.4	11.4±1.5	0.1	0.899	NS	−1.00-1.14
	6 wks	13.2±1.0	11.8±1.0	3.8	0.001	**	0.66-2.23
	12 wks	14.4±1.0	12.8±1.0	4.1	<0.001	***	0.80-2.40
Strabismus score							
Psychosocial subscale	Base	61.5±6.0	61.1±5.9	0.2	0.879	NS	−4.12-4.78
	6 wks	71.9±7.3	68.1±7.8	1.3	0.205	NS	−2.20-9.75
	12 wks	83.7±7.6	76.4±9.4	2.2	0.036	*	0.52-14.15
Function subscale	Base	62.3±5.1	62.0±4.5	0.2	0.880	NS	−3.33-3.86
	6 wks	72.5±6.6	68.9±6.2	1.5	0.156	NS	−1.48-8.68
	12 wks	81.9±7.7	75.7±7.9	2.1	0.049	*	0.02-12.40
Functional visual questionnaire							
General function implication	Base	51.3±5.1	51.6±3.7	−0.2	0.871	NS	−3.59-3.06
	6 wks	34.6±4.5	40.1±4.8	−3.1	0.005	**	−9.21-−1.84
	12 wks	25.1±6.0	32.1±6.6	−2.9	0.008	**	−12.01-−1.98
Clinical symptom	Base	9.5±0.8	9.1±0.8	1.1	0.283	NS	−0.29-0.96
	6 wks	7.4±0.9	7.8±0.7	−1.3	0.197	NS	−1.02-0.22
	12 wks	5.8±0.7	7.3±0.6	−5.8	<.001	***	−1.95-−0.92
Marginal reflex distance	Base	3.7±0.6	3.6±0.5	0.3	0.749	NS	−0.36-0.49
	6 wks	1.9±0.6	2.4±0.6	−2.0	0.052	NS	−1.02-0.00
	12 wks	0.3±0.8	1.6±0.8	−4.4	<.001	***	−1.86-−0.67
Palpebral fissure height	Base	2.3±0.7	2.3±0.5	−0.3	0.765	NS	−0.52-0.39
	6 wks	5.5±1.2	4.8±1.4	1.5	0.151	NS	−0.29-1.80
	12 wks	8.5±1.5	6.9±1.4	2.8	0.009	**	0.41-2.66
Levator function	Base	3.7±0.8	4.3±1.0	−1.9	0.062	NS	−1.37-0.04
	6 wks	7.6±1.0	6.1±1.1	3.9	0.001	**	0.73-2.35
	12 wks	11.2±1.7	8.0±1.6	4.9	<.001	***	1.83-4.48

P<0.05: *Significant, <0.01: **Very significant, <0.001: Highly significant, wk=week, FDEC: Functional dynamic eyelid crutches

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The Effect of Occupational Therapy Training on Patient Handling Skills in Respite Caregivers

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Abstract

Background: Taking care of an older or ill family member can be enormously rewarding. Respite services are recommended as an important support for caregivers. Respite caregivers need special training for offering the better health services to the patients. Non-governmental organization, shield foundation had planned the project to train respite caregivers. Occupational therapist was the member of this trainers' team.

Aims and Objectives: To analyze the effect of occupational therapy (OT) training on patient handling skills in respite caregivers from underprivileged group of society. To study the effect of OT training by comparing scores of pre- and post-test.

Type of Study: Retrospective analysis of hospital records.

Methods: OT training consisted of training on various aspects such as lifts and transfers, and personal care/daily living skills. The participants were introduced simple adaptive devices for achieving independence in activities of daily living in the care receivers and shown its use on audio visual aids. The present study is a retrospective study of records of 2 years of 87 respite caregivers. Occupational therapist conducted pre- and post-training tests; further these results were assessed and analyzed for effect of OT training in acquisition of different aspects of patient care skills.

Results: The comparison in pre- and post-test scores of OT training showed statistically significant difference. Participants have shown marked improvement in the mean scores in answering a questionnaire from 4.21 to 11.82 out of total 15 and in demonstration test for all three skills evaluated from 4.04 to 8.19 out of total 10. It was observed that health-care providers must act as advocates to improve respite care policy. Further, comparative study with respite caregivers not taking formal training is recommended.

Conclusion: OT training was found to be effective in teaching scientific methods of patient handling, transfer, etc. It was concluded that the training program needs to be more systematic and well planned. Skill training played an important role in the rehabilitation process. The respite care should fit caregivers' needs, and the training must help caregivers overcome the social or cultural barriers to respite care.

Key Words: Activities of Daily Living, Moving and Lifting, Patient Care, Self-care, Retrospective Study

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INTRODUCTION

Taking care of an older or ill family member can be enormously rewarding. Nearly, half of the caregivers provide fewer than 8 h of care per week, while nearly one in five provide more than 40 h of care per week. In these circumstances, respite services are seen as one key formal support intervention for avoiding negative consequences of family caregiving. Respite care provides caregivers a temporary rest from caregiving.[1]

There are 5.8-7 million informal caregivers provide care to person 65+ who need assistance with everyday activities.[2] The old-age dependency ratio climbed from 10.9% in 1961 to 14.2% in 2011 for India as a whole. An aging population also reduces the availability of family caregivers. The problem is especially critical in societies, such as China and India.[3] In India, especially in metro cities like Mumbai, respite caregiver has become a need of a society. Respite caregivers are formal caregivers, are paid care providers or home aids, providing care in one's home or in a care setting (residential facility, long-term care facility).[4] Shield foundation had planned the project is creating a "caring network" of trained respite care providers. It was a project to train underprivileged ladies, especially home makers from the community willing to start earning for family. It had involved various professional trainers along with occupational therapy (OT) services. The project was done in collaboration with tertiary care hospital in the vicinity. OT training consisted of training for patient handling, assisting in patient's activities of daily living (ADL) skills, assisting patients in mobility/lifting and transfer.

In some of the studies, caregiver-focused health care education about dementia and caregiving, assistance with problem solving, showed a clinically important improvement in the quality of life, had greater satisfaction and had decreased caregiver strain index significantly with $P \leq 0.05$.[5,6] In a 2007 study of trained home health aides conducted by the center for disease control, home care aides reported their work as meaningful, be confident in handling health care issues in patients due to formal training.[4]

The analysis of the effect of the training program was necessary for an effective concerted effort. Occupational therapists were the members in trainers' team, they conducted pre- and post-training

tests. The analysis of these results could reveal the errors in current training program and would help planning more effective program.

Aim

To analyze the effect of OT training on patient handling/ mobility, transfer, ADL skills in respite caregivers from underprivileged group of society.

Objectives

- To study effect of OT training by comparing scores of pre- and post-training questionnaire and performance
- To use this analysis in the improvement of OT training on patient handling skills, patient transfer and functional activity assistance skills in respite caregivers.

Hypothesis

- OT training is effective on improving patient handling skills, patient transfer/mobility and functional activity assistance skills in respite caregivers.

Null Hypothesis

- OT training is not effective on improving patient handling skills, patient transfer/mobility and functional activity assistance skills in respite caregivers.

METHODS

Occupational therapists were the part of the training program team for respite caregivers. The team of preventive and social medicine professor, occupational therapists, social workers, and nursing faculties had designed a module of short term certificate course based on Wisconsin lifespan caring network training module, which consisted of:

- Disability basics
- Lifts and transfers
- Personal care/daily living skills
- Medication administration
- Communication techniques
- Abuse and neglect
- Caring for challenging behaviors
- Free time activities
- Making connections (meeting/training with the family).[7]

OT training for these caregivers consisted of training for OT core skills such as patient handling, assisting in patient's daily living skills, assisting patients in mobility, and transfer.

The OT training included classroom training using various audio visual aids and hands-on training. It consisted of demonstrations for improving skills stated above with introduction of use of appropriate adaptive techniques and adaptive devices for the patients, first on the normal subjects and then with the patients for a few hours. The duration of OT training was 1 week, 2 h/day, i.e. 10 h of training. The training lab was established in the slum area of the city.

The participants in the respite caregivers program were given pre- and post-test questionnaire for evaluating their knowledge in these skills. The questionnaire was formed by referring the standard reference books in OT. The questionnaire was approved by senior faculties in the profession. Participants' practical skills were evaluated by demonstration test on normal individuals before and after completion of OT skills training. Demonstration skills were evaluated by external faculty (faculty not involved in the training). No cutoff for scores of these tests was considered.

The retrospective analysis of hospital records was planned in OT department using records of past 2 years of the respite caregivers training participants. Permission was sought from the Institutional Ethics Committee. 87 subjects were included in the study from the database of non-governmental organization (NGO) fulfilling following inclusion criterion:

Inclusion Criterion

- Ladies educated from 5th to 12th standard
- Educated in the vernacular medium of Marathi.

Exclusion Criterion

- Ladies educated above 12th standard.

These are excluded as they were very few, i.e. 3 out of 90 candidates. The target population for this course planned by NGO was ladies from 5th to 12th standard since the ladies educated more than 12th standard were given training for other vocational courses by the NGO.

Further, the pre- and post-training results were analyzed for different aspects of patient care skills such as patient handling skills, lifts and transfer, mobility skills, and ADL independence training skills in these participants.

The results were analyzed using SPSS 19 version, pre- and post-training scores for all the variables were compared using Wilcoxon signed ranked scale. The level of significance was set at $P < 0.05$ and confidence interval (CI) at 95%.

RESULTS

The results were analyzed using SPSS 19 version. As seen in Table 1. All the participants were females ranging from 23 to 45 years of age. Maximum number of participants was between age range of 30 and 35 years. Further, pre- and post-training questionnaire total scores, individual scores for patient handling skills, transfer mobility skills, ADL independence skills, and pre- and post-training demonstration scores were compiled to find mean and standard deviation with significance as $P \leq 0.05$ and CI at 95%.

As seen in Table 2 mean values of post-training scores increased markedly, in full questionnaire score mean score was 4.21 ($P \leq 0.001$; 95% CI: 3.99-4.45) to 11.827 ($P \leq 0.001$; 95% CI: 11.61-12.05), also the reduction in standard deviation in post-training in all the variables except in ADL independence training. Pre- and post-training scores for all the variables were

compared using Wilcoxon signed ranked scale (*P* significant if ≤0.05 and CI 95%) as seen in Table 2.

The comparison in pre- and post-test scores of practical skills demonstration scores after OT training showed statistically significant difference with $P < 0.001$ and CI 95%, mean values improved from 4.04 ($P \leq 0.001$; 95% CI: 3.86-4.24) to 8.195 ($P \leq 0.001$; 95% CI: 8.02-8.37).

The data were further analyzed by plotting graph for pre- and post-training score distributions in all the variables.

As observed in Graph 1 few of the participants had shown variations in ADL independence skills answers on questionnaire scores. This showed that few of them did not give much importance for this aspect of training.

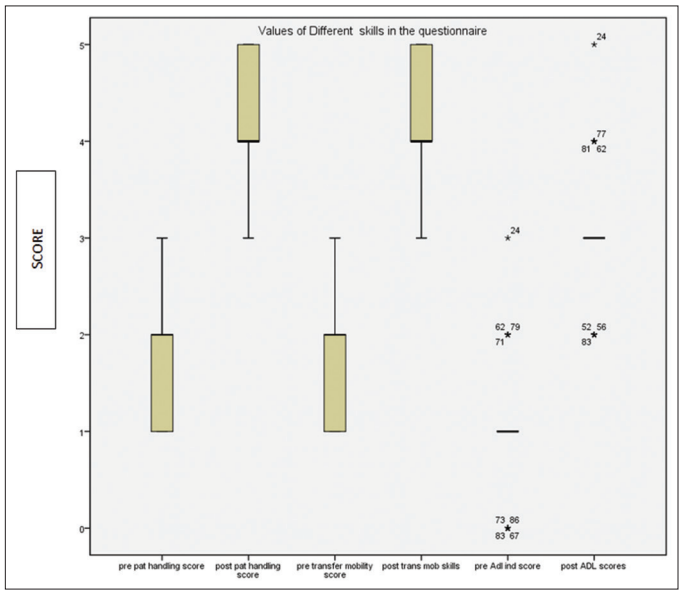
Further, the results of pre- and post-training demonstration marks were analyzed as seen in Graph 2. As seen in Graph 2, in demonstration marks all the candidates except few had shown significant improvement, thus showing better achievement in the practical aspect of training. Thus, some of the candidates showed lower marks pre- and post-training in demonstration, with the exception of one candidate who scored high in pre- and post-training demonstration score.

Table 1: The Age Distribution of the Participants

Age in years	Number of participants	Age wise percentage of total population in the study
23.00	1	1.1
26.00	1	1.1
27.00	1	1.1
28.00	6	6.9
29.00	4	4.6
30.00	2	2.3
31.00	5	5.7
32.00	3	3.4
33.00	7	8.0
34.00	5	5.7
35.00	8	9.2
36.00	6	6.9
37.00	5	5.7
38.00	7	8.0
39.00	3	3.4
40.00	3	3.4
41.00	3	3.4
42.00	7	8.0
43.00	4	4.6
44.00	2	2.3
45.00	4	4.6
Total	87	100.0

DISCUSSION

India has limited resources to care for elderly and ill patients. The 3 months training program was established for respite caregiver with hands on training program. This included OT training program for 1 week. The project was funded by NGO and one of the corporate companies in the city after identifying the need of formal training for respite caregivers. Pre- and post-training tests questionnaire and demonstration scores were analyzed to find the effect of training. As seen in Table 1, a maximum number of participants, i.e. 43.5% is in the age group of 33-38 years. Following this, participants were between ages of 40 and 45 years. It was observed that these ladies perceived the need of more earning for the family as they had grown up school going grown up children and had realized need for extra earnings.

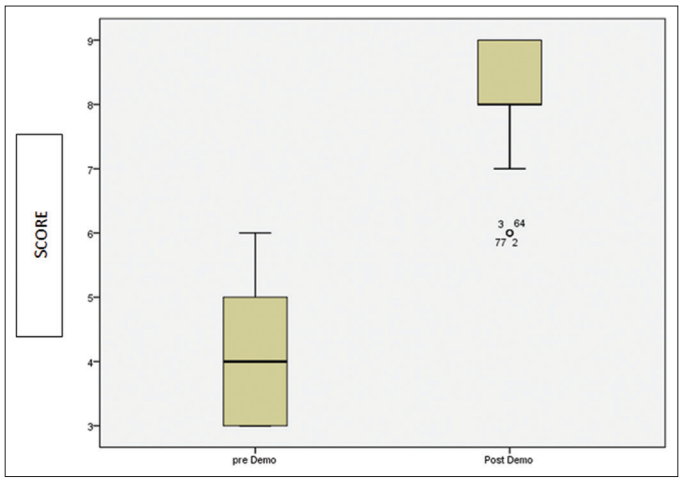


Graph 1: The Pre- and Post-training Questionnaire Scores for the Skills Evaluated in the Questionnaire (*P* significant if $*P \leq 0.05$ and Confidence Interval 95%)

Table 2: Mean Score, Standard Deviation, Pre- and Post-test Analysis of Three Skills Tested in Questionnaire and Demonstration Scores (n=87)

Name of the test	Mean	Standard errors	Standard deviation	*Z*	95% CI	Asymptotic significant (two-tailed) *P* value
Pretest full questionnaire score	4.22	0.117	1.094	−8.182	3.99-4.45	0.000*
Post-test full questionnaire score	11.83	0.112	1.037		11.61-12.05	
Patient handling skills pretest score in questionnaire	1.62	0.057	0.533	−8.449	1.51-1.74	0.000*
Patient handling skills post-test score in questionnaire	4.44	0.058	0.543		4.32-4.55	
Mobility/transfer skills pretest score in questionnaire	1.61	0.059	0.557	−8.449	1.49-1.73	0.000*
Mobility/transfer skills post-test score in questionnaire	4.26	0.057	0.538		4.15-4.38	
ADL training skills pretest score in questionnaire	0.99	0.050	0.469	−8.426	0.89-1.09	0.000*
ADL training skills post-test score in questionnaire	3.13	0.067	0.625		3.01-3.24	
Pretest demonstration of skills score	4.05	0.097	0.901	−8.167	3.86-4.24	0.000*
Post-test demonstration of skills score	8.2	0.088	0.819		8.02-8.37	

Wilcoxon signed ranks test (*P* significant if $*P \leq 0.05$ and CI: 95%). CI: Confidence interval, ADL: Activities of daily living



Graph 2: The Pre- and Post-training Demonstration Test Score (*P* significant if **P* ≤ 0.05 and confidence interval 95%)

Most of the participants showed enthusiasm in learning the skills taught during OT training. The variation in age did not affect their acquisition of required skills.

Only core skills were selected for the training. Participants were given audiovisual presentations followed by hands on training of patient handling and positioning, skills of bed mobility transfer on bed to wheelchair to toilet and back. Furthermore, it included training to use mobility aid such as walker and cane. The participants were introduced simple adaptive devices for achieving independence in ADL in the care receivers and were shown pictures to guide their use in care receiver. All of them were evaluated pre- and post-training on the skills.

As observed in Table 2, participants had shown marked improvement in the mean scores in answering questionnaire and demonstration test for all three skills evaluated, viz. patient handling and positioning, transfer and mobility training, and ADL independence training. The analysis showed statistically significant improvement at the CI 95% and with $P \leq 0.001$. Similar results were observed in the study conducted in an urban center in southern Ontario on caregivers of long term institutionalized patients with dementia. The formal training was received by experimental group consisted of: Caregiver-focused health care and control subjects received conventional community nursing care training. The experimental group showed a clinically important improvement in the quality of life, found the caregiver role less problematic, and had greater satisfaction than the control group with only nursing care training.[5]

Another study was conducted by involving family care givers in breast cancer care project. In the study, caregivers were given need based training by the experts, which resulted in decreased strain index significantly in the intervention group after the patient-caregiver education and follow-up ($P < 0.001$). The participants reported increased confidence in handling their patients' problems.[6] The OT program in this study also considered need based training for respite caregivers such as assistance in daily activities for elderly, and transfer techniques used at different levels of independence. The participants showed significant improvement in their handling skills on demonstration scores with $P \leq 0.001$ and a maximum number of them showed scores within CI of 95%, four candidates among them shown variations in score as seen in Graph 2. The need based care program is need of the day, during the training, they were taught to analyze patients' and family members' needs.

Table 2 and Graph 1 showed the less improvement in the mean scores of pre- and post-ADL independence scores in the questionnaire, though statistically significant with $P \leq 0.05$ and mean score improvement from 0.98 to 3.12, i.e. improvement of 2.138 in mean score. The Graph 1 showed a wide distribution of scores in the population for ADL independence training. It was observed that, since some were young, they preferred to follow old pattern of caregiving, rather than using technological support to reduce their extra efforts. Furthermore, due to our cultural patterns, some of them may have not given much importance to ADL independence training. Some of the participants reported to be apprehensive in using adaptive aids for patients. In the study conducted on carry over effect of respite caregivers training on home aids for elderly patient, the participants showed less satisfaction and apprehension due to stress about following new acquired skills and risk of on job injuries.[4]

In meta-analysis on "how effective are interventions with caregivers" where multicomponent interventions were given, the results showed that the effect of miscellaneous interventions on caregiver burden was significantly smaller than those of other interventions. The combined interventions produced a significant improvement of 0.14-0.41 standard deviation units, except psychoeducation.[8] The participants in this study may have considered the ADL independence training as miscellaneous activity than patient handling and positioning, transfer and mobility skills. They showed on mean score improvement on ADL skill questionnaire of 2.1, less as compared to an improvement of the mean of 2.7 in questionnaire score of other skills (total score 5 for each skills). The trainers were asked the doubts about importance of it and the reason for inclusion of ADL independence training in caregivers training program.

Further, the pre- and post-training scores on questionnaire were analyzed using Wilcoxon signed rank test, as shown in Table 2. Graphs 1 and 2 showed the significant improvement in all the scores, with $P < 0.05$, with CI 95%. Training for participants was given using audiovisual aids, which had resulted in better perception of skills required.

In the study on, non-pharmacological interventions for caregivers of stroke survivor, among various types of interventions, "vocational educational" type interventions delivered to caregivers before the stroke survivor's discharge from hospital appear to be the most promising intervention. The results showed $P \leq 0.001$; 95% CI: 11.30-6.04 and the study concluded in favor of the "teaching procedural knowledge" type intervention group.[9]

The participants in this study were also given hands-on training for handling of patients, transfer and mobility training, positioning as seen in Figure 1. This had significantly improved

Figure 1: Hands-on Training of Transfer

their confidence and self-esteem as observed in Table 2 from pre-training demonstration scores of mean 4.046 ($P \leq 0.001$; 95% CI: 3.86-4.24) to post-training demonstration mean scores to 8.19 ($P \leq 0.001$; 95% CI: 8.10-8.28). The similar results were also observed in a study on the manual wheelchair-handling skills of caregivers and effect of training. The mean pre-training total Wheelchair Skills Test (WST) score ± standard deviation was 77.8% ± 12.0%. Post-training, this increased to 94.7% ± 7.1% ($P < 0.001$), a 22% relative increase. Post-training effect observed to be significant with $P \leq 0.001$. They concluded that Wheelchair skill training program is a safe, practical, and effective method of improving the wheelchair-handling skills of untrained caregivers.[10] The appropriately designed training program for these participants had also been useful in arousing more interest in learning patient handling skills. The participants trained in this program achieved better skills and could be placed in hospitals, half way homes or as respite caregivers.

In the study conducted for observing "the effect of respite care training on the knowledge, attitude, and self-esteem of volunteer providers of Alzheimer's disease," after training on hands on skill development, the findings supported the immediate effectiveness of the respite training program.[11] In this study, skill improvement had occurred due to hands-on training. The post-training retention effect on caregiver's acquired skills was not evaluated in this study.

The scores of demonstration skills were analyzed as seen in Graph 2. Demonstration marks of all candidates except few had shown improvement, thus better achievement in practical skills. Level of interest, their adherence to training program or moderators' training effectiveness may be some of the reasons for the few low scores on demonstration of skills. The limited number of sessions was assigned for OT training. The comprehensive training program for these participants also included the various other skills such as communication skills, caring for challenging behaviors, education about lifts, bed making, and medication administration. These were taught by other professionals such as physicians, psychologists, and nursing faculties. The overall effect of training in above skills may have affected the outcome in this study.

In meta-analysis on the effect of caregivers intervention, the need to identify moderators of intervention effectiveness was identified, including the influence of (a) the intensity of interventions (individual or group, number of sessions), (b) the extent to which participants adhere to the intervention (regularity of attendance and dropout).[12]

In this study effect of attendance of participant was not considered. Participants in this study were the fresh unexperienced candidates, willing to start their services. Some of them may not have been aware about the importance learning specific skills, so affecting their attendance for training session. Thus in future, the training program can be divided into parts as first pre service training, i.e. program for fresher and second in-service training, i.e. once caregivers start offering their services. This will also provide them insight about changing their care giving program as per care receiver's needs. As recommended in the meta-analysis, caregiver interventions can be divided into two major groups: (a) Those aimed at reducing the objective amount of care provided by caregivers (interventions to enhance the competence of the care receiver) and (b) those aimed at improving the caregivers' well-being and coping skills (e.g. psychoeducational interventions, and support groups). In the meta-analysis, they had suggested that one-size-fits-all approach to assisting caregivers may not be useful because caregivers have vastly different needs.[11,12]

As seen in Graphs 1 and 2 and Table 2, there is a statistically significant improvement in the targeted areas in OT training for respite caregivers, thus null hypothesis "OT training is not effective on improving patient handling skills, patient transfer/mobility, and functional activity assistance skills in respite caregivers" can be rejected. The knowledge level achieved after the classroom teaching was good. Furthermore, the demonstration scores had shown a significant rise in the skills achievement in posttest.

Use of feedback form from participants can be used for further improving the training program. Follow-up studies of the trained caregivers to analyze appropriate use of acquired skills can further prove the carry over effect of OT training.

Further, comparative study with the control group of respite caregivers who have not received formal training is recommended.

CONCLUSION

Early studies of the effects of interventions relied on the clinical impressions of group leaders or satisfaction surveys of the select samples of caregivers. Thus, the interventions were judged to be effective. In this study, attempt was made to analyze the effect of OT training on patient handling skills in respite caregivers. The questionnaire was initially given to evaluate cognitive domain. Demonstration test was taken by an external examiner to evaluate affective and psychomotor domain in the course. Later same tests were used to assess the effect of the training program. The respite caregivers had acquired good skills in the targeted areas. Skill training for health-care workers could play an important role in the rehabilitation process. The respite care should fit caregivers' needs, and the training must help caregivers overcome the social or cultural barriers to respite care. Health-care providers must act as advocates to improve respite care policy.

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RESPITE CARE GIVERS TRAINING QUESTIONNAIRE

Tick mark against appropriate options:

1. To prevent bed sores, ideally, the position of immobile, bedridden patient should be changed after------ hours
a. 1 h
b. 2 h
c. 3 h
d. 5 h.

2. While making patient sit from supine position caregivers should support, patient's trunk by supporting with hand below ----------and stabilize at the knee joint
a. Head
b. Neck
c. Shoulder
d. Waist.

3. While transferring the patient from bed to wheel chair, wheelchair should be positioned ----to the bed
a. At acute angle
b. In front
c. Back
d. Away.

4. While transferring totally dependent patient from bed to wheelchair patient should be supported below
a. Neck
b. Axilla
c. Knees
d. Waist.

5. Following aid can be used to follow appropriate dosage of medicines in dementia patients
a. Put them in a bowl after every dosage
b. Put them in a memory box of weekly schedule
c. Write in a diary
d. Put medicine strips in visual field of patient.

6. When patient with the back pain is advised against forward bending or if patient has difficulty in bending forward, following aid can be used for cleaning during bathing,
a. Use long sling for scrubber
b. Use long handle scrubber
c. Lift up legs
d. Squat down.

7. Appropriate method to make a patient sit on bed from lying, who has paralysis of one side of the body is, make him side lying on--------side first
a. Right side
b. Strong side
c. Weak side
d. Left side.

8. Following adaptations can be used for Geriatric patients, to prevent fall in the bathroom,
a. Use of rubber mats
b. Grab bars on the walls
c. Use of walker
d. Stand reclined with the wall support.

9. While using a walker caregivers should be trained to take following precautions
a. To make patient stand without walker initially
b. Patient should not lean on front bars of walker
c. Walker should not be placed far ahead in gait training
d. Walker should be placed on side for support.

10. Following precautions should be taken while transferring the patient from bed to Wheel chair
a. Always use heavy wheelchair
b. Lock the wheelchair
c. Remove handles of wheelchair
d. Stand behind the wheelchair.

11. Patient with dementia can be made independent, in following schedules of the "activities of daily living" using
a. Diary
b. Organizing activities of preference as per patient's interest
c. Instructing and reminding him repeatedly
d. Assisting him physically.

12. While transferring bed ridden totally dependent patient safely, caregiver can use effective body mechanics by bending at his/her own joints at
a. Waist
b. Knees
c. Neck
d. Upper back.

Keys of the Questionnaire:

S.No.	Keys	Skills
1	b	Patient handling
2	c	Patient handling
3	a	Transfer and mobility
4	c	Transfer and mobility
5	b	Functional independence
6	b	Functional independence
7	c	Patient handling
8	a, b	Functional independence
9	b, c	Functional independence
10	a	Transfer and mobility
11	b	Functional independence
12	a, b	Patient handling

Development of the Disha Transdisciplinary Model in Pediatric Habilitation

Namita Shenai-Vadhavkar[1], Dinaz Naville Wadia[2]

Abstract

Background: Transdisciplinary care is defined as the sharing of roles across disciplinary boundaries to enhance communication, interaction, and cooperation among team members. The Disha transdisciplinary model aims to provide family-centered, coordinated, and integrated services to meet the needs of children with difficulties and their families. It has been recognized as one of the best approaches for early intervention practice. This approach is considered to reduce the fragmentation in services and also the likelihood of conflicting and confusing reports and enhance service coordination.

Aims and Objectives: Pediatric habilitation is a team-based approach to enable effective delivery services provision for children with special needs. Transdisciplinary care involves active coordination among team professionals to work toward goal attainment for better treatment provision. Hence, the study aims to develop a model of treatment care.

Methods: The model involves six stages of treatment provision aiming toward effective therapy services. It involves interaction of the team to jointly develop and plan goals without over reeling for the child through effective documentation. There is integration of the therapist-parent-child-school interaction to enable better functional outcomes. The transdisciplinary health professional interacts with the families to enable continuation of services at home.

Results: Effective improvement of goals envisioned and better outcomes noted due to regular discussion of the team and better progression of therapy.

Conclusion: This model can serve to enhance treatment provision for the children and also provide great assistance to the families.

Key Words: Documentation, Model of Care, Team Approach, Transdisciplinary

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INTRODUCTION

Transdisciplinary care is defined as the sharing of roles across disciplinary boundaries to enhance communication, interaction, and cooperation among team members.[1-3] In this form of care, a single professional coordinates by integrating the services provided by the professionals to communicate with the family. Transdisciplinary means the parent and persons from two or more disciplines teach, learn, and work together across traditional disciplinary or professional boundaries. Multidisciplinary care draws on knowledge from different disciplines but stays within their boundaries. Interdisciplinary care analyzes, synthesizes, and harmonizes links between disciplines into a coordinated and coherent whole.[4] This model of care aims to provide family-centered, coordinated, and integrated services to meet the needs of children with difficulties and their families.[3] It has been recognized as one of the best approaches for early intervention practice.[5] This approach is considered to reduce the fragmentation in services and also the likelihood of conflicting and confusing reports and enhance service coordination.

The field of pediatric habilitation mostly has service delivery by multidisciplinary professionals. This has led to fragmentation of treatment, delay in goal achievement, and minimal family-centered care. In view of this, the need to develop a model of care involving transdisciplinary services to improve functional outcomes was felt.

This is how the Disha model of transdisciplinary care evolved to cater to families by providing multiple therapies under one roof, with the aim of establishing coordinated therapy services within a time frame. This model is different from the transdisciplinary model primarily that it is a time-frame based model. There are monthly goals to be achieved. The aim is to enable efficiency of services and also providing effective documentation to assist in transition of therapy goals with different professionals.

This study describes the development of the model of transdisciplinary care and also the stages of implementation in the treatment of children with developmental delay. It also describes the roles of the professionals for efficient service provision and support for the families. The role of the transdisciplinary professional integrating the services with the team is also considered.

- King *et al*.[1] reviewed literature on transdisciplinary approach to early intervention services and identified the essential elements of this approach and also described a practice model.
- Davies[2] provided a family-centered, transdisciplinary model of early intervention service delivery called, "team around the child" in the United Kingdom. Davies outlines 10 model components, including philosophy, family role, key worker role, team interaction, lines of communication, staff development, and the assessment process.
- Voyer and Thompson[6] postulated the transdisciplinary team approach specifying collaboration among the team to enable effective service delivery.

Aims and Objectives

- To describe the development of the transdisciplinary model of care.
- To describe elements and stages of delivery provision.
- Define an interdisciplinary cum transdisciplinary team approach and role delineation.
- To enable effective family-centered care along with effective services.
- Develop an effective process of documentation.

METHODS

Overview of the Approach

Transdisciplinary service is defined as the sharing of roles across disciplinary boundaries so that communication, interaction, and cooperation are maximized among team members.[2,3] It is characterized by the commitment of its members to teach, learn, and work together.[5]

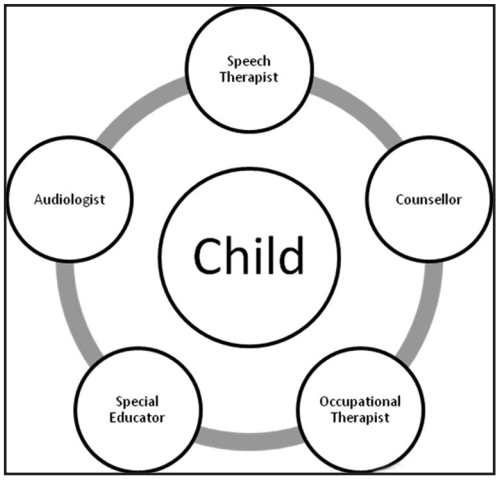
Transdisciplinary team is a group of professionals who each represent areas of expertise useful in planning and implementing the educational, therapeutic, and/or medical treatment program of children with special needs. The team members gather periodically to evaluate the child, share their expertise, and with the child's parents, determine the child's areas of strength, and deficit.

Based on the evaluation, a plan for addressing the child's needs is developed, and the professionals who will implement the plan are designated. Members of the interdisciplinary team may include a physician, pediatrician, psychologist, physical therapist and occupational therapist, speech pathologist, and social worker, in addition to the child's parents [Figure 1].

Professionals on the transdisciplinary team provide assessments, recommendations, and treatments that overlap other team members' activities. For example, both speech-language pathologist and the occupational therapist may address a young child's oral tactile defensiveness, and then, share their activities with the child's parents and child care provider.

Transdisciplinary team members also provide training to other team members and jointly share the responsibility of implementing the same. The transdisciplinary approach is considered to be the best practice because:

Figure 1: Members of the Interdisciplinary Team



- Working as a transdisciplinary team reduces the likelihood of confusion for the family by reducing the number of people and disciplines with which they need to interact.
- It enhances relationship between the service coordinator and family, especially if the service coordinator is also the primary interventionist.
- It increases collaboration and communication among team members.
- Ensures that all providers of healthcare in outpatient and home-based services are working on the same outcomes and strategies.[7]

The three essential features of the approach:
1. Arena assessment - specific evaluations required.
2. Intensive ongoing interaction among the team.
3. Role release.[1,8]

Based on this conceptual framework, the team at the center has devised a similar model to enhance the quality of service provision to enable effective care.

Need for Disha Transdisciplinary Model of Care

In the field of pediatric habilitation and rehabilitation, children need multiple services for effective treatment. This requires the need for many professionals to work with the child. The parents and caregivers need to visit various settings leading to physical and emotional stress for them. This has led to the need to have all services under one roof, incorporation of the team members' goals in the transdisciplinary care plan and enabling one professional to guide the parents reducing confusion of treatment/care.

Model

Based on this framework the model has been developed which is defined by:
- Provision of child-centered and family-focused care.
- Evidence-based best practice.
- Integrated continuum from clinic to home and school settings.
- Effective documentation to enable transparency in care.

The Disha model has been the culminated effort of practice at the center for nearly 25 years. A large number of professionals

have worked for incorporating the transdisciplinary services to deliver quality therapy services. This research is a descriptive study design with a theoretical base which involves use of frames of reference such as the model of human occupation, cognitive, and psychodynamic to enable application of the same to practice. This model has been applied to clinical practice in the following way as mentioned below. The model involved use of human - children and hence permission from the clinic's Ethics Committee was taken. A written informed consent was also sought from the parents as the children were minors. The validation of this model has been done with an in-house panel along with the team. The team provided their respective standardized assessments and a team of professionals from different specialties reviewed it along with the stages of the development over the years. The Delphi method was used for the same.

The stages of model development are a six stage process which gradually culminates into effective service provision. They are:

1. Access and initial contact.
    - Intake session.
    - Information about the therapies and the team approach.
    - Referral.
2. Initial need identification.
3. Evaluation and assessment.
4. Treatment planning and counseling.
5. Delivery of services.
6. Follow-ups with team about progress.

Access and Initial Contact

Once the initial referral is made by the pediatrician, neurologist, school teachers, or any other professional; the intake session mainly consists of a detailed history of the child involving the medical, familial, socioeconomic history, handling strategies, family support, and caregivers in the family along with an overview of the child's strengths and weaknesses. This also involves the grading of the duration of the symptoms and the severity of the same impacting the child's performance. We are at the center do not believe in labeling the child, yet identifying strengths and weaknesses for effective skills improvement. Our goal is functional independence and optimum development. The transdisciplinary health professional provides detailed information about the child's concerns and how they will impact the development if not intervened. The parents are also provided information about the details of the assessments which are required for analyzing the level of development. The session ends with appropriate referrals to the fellow members of the team for detailed evaluations such as a speech therapy or an occupational therapy evaluation. The intake session generally last for an hour to about 2 h.

K aged 4.6 years was referred to our center with concerns in the form of non-fluency. He was assessed on a brief evaluation for his speech and language concerns, and a detailed evaluation would follow. Although evidence-based practice states that there is affectation of coordination in the limbs when there is difficulty with fluency. Hence, he was advised an occupational therapy evaluation. The assessment showed that there were coordination difficulties as well.

Initial Needs Identification

The initial evaluation decides the needs of the child which need to be worked upon. The key service provider identifies the concerns and the areas which need to be worked upon. She then gives recommendations which are to be followed which include specific evaluations.

Evaluation and Assessment

The team also decides whether further evaluations are required after the transdisciplinary health professional advises an evaluation. This process normally follows when a child is advised an assessment and the team feels that another set of evaluation would help.

N aged 7 years was referred for attention related concerns to the center. The transdisciplinary health professional advised for an occupational therapy assessment. However, during evaluation the therapist felt that a detailed special education assessment would be very useful to decide whether attention was affected by academic (cognitive) issues or the child primarily had inattention impacting on pre-academic and academic skills.

The evaluation sessions are spaced out with two sessions of 45 min each for enabling the child to be familiar to the therapist and the environment. Specific symptoms related tools are administered.

Once the series of evaluations have been completed the team members meet up to discuss the findings based on their assessments. They also provide a detailed evaluation report of their evaluations.

Treatment Planning

The team meets again after the reports of the evaluations are completed to discuss if the findings of the professionals assessing the child have matched or not. The discrepancies are then discussed as to why the difference in findings was noted. The transdisciplinary health professional then schedules a meeting with the parents, and then, interacts with the parents providing a complete overview of the evaluations and the implications of the findings. These serve as a baseline for treatment. The family is given a detailed schedule of the therapy process and the duration of services. The parents and the caregivers are also advised a home-based program to work upon with the child once sessions start.

Delivery of Services

The service delivery model primarily focuses on identifying the immediate concerns of the child, and then, developing a goal plan based on the frame of reference relevant and on activity analysis. It consists of a set of activities specifically designed and in accordance with developmental level of the child. The goal plan is developed with reference to a monthly pattern. A set of about 6-8 (short term goals) is chosen keeping holistic development in mind.

The aim is to achieve independence in the same with the duration of each session being 45 min and 8-12 sessions in a

month are allotted depending on the needs of the child. The sessions are conducted by the team of professionals which include the speech therapist, occupational therapist, and the special educator.

The parents or caregivers of the child are given a home program of the set of activities done for the month to be implemented at home. There is regular interaction with the parents about the progress of the child and they also have hands-on demonstration on how to perform the activities done in the session at home. This whole process has a detailed documentation in the form of a file format which has a record of the child's evaluation along with the recommendations and a copy of all the previous reports. Parents are required to demonstrate a session done with the child during the therapy sessions with the therapist.

The goal plan sheets have a set of two copies of which one remains as a record with the therapist, and the other copy serves as a master copy for the interdisciplinary team and the transdisciplinary health professional. The master copies then serve as a record for further reference and research and training purpose. The goal plan sheet is shown in Table 1.

The team reviews the treatment goals from time-to-time by observing sessions when the other team member conducts the session. The progress and also the challenges faced are noted. The goals also need review even after the plan is made if the child can easily accomplish or has difficulty with achieving the same.

Following the same the transdisciplinary health professional also works toward assisting the parent with strategies to enable smooth transition to different social settings such as school, playground, and home. The entire process is as in Figure 2.

Implications of Translating the Model in Clinical Practice

Ensure clarity of role the collaborative teamwork involved in this model requires clear articulation of team members' roles and responsibilities. This model of care works on child and family-centered services; hence, parents choose their role in the service delivery process.

However, it requires that they understand the nature of options presented to them. Hence, family education is a primary cornerstone in this process.

The transdisciplinary health professional requires a sound understanding of principles of teamwork and needs to ensure effective documentation.[1]

Detailed and up-to-date reports documenting roles and treatment plans are required to meet the needs of both families and the team. Since goals change in an ongoing manner reports should be revised to assess these changes. There is a lot of time spent in documentation and report making which needs effective time management.

Educational role of team - The team has a role in explaining the process of transdisciplinary care and also about how services will be delivered. The team also needs to keep itself updated about the recent developments in their respective fields; hence, meetings to ensure interaction about these changes are required.

In this model of practice, service providers have personal responsibility to engage in role extension, expansion through self-directed study, dialog, and interaction with other team members, and self-appraisal. An attitude of openness to learning will enable them to function effectively. The skills necessary for collaborative interprofessional teamwork include listening and communication skills, negotiation skills, skills in giving and providing feedback, and skills in resolving conflicts and reaching consensus.[1,5]

DISCUSSION

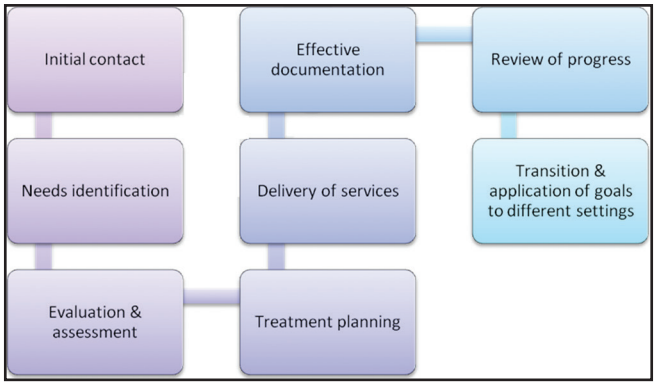
The transdisciplinary health professional in the first stage of interaction with the child and the family needs to identify the primary concerns of the child and the parent along with effective information gathering. This enables one-time history taking and reduces repetition of data and also reduction of time spent on history. However, the professional has to multitask effectively within a given time frame; hence, some information could be missed. The professional also needs to identify the initial needs of the child.[1,3,5] This stage of the model is important as intake of information serves as a baseline for practice. In the clinical setting, the primary health provider/ transdisciplinary professional has to multitask with the time frame available for information collection and then give the recommendations. The team then correlates the data for areas missed during history taking to complete the process. The team is also consulted regarding the evaluations and the specific assessments required. The team also conducts a team-based evaluation to enable effective judgment.[8,9]

In younger children with a limited developmental skills profile, a combined speech and occupational therapy evaluation for cognitive skills are useful. In older children, a combined special education and occupational therapy evaluation for self-care, gross,

Table 1: Sample Goal Plan: Transdisciplinary Team Plan

Occupational therapy	Speech therapy	Special education
Foam design copy on paper	3 step commands	Concept: Before
Draw lazy 8 on paper	Auditory association for 2 words	Object talk
Sitting on peanut ball with following task of auditory sequential memory of 3 units	Increase eye contact duration	Sounds: d, m
Sitting on the tilt board with following 3 commands	Picture description	Bigger and smaller: Till 10
Right-left discrimination on others	Vocabulary: Usage of word "with"	Object talk
Identify body parts: Hip, ankle while jumping on the floor	Auditory sequential memory: 3 units	Pattern writing
Pattern writing	Picture description	Picture sequencing

Figure 2: Process of the Transdisciplinary Model of Care



and fine motor skills helps in better understanding.[6] The team discussion for evaluation results aims at identifying the common areas of concern along with identifying discrepancies. This stage is extremely difficult if different results are seen on the same skill. The video recording then helps analyze how the skill was assessed. The report presented to the parents is always analyzed by the parents and their queries are discussed. Many times there are differences of opinion and these are addressed with the family about the evaluation. The family members seem completely new to the idea of transdisciplinary health-care provision; hence, a significant amount of time is spent in counseling the parents. The treatment planning process also involves prioritizing the services which the parents feel are required and what the professional feels. This also leads to a difference of opinion.[9,10]

Benefits of Disha Transdisciplinary Model

K's parents had concerns regarding misarticulation which led to the assessment of his inattention concerns along with difficulties with balance and coordination. This led to a detailed guideline program of occupational therapy goals designed by the occupational therapist.

This was provided to the parent along with speech therapy intervention. The transdisciplinary health professional (speech therapist) then combines the speech therapy and occupational therapy goals and give the same to the guardian depending on severity.[11]

The benefits include:

a. Service efficiency,
b. Cost-effectiveness of services,
c. Less intrusion on the family,
d. Less confusion to parents,
e. More coherent intervention plans and holistic service delivery,
f. The facilitation of professional development that enhances therapists' knowledge and skills.[8,9-12]

The quality of service provided to the parent improves as a single professional is well aware of all the interventions required for the child. The cost-effectiveness improves if the whole process goes well.[8,13]

There is also less intrusion because the parent only needs to build one key relationship.[8] There is less repetition of the same information to different service providers. Enhanced and streamlined communication is therefore considered to be a key benefit for the parents. Fourth, confusion is reportedly reduced for parents, since recommendations are coordinated and prioritized by the team, which includes the parent. Parents know whom to contact when issues arise. The parent is provided with a questionnaire which consists of questions aiming at the different areas such as goals achieved, parent involvement in home program and also goals achieved in a time frame.

This model fosters a holistic approach to care through the development of more coherent intervention plans and a "shared meaning" or a mutual vision among the team and family.[2] The mutual vision and good communication required by this model lead to services designed to best meet the needs of the child.

Professional skills and mutual respect are enhanced through the use of this model and members learn a lot about each other's clinical skills and also the respect for the amount of expertise and effort taken by each member working for the child's development.[14] The professionals work in collaboration respecting each other's expertise and seeking specialist support when needed.

Challenges

A significant amount of time is required for teams to plan, practice, and critique their work together, and to be able to deliver efficient and cost-effective services. There is also a need of continuous commitment and dedication with genuineness as well as truthfulness and trust in this treatment approach.

The members of the team must grasp the concepts of collaborative interprofessional teamwork and display the skills required to deal with the child and the parent. The members require empathy, self-awareness, self-control, sensitivity, interacting with authenticity, listening effectively, and interpersonal communication skills.[1,2,15]

Limitations

This model of care is viable in setups where a dedicated team of professionals allot additional time and knowledge exchange. It also requires a considerable amount of time with the team and the parents. It is difficult to implement the same with coordinating with professionals outside the clinical setup. The knowledge exchange is always not possible with different professionals. Standardized assessments and evaluations are always not used by professionals which creates difficulty with comparison, and thus, coordination as also effective documentation.

CONCLUSION

This model thus aims at providing quality care with effective communication and also aims at family-centered care with collaborative professional expertise. This model has helped our center in providing quality care with effective communication. It has helped us in providing family-centered care with collaborative professional expertise to empower the child and the family. Our experience with the model indicates that in the

Indian context transdisciplinary care would be very helpful in achieving better functional outcomes for children.

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NEWS AND INFORMATION

World OT Day 2017 (Oct.27) & OT India Month [Oct.27-Nov.26)

The World OT Day and OTIndia Month celebration across the country each year by members, branches and institutions provide an opportunity to members of AIOTA, to reach to the masses for OT promotion. We need to tell the common man and also the professionals of medicine and other areas about the preventive, promotive, curative and rehabilitative aspects of the unique profession of occupational therapy effectively serving to alleviate the sufferings of people of any age group with disabilities and dysfunctions. AIOTA Members, institutions and branches are hereby requested to enthusiastically celebrate OTINDIA Month commencing from Oct. 27, 2017 as in past years.

The Theme for World OT Day and OTIndia Month-2017 recommended by WFOT and accepted by AIOTA is "Inform, Inspire, Influence"

The celebration report with photographs (Not more than 3 with captions), should be forwarded to President AIOTA for inclusion in the special edition of WFOT E-News Letter and AIOTA News Letter. May refer WFOT Website for more information and promotion material via this link: http://www.wfot.org/AboutUs/WorldOTDay.aspx

AIOTA's Disaster Management Cell

AIOTA intend to develop a Disaster Management Cell with 30-40 members of AIOTA dedicated to serve the disaster survivors. To propagate this cause, Dr. Anil Srivastava, President AIOTA , Dr. Kit Sincalir, WFOT Ambassador & formerly President of WFOT and Dr. Neeraj Mishra, EC Member met key NDMA Officials in Delhi on Feb.20 2017. With suggestion and assistance of NDMA a meeting was planned on Sept 18, 2017 with Sri Mahesh Navrekar, Chief Officer, Disaster Management Unit of Municipal Corporation of Greater Mumbai. President AIOTA, Dr. Shashi Oberai, Vice President and Dr. Neeraj Mishra met him and discussed the issue in detail. He welcomed the proposal and consented to provide extensive training of 10-15 days to a batch of nominated 30 members of AIOTA free of cost. He also agreed to accept 1-2 OT faculties having expertise in 'disaster management with OT perspective', for the proposed training program. The members of AIOTA duly trained in rehabilitation and relief work for disaster affected will be on the database of the government for utilization of their expertise during emergencies. Duly trained members of AIOTA will be master trainers to further train the members in their regions.

FAOT: NDD-India: 2017 Inaugurated

AIOTA's first 'Fellowship in Advanced OT in Neuro-Developmental Disorders -India:2017' was inaugurated in a brief function organized at T.N. Medical College & B.Y. L. Nair Hospital , Mumbai on Sept 18, 2017. Dr. Pinakin Gujar, Academic Dean was the Chief Guest and President AIOTA & Executive Chairman ACOT, Dr. Anil Srivastava presided the function. Formerly Dean Academic Council of OT - Dr. I.R. Kenkre and Dr. Samir Dalwai eminent developmental pediatrician & President of Indian Association of Pediatrics, Mumbai Chapter were Guest of Honors. Those who joined the inaugural function were AIOTA executive officials; Vice President Dr. Shashi Oberai, Hon. Secretary Dr. Satish Maslekar (Aurangabad), Hon. Treasurer Dr. Pratibha Vaidya, Ex-Officio Dr. Zarine Ferzandi, EC Member Dr. Neeraj Mishra (New Delhi) & Dr. Jaya Kale and formerly AIOTA EC officials Dr. Manghani, Dr.Varsha and faculty and staff of OT School & Center of the T.N. Medical College, Mumbai. The valuable presence of HOD's of other OT education & specialty centers from Nagpur and Mumbai, Dr. Sofia Azad (Nagpur) , Dr. Rashmi Yeradkar , Dr. Deepa Pradhan, Dr. Renuka Desai, Dr. Manjusha Vagal & their faculty & staff was highly appreciated.

Dr. Shriharsh Jahagirdar, Coordinator of the fellowship program impressively conducted the function and introduced guests and participants. Dr. Mrs. Jyothika Bijlani, Dean ACOT & Principal Coordinator of this event, introduced about the concept & contents of fellowship program and informed that this program would have three tiers .Out of which the 1st tier would be held in the campus from Sept. 18-23, 2017.

The second tier would be the project work & tasks assigned to the participants & delivery of online lectures/presentations by faculty & mentors. Fellowship Coordinator Dr. Lakshmanan S. (Bengaluru) is assigned the responsibility of managing online lectures & presentations. The last phase of one week consisting of project presentation, discussions & examination of the participants, is scheduled to be held in campus from June 12-17, 2018 in Mumbai.

Internationally renowned & experienced faculties from the area of pediatric OT from India & overseas are included for in campus and online deliberations for this academic program. Erna Blench (USA) is the Principal Resource Faculty. The Fellowship on NDD is aimed to further brace the postgraduate pediatric OT participants with advanced skill to choose, administer and interpret appropriate comprehensive assessment, to implement advanced modalities for management of neuro-developmental dysfunctions, and empowering the caregivers. The inaugural first week of didactic learning by eminent experts were well appreciated by the participants who were also assessed for their individual & group tasks assigned to them in the first week.

It is for the first time in India for the profession of OT, that a fellowship of long duration of nine months has been planned by AIOTA. Full seats in the fellowship program speak of its warm acceptance by the professionals, which has encouraged us to further continue and also plan it for other specialty areas in the coming years.

ICMR Approval for Indo-Sweden Research Grant

Department of Occupational Therapy, Manipal University is approved from the Indian Council of Medical Research for a Indo-Sweden research grant. The international research project titled "Managing Time in Dementia" shall be in collaboration with Dr. Gunnel Janneslatt from Sweden. It is aimed to investigate the use of assistive technology for people with Dementia to support their daily time management. Dr. Sebistina Anita Dsouza is investigator while Dr. Vinita Acharya, Asso. Prof. and Ms. Meena Ramachandran, Asst. Prof. of the department are co-investigators. The three-year funded research grant will open opportunities for structured Ph. D at Manipal University. Visit https://manipal.edu/ or contact HOD OT for position of Junior Research Fellow.

Information:

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6th Annual Conference of Society for Hand Therapy

Sept. 22-23, 2017; Mumbai

6th SHTICON was successfully organized at Hotel J. W. Marriott, Mumbai in collaboration with 41st annual national conference of Indian Society for Surgery of Hand (ISSHCON) & Singapore Society for Hand Surgery (SSHS). Shrikant Chinchalkar was the International Key Note Speaker. Amol V. Sangekar was the organizing chairman, Hemant P. Nandgaonkar, organizing secretary and Dr. Shovan Saha was the workshop in-charge of the event. Punita V. Solanki was the chairperson of the well-knit scientific program of 6th SHTICON. Nearly 60 hand therapists across the country were the delegates. It was well received by one and all.

ANNOUNCEMENT

Fellowship of Academic Council of Occupational Therapy (FACOT)

The applications are invited for the Fellowship of ACOT from the members of AIOTA for their outstanding contribution in research and academics in the field of Occupational Therapy.

1. A member of AIOTA, who fulfills the laid down eligibility criteria specified below, may apply to the Dean of the Academic Council of Occupational Therapy.
2. Visit AIOTA website http://aiota.org/Education/FACOT for more information, eligibility criteria and also downloading the FACOT application form
3. ACOT will scrutinize the application with laid down regulations and on establishing the eligibility, recommend his/her name to EC of AIOTA for grant of approval for awarding the Fellowship of ACOT.
4. The prescribed fee of INR 10,000/-(Rupees Ten Thousand) only, shall be payable by the applicant.
   A) The processing fee of Rs. 3000/- (non-refundable) should be sent by Demand Draft / NEFT along with dully filled application form
   B) Balance amount of Rs. 7000/- to be paid after the approval of award.
5. The payment should be made by Demand Draft/NEFT in favor of AIOTA payable at Mumbai.
6. Minimum processing time after submission of the application is 3 months.
7. Announcement of the Award of Fellowship will be made during the inaugural function of Annual National Conferences of AIOTA.
8. Contact Dean ACOT for queries if any.
9. Decision of AIOTA in respect to the acceptance or denial for award of Fellowship shall be final and binding.

Dr. Mrs Jyothika Bijlani
Dean ACOT
deanacot@aiota.org

NOMINATED

Following nominations were sent to WFOT by President AIOTA & WFOT Delegate Dr. Anil Srivastava.

• WFOT: Website - Primary Contact

The WFOT is developing a new website and database management system. As part of this development it is introducing the concept of a key contact, which will be the main person from member country associations responsible for managing the WFOT membership and data. Nominated users from member countries will be named as a 'Primary Contact'. This Primary Contact role is purely related to the new website and managing organizations membership and education program information with the WFOT.

The primary contact will have WFOT permissions on the website to:

- Renew membership each year by checking and supplying information
- Manage their own contact information on their profile
- Be responsible for keeping key contacts at their organization and other information up to date
- Be able to create new and manage existing Education Programs
- Be able to assign someone else to create new and manage existing Education Programs
- Complete the information for the Human Resources Project

Nomination of EC Member & AIOTA Website Convener Dr. Joseph Sunny as Primary Contact is accepted by WFOT.

• Reviewer for the Educational Programs applying for the WFOT Recognition

Nomination of Dr. Jyothika Bijlani, Dean ACOT-AIOTA is accepted by WFOT.

• WFOT: Developing a Position Statement on the Role of Occupational Therapy in Mental Health

Nomination of Dr. Lakshmanan S. from Center for Addiction Medicine, National Institute of Menta Health and Neurosciences, Bengaluru is also accepted by WFOT.

• WFOT: Developing a Position Statement on the Role of Occupational Therapy in the Management of Musculoskeletal Conditions

AIOTA nominated Dr. Shovan Saha, Associate Professor OT, Manipal University. WFOT response is awaited.

AWARDED

After successful completion of the course Dr. Lakshmanan S. is awarded Ph. D. in July 2017 by National Institute of Mental Health and Neuro Sciences, Bengaluru. Title of the theses is 'Occupational Dysfunction in persons with early and late onset Alcohol Dependence Syndrome and the impact of Occupational Intervention'. Dr. Lakshmanan is Assistant Editor (Promotion) of IJOT.

Acceptance of Presentation from India in WFOT Congress 2018

Abstract of Dr. Manjusha Vagal, Officer in charge Occupational Therapy, Tata Memorial Hospital, Mumbai titled "Innovative Splinting Technique for Preventing Manus Valgus Deformity Following Excision of Radius due to Malignant Tumors in Pediatric Patients.", has been accepted as an oral presentation in the 17th WFOT Congress, 21 – 25 May 2018, Cape Town, South Africa.

She has also presented her study at International Conference of Occupational Therapy, Paris, in March 2017, entitled "Vaginal Stenosis following Treatment of Cervical Cancers and the Effectiveness of Rehabilitation Interventions: A Retrospective Study"

Information:
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vagalmanjusha@yahoo.com

3rd National Film Awards-1956: Certificate of Merit Award to 'Wonder of Work'

The 3rd National Film Awards, then was known as State Awards for Films, presented by Ministry of Information and Broadcasting, India to felicitate the best of Indian Cinema released in the year 1955. Ceremony took place at Vigyan Bhavan, New Delhi on September 1956. The awards were given by then Prime Minister of India, Jawaharlal Nehru. Certificate of Merit Award was also presented to a documentary film on occupational therapy named as 'Wonder of Work' (English) which was produced by Films Division.

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EVENTS

Oct. 7: Workshop on Application of Research Methods and Bio-Statistics (Level 1), Department of Occupational Therapy, organized by Pt. Deen Dayal Upadhyaya Institute National Institute for Persons with Physical Disabilities, New Delhi. Prof. R.M. Pandy (AIIMS, New Delhi) was the principal resource faculty.

Oct. 22: National Autism Conference 2017, organized by Indian Association of Pediatrics (IAP Cochin), IAP Neurodevelopmental Chapter and Aster Medcity at IMA House, Kochi. Dr. Joseph Sunny EC Member AIOTA is also one of the resource faculties.

Nov. 2-5: World Federation of Mental Health Congress Conference 2017, Ashoka Hotel, New Delhi. Theme: 'Partnerships for Mental Health'. Visit the website for more information http://www.wfmhindia.com/registration_information/

OTICON'2018 - The 55th Annual National Conference of AIOTA Nagpur: Visit the websites www.aiotanagpur.in/OTICON18, www.aiota.org

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For AIOTA / WFOT Accredited BOT / MOT Education Programs in India visit:
http://aiota.org/pdf/BOT/bot.pdf and http://aiota.org/pdf/MOT/mot.pdf

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