Educational Administration: Theory and Practice
2024, 30(3), 2904 - 2909
ISSN: 2148-2403
https://kuey.net/

Research Article

Association Of IADL And Severity of Performance Among Chronic Stroke Patients: A Correlational Study

Iti Gautam[1*], Dr. Ankita Sharma[2], Dr. Shivani Bhardwaj[3], Prof. (Dr.) R.K Sharma[4].

[1*]Master of occupational therapy (Neurology) Student, Santosh College of Occupational Therapy,
[2]Assistant Professor, Santosh College of Occupational Therapy, Ghaziabad,
[3]Assistant professor, Occupational therapy department, School of Nursing Sciences & Allied Health, Jamia Hamdard University,
[4]Dean, Paramedical and Principal, Santosh College of Occupational Therapy,

Citation: Iti Gautam, et al. (2024). Association of Iadl and Severity of Performance Among Chronic Stroke Patients: A Correlational Study, *Educational Administration: Theory and Practice, 30(3) 2904 - 2909*
Doi: 10.53555/kuey.v30i3.8743

ARTICLE INFO

ABSTRACT

Background: Strokes can affect occupational performances that contribute to impairment and result limiting especially in instrumental activities of daily life. While the relationship between stroke severity and functional recovery has been extensively studied, limited research has explored how IADL performance correlates with the severity of functional impairments in chronic stroke patients.
Study design: A Correlation study
Aim: To find out the association between IADL and severity of performance among chronic stroke patients.
Objective: To examine the association among IADL and severity of performance in chronic patients by using Fugl–Meyer assessment and Lawton – Brody IADL Scale.
Participants: The participants were recruited based on exclusion and inclusion criteria. A total of 86 participants were included in the study.
Methods: - A correlation study was conducted on chronic stroke patients with 86 participants from RAM SEVA HOSPITAL, Greater Noida by using Convenient Sampling technique. Lawton – Brody Instrumental Activities of Daily Living (IADL) and Fugl – Meyer Assessment (FMA) Scale were used as outcome measures.
Result: The correlation analysis reveals several significant and non-significant relationships between age, functional motor assessments (FMA) parameters and IADL. Upper motor function does not show significant correlations with any variable, although it has a weak, non-significant positive relationship with upper joint mobility $r = 0.137$, $p = 0.208$. Upper sensory is significantly positively correlated with upper joint mobility $r = 0.262$, $p = 0.015$ and lower sensory $r = 0.217$, $p = 0.045$, indicating that sensory functions might influence mobility and sensory processing across body regions. Lower sensory also shows a significant positive correlation with lower joint mobility $r = 0.219$, $p = 0.043$, highlighting a potential connection between sensory and motor capabilities in the lower body. However, lower joint positioning and other parameters do not exhibit significant relationships, apart from the aforementioned correlation with age.
Conclusion: The Study concluded that there was relationship between instrumental activities of daily living and severity of performance among chronic stroke patients. The IADL and occupational performance are in direct relationship, therefore when the instrumental activities of daily living of the patient inclines the occupational performance improves automatically. Higher occupational performance contributes to more independent instrumental activities of daily living.

Keywords: IADL, Occupational performance, FMA, Chronic stroke

INTRODUCTION:

Stroke is a neurological disorder that is caused by a blockage in the blood vessels. Brain clots obstruct blood flow, blocking arteries and rupturing blood vessels, which results in bleeding. When a stroke occurs, the arteries supplying the brain burst, causing brain cells to suddenly die from a shortage of oxygen.[1] Moreover, dementia and depression can result from strokes.[1] Stroke was categorized as a blood vessel illness prior to the 2018 release of the International Classification of Diseases 11 (ICD-11). The Global Burden of Disease Study (GBD) reports that while the prevalence of stroke has declined, the socioeconomic burden of the condition has risen over time due to factors such as the age, sex, and location of individuals affected. (1)
Time is frequently separated into distinct stages after any stroke. The first 24 hours would be considered the hyperacute phase, the first seven days the acute phase, the first three months the early sub-acute phase, the months between four and six months the chronic phase, according to a proposal made by the Stroke Roundtable Consortium.[2] This distinction is justified by the fact that post-stroke processes associated to recovery are time-dependent. A series of processes that promote plasticity in the brain cause dendritic development, axonal sprouting, and the creation of new synapses as soon as cerebral ischemia occurs. Usually reaching its peak after six months, spontaneous recovery results in a sustained, or chronic, impairment. (2)
Given that stroke ranks among the leading causes of disability worldwide. Stroke-related motor function deficits affect a patient's mobility, capacity to carry out daily activities, social contact, and chance of returning to work. All of them contribute to a bad overall quality of life. Rehabilitation training is the most effective way to help stroke patients with their motor deficits. (3)

The percentage of stroke survivors who return home to live independently is trending rising. For individuals, it's crucial to be able to carry out more complicated daily tasks in addition to being able to continue fundamental daily activities. As a result, one of the more significant long-term outcomes following a stroke is the capacity to carry out increasingly complicated tasks. The more complicated tasks, such as household duties, social activities, and profitable employment, are referred as IADL. Tasks that a stroke survivor usually needs to complete in order to live in the community. (4)
Patients are often discharged from rehabilitation and placed back in their preferred settings, which is typically their homes. The ability to live independently is one aspect of functional assessment that has not been developed as extensively as that of personal ADL.[5] Lawton and Brody first proposed the concept of "instrumental activities of daily living" (IADL) in their groundbreaking 1969 book Assessment of Older People: Self-Maintaining and Instrumental Activities of Daily Living. Instead of defining IADL, they explained the competency schema that actions would fall into, with life maintenance serving as the lowest level. The Physical Self-Maintenance Scale, which is equivalent to the current consensus on an ADL scale, was used to measure this. The IADL scale was assigned to behaviours that showed progressively more complicated degrees of function.[5]

Occupational performance is the capacity to recognize, want, remember, plan, and execute responsibilities, routines, tasks, and subtasks for self-maintenance, productivity, leisure, and relaxation in response to demands of the internal and/or external environment.(6) Occupational performance refers to how an individual goes about their everyday tasks and is influenced by their interactions with others, the professions they need or desire to pursue, and the environment in which they carry them out.[7] Occupational performance has been correlated with mental health and well-being. Concerns with occupational performance might arise from any of these circumstances, to identify the professions that raise concerns and ascertain attitudes toward professional performance in the key domains of concern. (7)
The Previous study showed a significant correlation between pain and capacities of IADL, which is consistent with the research findings that mentioned a high pain level resulting in limited and passive ability to perform daily activities.[10] That describe significant correlations among the sleep quality, pain level, and IADL of chronic stroke patients, suggesting the importance of individual intervention and observation on pain levels and sleep quality affecting IADL in order to encourage and improve the participation of outpatients with chronic stroke in their local communities. In the present study we follow-up on the association between IADL and severity of performance among chronic patients.[10] There is a paucity of research investigating the correlation between IADL performance and the severity of functional impairments in chronic stroke patients. So, the present study aims to explore the association between IADL and severity of performance among chronic patients.

METHODOLOGY:

In this study, 103 participants were recruited from RAM SEVA HOSPITAL, Greater Noida from which total 86 participants were included through convenient sampling.

Inclusion criteria

- Individuals with who have stroke more 3 months
- Age above 18 years

- Both male and female
- Those who are able to communicate
- Patients having absence of illness other than stroke.

Exclusion criteria

- Patients who have speech problem
- Those who have any orthopaedic problem
- Patients who are with cognitive impairments

Participants were given an informed consent form outlining the goals and methods of the study prior to its commencement. They were given sufficient time, as well as an explanation, to go over the document and ask any questions before giving their written agreement.

Outcome measures:

The Lawton Instrumental Activities of Daily Living Scale (IADL) - The Lawton Instrumental Activities of Daily Living Scale (IADL) is an appropriate instrument to assess independent living skills (Lawton & Brody, 1969. There are 8 domains of function measured with the Lawton IADL scale. Persons are scored according to their highest level of functioning in that category. A summary score ranges from 0 (low function, dependent) to 8 (high function, independent). [8]

Fugl- Meyer Assessment (FMA) - It is divided into 5 domains: motor function, sensory function, balance, joint range of motion, and joint pain. Each domain contains multiple items, each scored on a 3-point ordinal. The Fugl-Meyer (FM) Assessment is considered by many in the field of stroke rehabilitation to be one of the most comprehensive quantitative measures of motor impairment following stroke, and its use has been recommended for clinical trials of stroke rehabilitation. [9]

DATA ANALYSIS:

The scoring of evaluated data of outcome measures FUGL -MEYER ASSESSMENT (FMA) AND LAWTON IADL were analysed using IBM SPSS TRIAL version 29 for statistical significance result. Pearson correlation was used to analyse the correlation among Instrumental activities of living and occupational performance.

RESULT:

The analysis of this study where in all the statistical tools below, the probability value of 0.05 is considered a significant level. The descriptive statistics table above provide an overview of the sample consisting of 86 participants. The age of participants ranges from 27 to 65 years, with an average age of 47 year and 5 months with standard deviation of 12.329, indicating a moderate variation in age distribution. The functional motor assessments (FMA) reveal scores across various parameters.

For upper motor function, the scores range from 28 to 45, with a mean of 36.48 and SD of 4.075, reflecting consistent performance among participants. The upper sensory scores range from 6 to 12, with a mean of 8.80 and SD 1.437, demonstrating high uniformity. Upper joint mobility and upper joint positioning exhibit mean scores of 14.62 and 14.52 with Standard deviations of 4.165 and 3.017, respectively, indicating moderate variability.

Lower motor function scores range from 16 to 29, with a mean of 22.63 and SD of 2.812, showing relatively consistent results. The lower sensory has scores between 5 and 9, with a mean of 7.49 and SD of 0.991, reflecting high uniformity. Lower joint mobility and lower joint positioning, the mean scores are 12.24 and 11.91with standard deviations of 2.361 and 1.864 respectively, showing moderate to low variability.

Lastly, the instrumental activities of daily living scores range from 3 to 6, with a mean of 4.63 with SD of 0.841, indicating consistent abilities among participants in performing daily tasks. Overall, the data highlights a balanced distribution of functional and sensory capabilities across the sample, with some parameters showing more variability than others.

According to the table 2.1 and 2.2 the correlation analysis reveals several significant and non-significant relationships between age, functional motor assessments (FMA) parameters, and instrumental activities of daily living. Age demonstrates a moderate positive correlation with lb_iadl indicating that older participants perform better in daily living tasks. Conversely, age shows a weak but significant negative correlation with lower joint positioning $r = -0.213$, $p = 0.049$, suggesting a decline in joint positioning abilities with age. Other correlations involving age are weak and not statistically significant.

Upper motor function does not show significant correlations with any variable, although it has a weak, non-significant positive relationship with upper joint mobility $r = 0.137$, $p = 0.208$. Upper sensory is significantly positively correlated with upper joint mobility $r = 0.262$, $p = 0.015$ and lower sensory neurology $r = 0.217$, $p = 0.045$, indicating that sensory functions might influence mobility and sensory processing across body regions. Lower sensory also shows a significant positive correlation with lower joint mobility $r = 0.219$, $p = 0.043$, highlighting a potential connection between sensory and motor capabilities in the lower body. However, lower

joint positioning and other parameters do not exhibit significant relationships, apart from the aforementioned correlation with age.

Table 2.1 Correlations (Upper Extremity)

		age	fma_umf*	fma_usn*	fma_ujm*	fma_ujp*
age	Pearson Correlation	1	-.166	-.004	-.016	-.056
	Sig. (2-tailed)		.126	.970	.881	.606
fma_umf*	Pearson Correlation	-.166	1	.062	.137	.049
	Sig. (2-tailed)	.126		.568	.208	.652
fma_usn*	Pearson Correlation	-.004	.062	1	.262	.043
	Sig. (2-tailed)	.970	.568		.015	.693
fma_ujm*	Pearson Correlation	-.016	.137	.262	1	.068
	Sig. (2-tailed)	.881	.208	.015		.536
fma_ujp*	Pearson Correlation	-.056	.049	.043	.068	1
	Sig. (2-tailed)	.606	.652	.693	.536	
fma_lmf*	Pearson Correlation	.008	-.037	.174	.143	.012
	Sig. (2-tailed)	.942	.737	.110	.188	.912
fma_lsn*	Pearson Correlation	-.090	.058	.217	.174	.138
	Sig. (2-tailed)	.407	.595	.045	.109	.206
fma_ljm*	Pearson Correlation	-.036	-.137	.219	.162	-.045
	Sig. (2-tailed)	.745	.209	.043	.137	.684
fma_ljp*	Pearson Correlation	-.213	.069	.046	-.133	.107
	Sig. (2-tailed)	.049	.525	.676	.220	.326
lb_iadl*	Pearson Correlation	.407	.176	.114	.016	.068
	Sig. (2-tailed)	.000	.105	.298	.885	.532

TABLE 2.2 Correlations (Lower Extremity)

		fma_lmf*	fma_lsn*	fma_ljm*	fma_ljp*	lb_iadl*
age	Pearson Correlation	.008	-.090	-.036	-.213	.407
	Sig. (2-tailed)	.942	.407	.745	.049	.000
fma_umf*	Pearson Correlation	-.037	.058	-.137	.069	.176
	Sig. (2-tailed)	.737	.595	.209	.525	.105
fma_usn*	Pearson Correlation	.174	.217	.219	.046	.114
	Sig. (2-tailed)	.110	.045	.043	.676	.298
fma_ujm*	Pearson Correlation	.143	.174	.162	-.133	.016
	Sig. (2-tailed)	.188	.109	.137	.220	.885
fma_ujp*	Pearson Correlation	.012	.138	-.045	.107	.068
	Sig. (2-tailed)	.912	.206	.684	.326	.532

fma_lmf*	Pearson Correlation	1	.079	-.078	-.061	.090
	Sig. (2-tailed)		.472	.474	.580	.410
fma_lsn*	Pearson Correlation	.079	1	-.097	.025	-.104
	Sig. (2-tailed)	.472		.375	.820	.340
fma_ljm*	Pearson Correlation	-.078	-.097	1	-.201	.005
	Sig. (2-tailed)	.474	.375		.064	.965
fma_ljp*	Pearson Correlation	-.061	.025	-.201	1	-.157
	Sig. (2-tailed)	.580	.820	.064		.148
lb_iadl*	Pearson Correlation	.090	-.104	.005	-.157	1
	Sig. (2-tailed)	.410	.340	.965	.148	

*__fma_umf-__ Fugl-Meyer Assessment Upper Extremity, __fma_lmf__- Fugl-Meyer Assessment Lower Extremity, __fma_ujm__- Fugl-Meyer Assessment Upper Extremity Passive Joint Motion, __fma_ujp__- Fugl-Meyer Assessment Upper Extremity Joint Pain, __fma_usn__- Fugl-Meyer Assessment Upper Extremity Sensation, __fma_lsn__- Fugl-Meyer Assessment Lower Extremity Sensation, __fma_ljm__- Fugl-Meyer Assessment Lower Extremity Passive Joint Motion, __fma_ljp__- Fugl-Meyer Assessment Lower Extremity Joint Pain, __lb_iadl__- Lawton-Brody Instrumental Activities Of Daily Living

DISCUSSION:

The purpose of this research was to find out the association of IADL and Severity of performance among chronic stroke patients. The present study explores the correlations among the variables by measuring IADL and occupational performance in chronic stroke. The findings confirmed significant correlations between the IADL and occupational performance with outcome measures. Furthermore, the Pearson correlation was used to analyse the correlation test among IADL and occupational performance. Age, functional motor assessment (FMA) parameters, and instrumental activities of daily living were found to have a number of significant and non-significant associations, according to the correlation analysis. There was a moderately significant connection between age and IADL, suggest that older people were more adept at tasks related to daily life.

While there was a weak, non-significant positive connection between upper motor function and upper joint mobility. Sensory functions may affect mobility and sensory processing across body regions, as evidenced by the significant positive correlations between upper sensory and lower sensory and upper joint mobility. Additionally, there is a strong positive association between lower sensory and lower joint mobility, suggesting a possible relationship between lower body and motor ability. With the exception of the previously reported association with age, lower joint positioning and other characteristics did not show any significant associations. As in conclusion, females outperform males in instrumental activities of daily living.

In summary we can state that the study found a correlation between the severity of performance in chronic stroke patients and instrumental activities of daily living. IADL and occupational performance are directly related, thus when a patient's IADL improve, so does their occupational performance. Furthermore, based on the afore mentioned findings and discussion, the research supports the alternative hypothesis and rejects the null hypothesis.

In comparison of the study there were also many studies conducted as JuHyung Park conducted a study on the sleep quality, pain, and instrumental activities of daily living of outpatients with chronic stroke [10] showed a significant correlation between pain and capacities of IADL and they are limited to sensory deficits.[10] So, In the present study we included the sensory and motor deficits of the chronic stroke patients and try to find the severity of performance by using FMA scale components.

Amin Ghaffari et al. done a study on predictors of Instrumental Activities of Daily Living Performance in Patients with Stroke [11] and concluded that stroke patients who are older, depressed, cognitively impaired, or more dependent on basic daily activities are more likely to choose to be dependent on instrumental daily living activities, which leads to a decrease in involvement in family and community affairs. Another study was done by Simon S. Kessner et. al. on Somatosensory deficits after stroke [12] the emphasis was on the rise in somatosensory symptoms that accompany strokes. The study provided an overview of epidemiological data regarding the prevalence and features of somatosensory symptoms that impact every body part during both the acute and chronic stages of a stroke.

CONCLUSION:

In conclusion, study concluded that there is a relationship between instrumental activities of daily living and severity of performance among chronic stroke patients. The IADL and occupational performance are in direct relationship, therefore when the instrumental activities of daily living of the patient inclines the occupational performance improves automatically. Higher occupational performance contributes to more independent instrumental activities of daily living.

LIMITATION OF THE STUDY:

- The limited regions and institutions involved.
- In addition, because it is a correlational study, it cannot observe the changes varying on variables over time.
- This study only included instrumental activities of daily living (IADL) not basic activities of daily living (BADL). As, BADL is also an important factor for an effective occupational performance.

FUTURE RECOMMENDATION:

In future, Studies can apply the intervention strategies for IADL and conduct a Randomized control trail (RCT) study for more effectiveness of the IADL and Occupational performances.

ACKNOWLEDMENT:

I express my gratitude to the following individuals for their assistance and involvement in this project: Dr. P. Mahalingam, Chairman and Vice Chairman of Santosh Medical College, Santosh College of Occupational Therapy, Ghaziabad; Dr. R. K. Sharma, Dean, Paramedical & Principal of occupational therapy college; Dr. Ankita Sharma, Assistant Professor and the subjects who participated in the study. Thank you also to my parents and God for their blessings. These people provided direction and encouragement, which made the endeavour possible.

RERERENCES:

1. *Diji Kuriakose et. al. Pathophysiology and Treatment of Stroke: Present Status and Future Perspectives.*
2. *Grefkes C et. al. Recovery from stroke: current concepts and future perspectives.*
3. *Ramos-Lima MJM et. al. Quality of life after stroke: impact of clinical and sociodemographic factors.*
4. *Blomgren C. et al. Long-term performance of instrumental activities of daily living in young and middle-aged stroke survivors— Impact of cognitive dysfunction, emotional problems and fatigue.*
5. *Liebzeit D. et. al. Improving Functional Assessment in Older Adults Transitioning from Hospital to Home.*
6. *Hwang YIJ. Et. al Experiences of Performing Daily Activities in Middle-Aged and Older Autistic Adults: A Qualitative Study.*
7. *Karen M. Keptner et. al. Competence and Satisfaction in Occupational Performance Among a Sample of University Students: An Exploratory Study.*
8. *Carla Graf. The Lawton Instrumental Activities of Daily Living (IADL) Scale.*
9. *Margit Alt Murphy. Fugl-Meyer Assessment.*
10. *JuHyung Park. A study on the sleep quality, pain, and instrumental activities of daily living of outpatients with chronic stroke.*
11. *Amin Ghaffari et al. Predictors of Instrumental Activities of Daily Living Performance in Patients with Stroke.*
12. *Simon S. Kessner et. al. Somatosensory deficits after stroke: a scoping review.*
13. *Unni sveen et al. Well-being and instrumental activities of daily living after stroke.*