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Effectiveness of Cognitive Orientation to Daily Occupation Performance (Co-Op) Approach in Order to Improve Instrumental Activity of Daily Living (IADL) Skills in Dementia[1]

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ABSTRACT

The main purpose of this study is to determine the effect of Cognitive orientation to activity living of daily occupation Performance (CO-OP) to improve IADL skills among Geriatric patients with dementia. The study was done using a quasi experimental design and convenient sampling technique was adapted to select the patient with dementia at a mild level in the age group of 60 to 70 years. Totally thirty patients were selected and divided into 15 in the control group and 15 in the experimental group. The experimental group underwent cognitive orientation to daily occupational performance (CO-OP) to improve IADL skills and the control group underwent conventional occupational therapy to improve handwriting. Total intervention is given for 3 months consisting of 30minutes sessions for each 30 sessions, weekly 3 days. To measure IADL for old age people with dementia, Lawton Brody IADL scale has been used. The statistical analysis showed significant changes in the experimental group after CO-OP intervention. Analysis revealed that, Occupational Therapist can provide CO-OP-based activities for the geriatric condition with dementia during the instruction and treatment of IADL, which helps to conduct better results of IADL.

Keywords: *Dementia; IADL; Cognitive orientation to daily occupation performance (CO-OP) Approach.*

INTRODUCTION

DEMENTIA

Dementia is a clinical diagnosis requiring new functional dependence based on progressive cognitive decline and representing, as its Latin origins suggest, a departure from previous mental functioning.(A.P passmore-2015)

The incidence of dementia rises with age making it an increasingly common phenomenon within our aging population. The nature of symptoms means people with dementia are more dependent and vulnerable, both socially and in terms of physical and mental health, presenting evolving challenges to society and our healthcare systems. Despite the seemingly simple premise, the clinical diagnosis of dementia can be difficult with de novo functional impairment often obscured by physical frailty, comorbid psychiatric symptoms such as depression, and a subtle but steady assuming of household responsibilities by spouses and family. (B herron -2015) Clinical and pathological criteria for the main dementia-causing diseases overlap significantly. The emergence of symptoms decades into the pathophysiological process hamper targeted disease therapy. A great number of research initiatives are underway to identify potential biomarkers of disease processes earlier. The association of both overt cognitive decline and underlying

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pathophysiological processes with normal aging complicates the process of identifying disease processes early within the spectrum of normal aging. (El Cunningham -2015) .

Cognitive Orientation to Daily Occupational Performance

The Cognitive Orientation to daily Occupational Performance (CO-OP) is an approach developed in Canada, supported by evidence, and applied worldwide with different clients; it's a client-centered performance-based approach for people with problems with daily activities. CO-OP is based on theories of motor learning, cognitive behavioristic theories, learning, and problem-solving theories. The child or adult learns to find his solutions (cognitive strategies) to perform the skills he wants to 4 acquire or improve. The client will improve his motor skills, have improved planning capacities, and becomes adept at using strategies that can be applied in varying situations. This enables the person to use cognitive strategies whilst performing the activity in another context as well as coming up with strategies to perform a new activity. This transfer to other daily tasks contributes to participation at home, in school, at work, or in leisure clubs. Research publications about the application of CO-OP in children with Developmental Coordination Disorder (DCD), Cerebral Palsy (CP), attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and Acquired Brain Injury or stroke in adults show that participants could acquire new activities or could perform current occupational performances with greater satisfaction. CO-OP aims to acquire new skills or improve. CO-OP as a problem-solving approach when you are required to actively think about a new activity, you develop a better understanding of all the aspects involved and this supports you in finding your solutions.

Instrumental Activity of Daily Living (IADL)

Instrumental activities of daily living (IADL) are those activities that allow an individual to live independently in a community. Although not necessary for functional living, the ability to perform IADLs can significantly improve the quality of life. The major domains of IADLs include cooking, cleaning, transportation, laundry, and managing finances. Occupational therapists commonly assess IADLs in the setting of rehab to determine the level of an individual's need for assistance and cognitive function

IADLs are commonly confused with basic activities of daily living (ADLs). The major domains of ADLs are feeding, dressing, bathing, and walking. In contrast with IADLs, ADLs are necessary for basic functional living. Deficits in performing ADLs may indicate the need for home healthcare or placement in a skilled nursing facility (Hopkins RO-2017).

Aim of the Study:

The aim of the study is to determine the effect of cognitive orientation on daily occupation Performance (CO-OP) to improve IADL skills among Geriatric patients with dementia.

Objective of the Study:

- To identify geriatric people with dementia using the dementia severity rating scale (DSRS).
- To identify the effect of conventional occupational therapy on IADL for patients with dementia.
- To identify the effect of CO-OP Approach on IADL for a patient with dementia
- To compare the effect of CO-OP approach and conventional Ot on IADL using Lawton Brody IADL Scale.

Research Hypothesis:

There is a statistic difference between the pre and post test score of Lawton Brody IADL in control and experimental group.

Research Design:

Quasi-Experimental Study

Study technique:

Convenient sampling techniques will be used.

Sample size:

The sample size of the study is thirty [30] patients and it has two groups each group consisting of 15 patients.

- 15 patients in the control group
- 15 in the experimental group

Sample setting:

Samples are collected from the Akshaya Old Age Home which is located in Janaki nagar, Suresh Nagar, Valasaravakkam, Chennai, Tamilnadu.

Variables:

Independent variable: CO-OP approach

Dependent variable: IADL skills

Selection Criteria

Inclusion criteria:

- Patients with dementia at a mild level concerning dementia severity rating scale (DSRS).
- both male and female
- age groups – 60 to 70.

Exclusion criteria:

- Non-cooperative individuals
- Other neurological conditions such as stroke, Parkinson's .etc.

TOOLS USED

- Screening Scale – DSRS (dementia severity rating scale)
- Pre and Post-test – Lawton Brody IADL scale

Duration:

- The duration of the study was 3 months
- 30 minutes per session, 3 days a week
- 36 sessions.

Procedure of the Study:

The study was conducted in Akashaya's old age home located in Valasaravakam, Chennai-600071. I was explained about the study and the consent form obtained from the institution. based on the selection criteria using DSRS(dementia severity rating scale) 30 samples were selected to participate in the study. Based on the convenient sampling technique the participations were divided into two groups (15 members in the experimental group and 15 members in the control group). The Lawton brody IADL scale was used as an administration tool as part of the pre- test in the 1st session. A total of 30 intervention sessions were conducted for each participant were each session was conducted for 30 minutes three sessions were conducted each week over 3 months (36 sessions total). The final session was used for the administration of the post-test.

Intervention Protocol

Control Group;

Activities were given for control group participants are Memory ques, Memory cards, Flash card, Mathematical activities.

Experimental Group:

The participants in experiment group underwent intervention of CO-OP approach.

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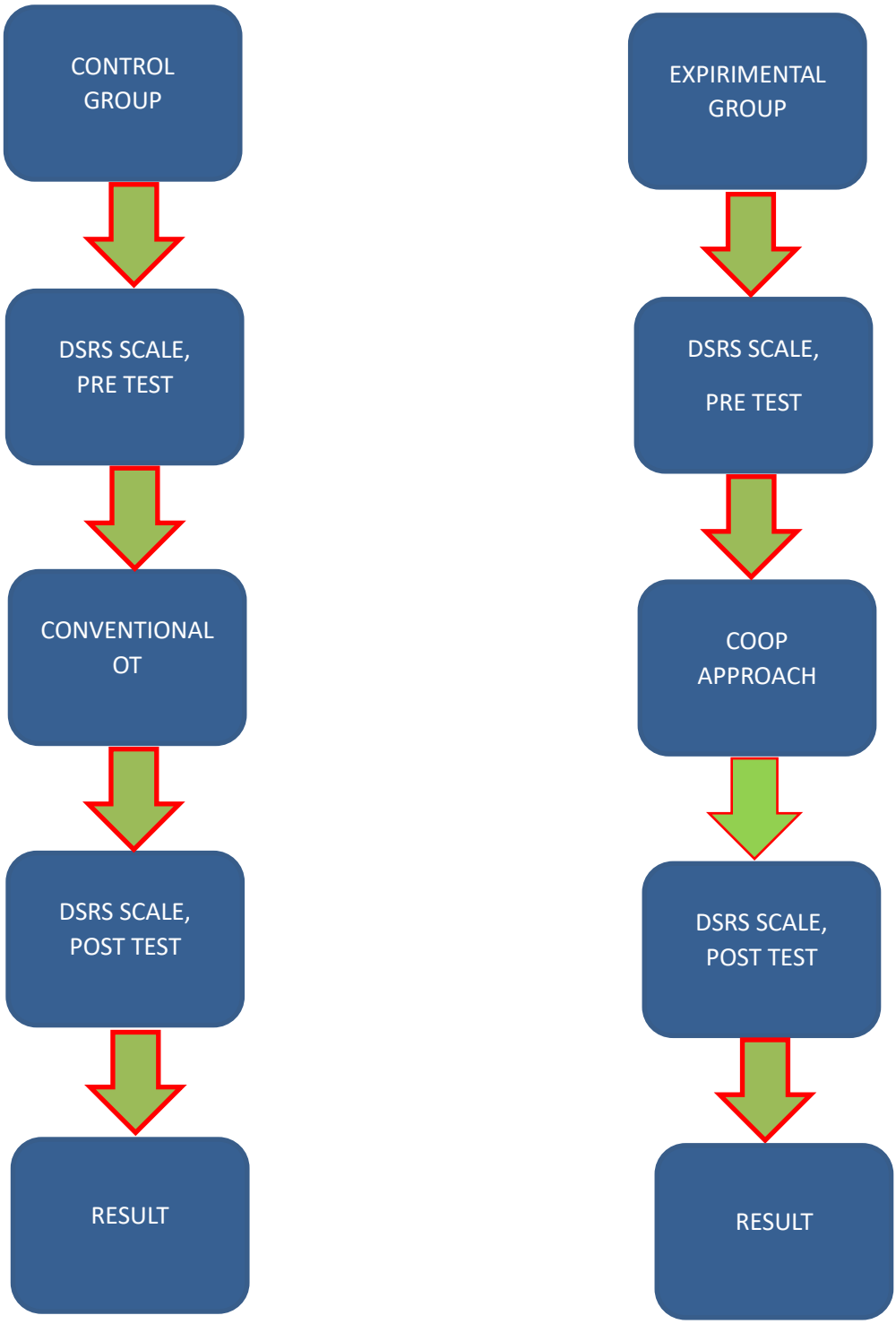
Eg - laundry

Goal – to improve laundry skills

Plan- picture base activity

Do – giving that activity

Check – how effective that activity.



Data Analysis and Results

Table No: 1 Statistical analysis of pre- test and post- test in control group

	Mean	N	Z value	p value
Cntr_Pre	2	15	-3.373	0.001*
Cntr_Post	3.8667	15		

*** Significant at 5% alpha level**

Since the p value of 0.001 is lesser than 0.05, alternate hypothesis is accepted. Hence, there is statistically significant difference between pre- test and post test scores in the Control Group of the Lawton IADL scale. This suggests that the intervention received by the control group had significant improvement.

Graph:1 - Statistical analyses of pre- test and post-test in the control group

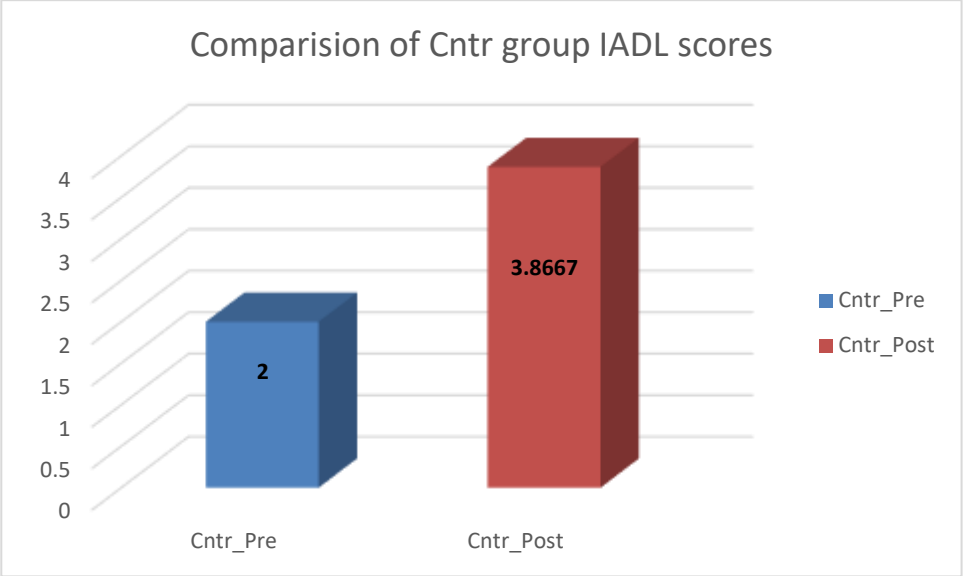


Table No: 2 Statistical analysis of pre- test and post- test in experimental group

	Mean	N	Z value	p value
Expt_Pre	2.1333	15	-3.432	0.001*
Expt_Post	6.8667	15		

*** Significant at 5% alpha level**

In the Experimental group, since the p value of 0.001 is less than 0.05, alternate hypothesis is accepted. Hence, there is statistically significant difference in Experimental Group between pre-test and post test scores of Lawton IADL scale. This suggests that the intervention received by the experimental group had significant improvement.

Graph:2 Statistical analyses of pre- test and post- test in the experimental group

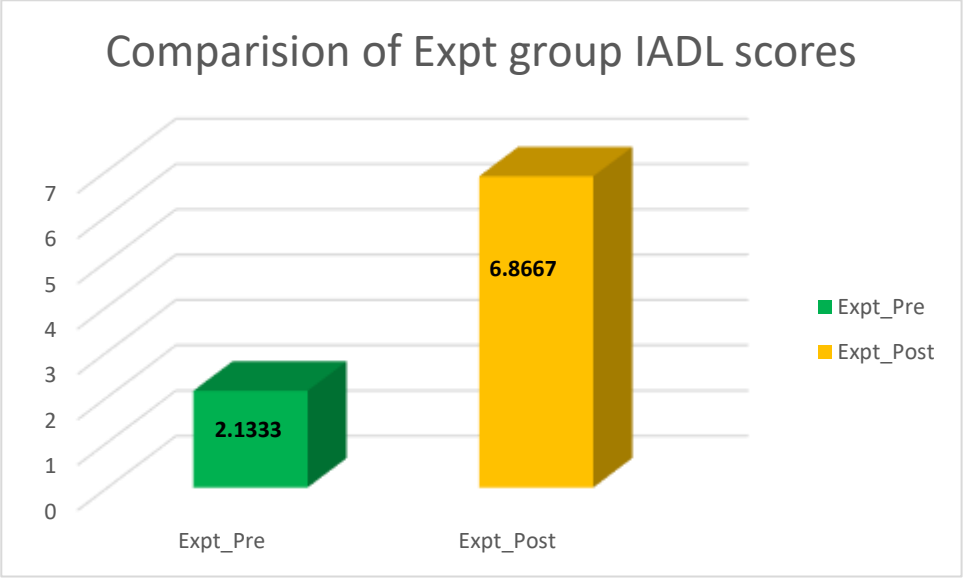


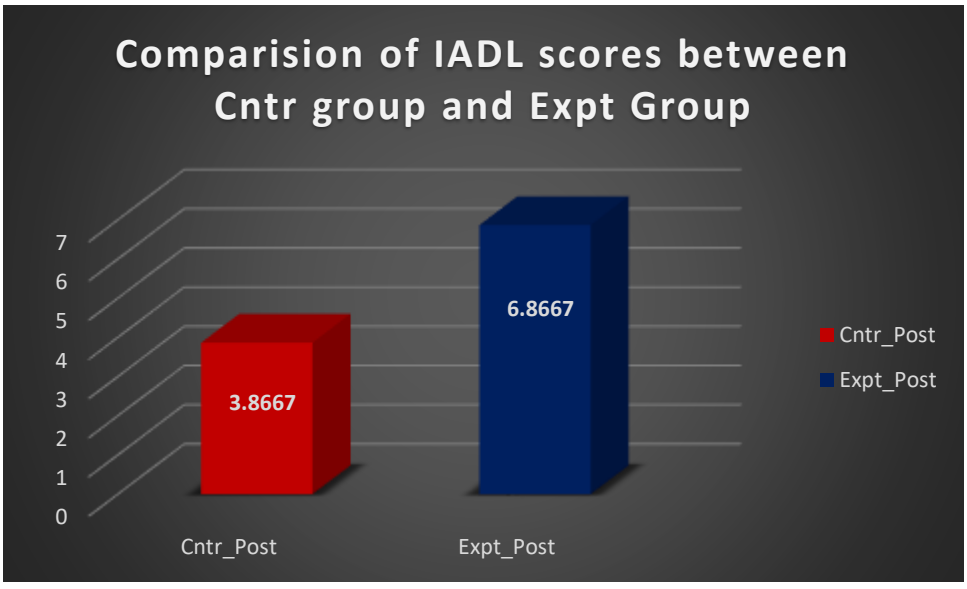
Table No: 3 Statistical analysis between the post- test scores of the control and experimental group

	Mean	N	Z value	p value
Cntr_Post	3.8667	15	-4.334	0.000*
Expt_Post	6.8667	15		

***Significant at 5% alpha level**

Since the p value of 0.000 is lesser than 0.05, alternate hypothesis is accepted. Hence, there is statistically significant difference in post test scores between Experimental and Control Group of the Lawton IADL scale. This suggests that the intervention received by the experimental group had more improvement when compared to the control group.

Graph:3 Statistical analysis between the post- test scores of the control and experimental group



Discussion

This study examined the effects of CO-OP intervention in IADL among geriatric patients with dementia. IADL issues were considered common in old age people with dementia which leads to decreased IADL performance **(Marinda Henskens et al., (2018).** In this study, 30 members with dementia were included where fifteen participants were recruited for the control group who received conventional occupational therapy and fifteen participants for the experimental group to give CO-OP intervention. The intervention protocol for the experimental group was based on the therapy performed in the previous studies **by Madhumala Karunakaran, et al., (2018**) The IADL was measured using the Lawton brody IADL scale. The pre-test and post-test have done for both groups separately.

Table:1 and Graph:1 consist of Lawton brody IADL scale for pre and post-test to measure performance in IADL. Since the p-value of 0.001 is lesser than 0.05, an alternate hypothesis is accepted. Hence, there is a statistically significant difference between pre- test and post-test scores in the Control Group of the Lawton Brody IADL scale. This suggests that the intervention received by the control group had significant improvement.

The study is similar to this study **R2: Marinda Henskens et al., (2018)** The study aimed to evaluate the effect of the movement-stimulating interventions on QoL and ADL performance in NH residents with dementia. The results are for a 6-month ADL training positively affected overall QoL and multiple aspects of QoL, including care relationship, positive self-image, and feeling at home, compared to care-as-usual. They concluded that movement-stimulating training can improve QoL and ADL.

Table:2 and Graph:2: consist of Lawton brody IADL scale for pre and post-test to measure performance in IADL. In the Experimental group, since the p-value of 0.001 is less than 0.05, an alternate hypothesis is accepted. Hence, there is a statistically significant difference in the Experimental Group between pre-test and post-test scores of Lawton IADL scale. This suggests that the intervention received by the experimental group had significant improvement.

Table No.4.2 shows that there was a statistically significant difference in the pre-test and post-test of Lawton brody IADL scale for the experimental group, as the experimental group +participants received CO-OP-based therapy during the period of research. The CO-OP-based therapy focused on the principles of CO-OP, that is, Goal- Plan- DO- Check to work on different handwriting activities and hand writing-based tasks. These results were similar to a previously conducted study by **R3: Mehrdad Saeidi Borujeni et al., (2019)** The aim of cognitive orientation is to daily occupational performance approach in adults with neurological conditions. The results are to examine the application and effectiveness of CO-OP in adult populations including individuals with chronic stroke with TBI, with acute stroke, and the older adult populations comprised of those with self-reported cognitive difficulties but no diagnosis of dementia, depression, or cognitive impairment. In all cases, CO-OP showed to be useful and efficient. They concluded, CO-OP has been applied in TBI, stroke, and age-related executive changes appropriately.

Table:3 and Graph:3 shows the comparison of post-test scores of experimental and control groups of the component of Lawton Brody IADL scale. Since the p-value of 0.000 is lesser than 0.05, an alternate hypothesis is accepted. Hence, there is a statistically significant difference in post-test scores between the Experimental and Control Groups of the Lawton IADL scale. This suggests that the intervention received by the experimental group had more improvement when compared to the control group.

The results were similar to the previously conducted study by **R1 Madhumala Karunakaran, -et al., (2018)** The study aimed to determine the effectiveness of cognitive orientation to daily occupational performance to improve Shopping skills in children with learning disabilities. The results show statistical analysis using independent t-tests of pre-and post-test scores of TOGSS, COPM, and PQRS shows significant improvement in shopping skills in Learning disability children, the Effect size of TOGSS, COPM, and PQRS was greater in the experimental group. They concluded, COOP Approach showed significant improvement in shopping skills for learning disability children and children were satisfied with their Performance.

Conclusion:

The study investigated the impact of the CO-OP approach on improving IADL skills among geriatric patients with dementia.

Thirty (30) old age people with dementia were included of which 15 old age people underwent conventional occupational therapy intervention and 15 old age were trained for CO-OP-based activities. The results found that a statistically significant difference was present in the scores of the pre-test and post-test for the control and experimental group. It revealed that occupational therapy with CO-OP-based intervention was effective in IADL in old age people with dementia. Further analysis revealed that the CO-OP approach had a statistically significant effect compared to conventional occupational therapy intervention in old age people with dementia. The findings of this study suggested

that the CO-OP approach showed improvement in IADL skills and can be incorporated with occupational therapy intervention in old-age people with dementia.

Limitation:

- The study had a small sample (30) of old age people with dementia.
- The study had a lesser number of sessions
- Gender variation
- Time issues such as drowsiness due to medications

Recommendations:

•The study can be replicated in a large sample size to generalize the results

•The study can be done for other conditions

•The study can be increased to many sessions to provide even more therapeutic effects

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Conflicting Interest: None

Ethics Clearance: Approval from Institution Scientific Review Board (ISRB) was obtained prior to the study.

REFERENCE

1. Karunakaran, M. (2018, July 1). Effectiveness of cognitive orientation to daily occupational performance to improve shopping skills in children with learning disability Karunakaran M, Sugi S, Rajendran K - Indian J Occup Ther. https://www.ijotonweb.org/article.asp?issn=0445-7706;year=2018;volume=50;issue=3;spage=92;epage=97;aulast=Karunakaran
2. M, H. (2018, April 1). Directory of Open Access Journals. https://doaj.org/article/28fc15bf4840453ba382d32021c4b7e9
3. Saeidi Borujeni M, Hosseini SA, Akbarfahimi N, Ebrahimi E. Cognitive orientation to daily occupational performance approach in adults with neurological conditions: A scoping review. Med J Islam Repub Iran. 2019 Sep 21;33:99. doi: 10.34171/mjiri.33.99. PMID: 31696093; PMCID: PMC6825384.
4. Noda, S., Shirotsuki, K. & Nakao, M. The effectiveness of intervention with board games: a systematic review. *BioPsychoSocial Med* **13**, 22 (2019). https://doi.org/10.1186/s13030-019-0164-1
5. Johnson, B. (2018). Effectiveness of Cognitive Orientation to Occupational Performance (CO-OP) to Improve Handwriting Performance in Children with Developmental Coordination Disorder. The Tamil Nadu Dr. M.G.R. University. http://repository-tnmgrmu.ac.in/id/eprint/11530
6. Daftary, R. K., & Shailaja, J. (2015). To Study the Efficacy of "Cognitive Orientation to Occupational Performance" In Children with Handwriting Difficulties. Indian Journal of Occupational Therapy, 47(3), 89–96.
7. Koziatek, S. M., & Powell, N. J. (2003). Pencil grips, legibility, and speed of fourth-graders writing in cursive. The American journal of occupational therapy: official publication of the American Occupational Therapy Association, 57(3), 284–288. https://doi.org/10.5014/ajot.57.3.284
8. Banks, Rebecca & Rodger, Sylvia & Polatajko, Helene. (2008). Mastering Handwriting: How Children with Developmental Coordination Disorder Succeed with CO-OP. OTJR: Occupation, Participation, Health. 28. 10.3928/15394492-20080601-01.
9. Gantman, D. (2020). Cognitive Orientation to Daily Occupational Performance (CO-OP) Approach: Evidence-Based, Occupation-Centered Intervention for Children.

10. Peny-Dahlstrand, M., Bergqvist, L., Hofgren, C., Himmelmann, K., & Öhrvall, A. M. (2020). Potential benefits of the cognitive orientation to daily occupational performance approach in young adults with spina bifida or cerebral palsy: a feasibility study. *Disability and Rehabilitation*, *42*(2), 228–239. https://doi.org/10.1080/09638288.2018.1496152
11. Rodger, Sylvia & Polatajko, Helene. (2011). Cognitive Orientation For Daily Occupational Performance (Co-Op): A Uniquely Occupation-Centred Intervention Created For Children. Occupation-centered Practice with Children: A Practical Guide for Occupational Therapists. 10.1002/9781444319699.ch8.
12. Amidon, E.; Matteo, K.; O'Toole, K.; Pistilli, C.; Slomowitz, A.; and Potvin, Marie-Christine, "Cognitive Orientation to (daily) Occupational Performance (CO-OP) Approach and Children with Disabilities" (2018). *Student Papers & Posters.* Paper 21. https://jdc.jefferson.edu/student_papers/21
13. Foster ER, Carson LG, Archer J, Hunter EG. Occupational Therapy Interventions for Instrumental Activities of Daily Living for Adults With Parkinson's Disease: A Systematic Review. Am J Occup Ther. 2021 May 1;75(3):7503190030p1–7503190030p24. doi: 10.5014/ajot.2021.046581. PMID: 34781350; PMCID: PMC8095707.
14. Guo HJ, Sapra A. Instrumental Activity of Daily Living. [Updated 2022 Nov 14]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK553126/
15. Rebecca Cunningham, Ashley Uyeshiro Simon; Interventions for Instrumental Activities of Daily Living Among Adults With Multiple Sclerosis: A Systematic Review. *Am J Occup Ther* March/April 2022, Vol. 76(2), 7602205130. doi: https://doi.org/10.5014/ajot.2022.049092
16. Pashmdarfard M, Azad A. Assessment tools to evaluate Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) in older adults: A systematic review. Med J Islam Repub Iran. 2020 Apr 13;34:33. doi: 10.34171/mjiri.34.33. PMID: 32617272; PMCID: PMC7320974.
17. Neo J, Fettes L, Gao W, Higginson IJ, Maddocks M. Disability in activities of daily living among adults with cancer: A systematic review and meta-analysis. Cancer Treat Rev. 2017 Dec;61:94-106.
18. doi: 10.1016/j.ctrv.2017.10.006. Epub 2017 Oct 28. PMID: 29125982.
19. Adamit T, Shames J, Rand D. Effectiveness of the Functional and Cognitive Occupational Therapy (FaC_oT) Intervention for Improving Daily Functioning and Participation of Individuals with Mild Stroke: A Randomized Controlled Trial. Int J Environ Res Public Health. 2021 Jul 28;18(15):7988. doi: 10.3390/ijerph18157988. PMID: 34360299; PMCID: PMC8345490.
20. Elsa Orellano, Wanda I. Colón, Marian Arbesman; Effect of Occupation- and Activity-Based Interventions on Instrumental Activities of Daily Living Performance Among Community-Dwelling Older Adults: A Systematic Review. *Am J Occup Ther* May/June 2012, Vol. 66(3), 292–300. doi: https://doi.org/10.5014/ajot.2012.003053
21. Graf, Carla MS, RN, CNS-BC. The Lawton Instrumental Activities of Daily Living Scale. AJN, American Journal of Nursing 108(4):p 52-62, April 2008. | DOI: 10.1097/01.NAJ.0000314810.46029.74
22. Clark, Christopher M.*,†; Ewbank, Douglas C.*,‡. Performance of the Dementia Severity Rating Scale: A Caregiver Questionnaire for Rating Severity in Alzheimer Disease. Alzheimer Disease & Associated Disorders 10(1):p 31-39, Spring 1996.