



## EFFECT OF MOVEMENT CONTROL MITTS ON SELF- EXTRACTION BEHAVIOUR AMONG PATIENTS WITH NEUROLOGICAL DISTURBANCES: A RANDOMIZED CONTROL TRAIL

### Nursing

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### ABSTRACT

**BACKGROUND:** Self Extraction Behaviour describes historically as destructive actions directed toward persons, objects, or self is most commonly directed toward caregivers pulling out of tubes and IV lines or removing catheters and dressings which is common in neurological disturbances. However, restraints were used to prevent Self Extraction Behaviour but it has several adverse effects. A special movement control mitts invented to control the grasping ability of patients interrupting medical treatment. The aim of the study was to evaluate the effectiveness of Movement Control Mitts on Prevention of Self Extraction Behaviour among patients with Neurological disturbances.

**MATERIALS AND METHODS:** It was a randomized control trail done in tertiary care hospital over 6 weeks. 100 neurological disturbances patients with self extraction behaviour admitted in CCU and wards were selected by purposive sampling technique separated into two group with randomization. Data was collected by observational checklist to assess the level of self-extraction behaviour. SPSS was used for the analysis.

**RESULTS:** The present study depicts that pre-test mean level of self extraction behaviour in experimental and control group was 11.40 and 11.46 respectively. The post test mean level of self extraction behaviour in experimental and control group was 5.14 and 11.02 respectively. P value was < 0.05 in post test which is significant at <0.05, which implies that movement control mitts was effective.

**CONCLUSION:** The investigator designed Movement control mitts had great positive effect on controlling the Self Extraction Behaviour among patients with neurological disturbances. It will be used as well compromised restraint without causing any adverse effect among patients in future.

### KEYWORDS

Self Extraction Behaviour, Neurological Disturbances, Mitts

### INTRODUCTION

Neurological disturbances is describes the sudden onset of aggressive and violent behaviour and autonomic dysfunction, typically in the setting of acute on chronic drug abuse or serious mental illness. It is mainly associated with delirium, dementia and other behavioural disorders which is also collectively known as Acute Behavioural Disturbances (ABD).<sup>1</sup>

Neurological disturbances are common in older adults especially admitted in critical care associated with poor outcomes, including increased length of stays, higher costs, high degree of mortality, continuous use of sedation and physical restraints, unintended removal of catheters and self-extubation, functional deterioration, new hospitalization, and inexpert genesis of cognitive impairment. Manifestations include inattention, confusion, memory impairment, and emotional disturbances. Nurses often plays primary role in identifying and treating delirium, which can be unremarkable complicated because patients are prevailing speechless, critically ill, and require high dose of sedatives to promote mechanical ventilation.

A retrospective study showed that 16 out of 25 patients with neurological disturbances are having self - extraction behavior such as pulling out of essential tubes/ lines and medical equipment aided in treatment.<sup>2</sup>

Self Extraction Behaviour is common among patients admitted with neurological disturbances associated with certain medical and surgical disorders. The incidence rate of self -extubation ranges from 0.5% to 38% and 0.1 to 4.2 events/ 100 intubation days. According to Tung, the average age of patients of self- extubation was 65 years. Patients between 30-60 years account for 47% of self extubation episodes; 58% of episodes occurs in surgery patients. The incidence of self- extraction behaviour such as 40% in 25 patients had removed the catheter, 2.4% was pulled out of central venous catheter, 10%, of them was dislodged the nasogastric tube , 0.56% had removed thoracic drain, 0.53% of them had removed the abdominal drain and 1.1% was removed epidural catheters.<sup>3,4</sup> Hand restraints were used to prevent this self -extraction behavior but it restricts free body movements of patients and also it has several adverse effects like poor circulation, inadequate nutrition and skin breakdown. And there is no particular restraint available to control grasping ability of patients.<sup>5,6</sup> To overcome these adverse effects, a special movement control mitts designed to prevent the self- extraction behavior of neurological disturbances patient.

However, restraints were used to prevent Self Extraction Behaviour but it has several adverse effects. To overcome those effects, the investigator designed a special movement control mitts to control the grasping ability of patient who disrupt their essential medical treatment and interference of care by pulling out of tubes and IV lines or removing catheters and dressings.

### OBJECTIVES

- To assess the Self Extraction Behaviour among Patients with Neurological disturbances.
- To evaluate the effectiveness of Movement Control Mitts on Prevention of Self Extraction Behaviour among patients with Neurological disturbances.
- To find out the association between Self - Extraction Behaviour among patients with Neurological disturbances and selected demographic variables.

### Hypotheses

- H<sub>1</sub>- Significant difference exists between self - extraction behavior of patient with neurological disturbance before and after application of Movement Control Mitts.
- H<sub>2</sub> - Significant association exist between self - extraction behaviour among patients with neurological disturbances and selected demographic variables.

### MATERIALS AND METHODS

Quantitative research approach was adopted in this study. Samples were patients with neurological disturbances having Self Extraction Behaviour. Sample size was 100 (50 in each group). Samples were selected by using Purposive sampling technique based on inclusion and exclusion criteria and subjects were assigned to Experimental group and Control group with simple Randomization. Pre-test was done using interview schedule to assess the demographic data and assessment of Self Extraction Behaviour was done through observational Checklist. The tools was developed based on the extensive literature review and opinion from the experts in the field of neurology, psychiatry and Medical Surgical Nursing. The tools contains 2 parts. Part 1 structured questionnaire on demographic variables such as age, gender, educational status, religion, occupational status, personal habits, history of psychiatric illness, history of neurological disorder, duration of hospital stay, duration of ICU stay, primary medical diagnosis. Part 2 includes the observational Checklist

The Institutional Human Ethical Clearance was obtained. The informed consent from the samples and caregivers were obtained. After self introduction a pretest was done to assess the level of self extraction behaviour in both experimental and control group. Movement Control Mitts Intervention was applied in Group I (Experimental Group) and no intervention was given to Group II (control group) members. Post test was done using Observational Checklist.

**Statistical analysis**

The data analysis was done using SPSS software. The investigator used descriptive statistics such as frequency, percentage, mean, and standard deviation were used to present the descriptive characteristics of patient with neurological disturbances in experimental and control group. Inferential statistics like paired t test was used to compare the effectiveness between experimental and control group, and chi-square test was used to find out the association between the level of self extraction and demographic variables.

**RESULTS**

The following results were obtained from the study. Regarding distribution of demographic variables of patients with neurological disturbances described in

**Table 1.**

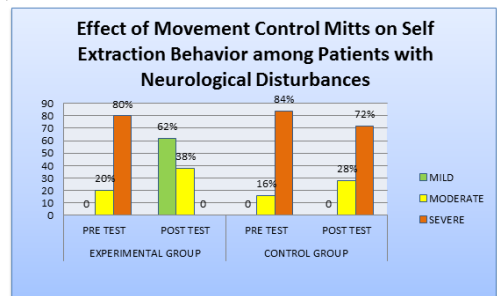
S.No	DEMOGRAPHIC VARIABLE	EXPERIMENTAL GROUP	CONTROL GROUP		
		N	%	N	%
1	Age in years				
	<20 years	0	0	0	0
	21-40 years	16	32	14	28
	41-60 years	15	30	19	38
2	Above 60 years	19	38	17	34
	Gender				
3	Male	40	80	43	86
	Female	10	20	7	14
4	Religion				
	Hindu	30	60	28	56
	Christian	13	26	16	32
	Muslim	7	14	6	12
5	Residential status				
	Rural area	24	48	28	56
	Semi -urban area	16	32	14	28
	Urban area	10	20	8	16
6	Educational qualification				
	Illiterate	6	12	10	20
	Primary school	14	28	23	46
	Secondary school level	17	34	12	24
	Degree holder	13	26	5	10
7	Occupational status				
	Government employee	8	16	10	20
	Private employee	13	26	13	26
	Self employed	27	54	19	38
	Unemployed	2	4	8	16
8	Personal habits				
	Smoking	11	22	10	20
	Tobacco chewing	10	20	13	26
	Alcoholism	20	40	23	46
	Drug abuse	0	0	0	0
	None	9	18	4	8
9	History of psychiatric illness				
	Yes	45	90	42	84
10	No	5	10	8	16
	Past history of neurological disorders				
11	Yes	0	0	3	6
	No	50	100	47	94
12	Duration of present hospital stay				
	<1 week	5	10	7	14
	1-2 weeks	14	28	16	32
	>2 weeks	20	40	19	38
	Over a month	11	22	8	16
13	Length of ICU stay in days				
	<3 days	5	10	6	12
14	3-7 days	14	28	15	30
	8-10 days	20	40	17	34
15	>10 days	11	22	12	24

12	03-7 Days	14	28	9	18
	08-10days	20	40	17	34
	>10 days	11	22	23	46
13	Primary medical diagnosis				
	Cardio-pulmonary disorders	23	46	23	46
	Surgical disorders	12	24	12	24
	Cancer	0	0	0	0
	Neurological	10	20	10	20
	Others	5	10	5	10
14	Duration of mechanical ventilators in days				
	<3 days	5	10	6	12
	3-7 days	14	28	15	30
	8-10 days	20	40	17	34
	>10 days	11	22	12	24

Table 1 depicts experimental group, majority 19 (38%) were above 60 years whereas in control group most of them 19 (38%) were 41-60 years. Both experimental group 40(80%) and control groups 43(86%), most of them were male. Majority were belongs to Hindu in both experimental 30 (60%) and controls 28 (56%) groups. Majority was belonged to rural area in both experimental 24 (48%) and controls 28 (56%) groups. In experimental group, most of them 17 (34%) had completed secondary school level whereas in control group, majority 23 (46%) had completed Primary school. Both experimental group 27(54%) and control groups 19(38%), most of them were self-employed. Both experimental group 20(40%) and control groups 23(46%), most of them were Alcoholism. Both experimental group 45(90%) and control groups 42(84%), majority has history of psychiatric illness. Both experimental group 50(100%) and control groups 47(94%), majority has no Past history of neurological disorders. Both experimental group 20(40%) and control groups 19(38%), majority were >2 weeks Duration of present hospital stay. In experimental group, majority 20 (40%) of length of ICU stay was 8-10 days whereas in control group most of them 23 (46%) was >10 days. Both experimental group 23(46%) and control groups 23(46%), most of the patient has Cardio-pulmonary disorder. Both experimental group 20(40%) and control groups 17(34%), majority were 8-10 days duration of mechanical ventilators respectively.

The first objective of this present study was to assess the self-extraction behaviour among patients with neurological disturbances, the finding reveals that in pretest 42(84%) in experimental group and 40(80%) in control group had severe level of self- Extraction Behaviour and 8(16%) in experimental group and 10(20%) in control group had moderate level of self-Extraction Behaviour.

The second objective was to evaluate the effectiveness of Movement Control Mitts on self- extraction Behaviour among patients with neurological disturbances. The findings showed that post intervention, the severity of self- extraction behaviour reduced from severe to mild in 31 (62%) and moderate 19 (38%) in experimental group. In control group 36 (72%) had severe level of Self- Extraction Behaviour and 14 (28%) had moderate level of Self- Extraction Behaviour.



**Figure 1 depicts the Effectiveness of Movement Control Mitts on Self Extraction Behaviour among Patients with Neurological Disturbances.**

The table 2 depicts that pre-test mean level of self- extraction behaviour in experimental and control group was 11.40 and 11.46 respectively. The post test mean level of self- extraction behaviour in experimental and control group was 5.14 and 11.02 respectively. P value was < 0.05 in post test which is significant at <0.05, which implies that movement control mitts was effective.

**Figure 1. shows the Effectiveness of Movement Control Mitts on Self Extraction Behaviour among Patients with Neurological Disturbances**

Group	Level Of The Self Extraction Behaviour	Mean	Standard eviation	't' Value	'p' Value
Control Group	Pre-test	11.46	1.581	1.502	0.140
	Post-test	11.02	1.237		
Experimental Group	Pre-test	11.40	1.629	21.00	0.001
	Post-test	5.14	1.841		

Table 2 depicts that pre-test and posttest mean level of self- extraction behaviour between Experimental and Control group patients with neurological disturbances.

The third objective of the study was to find out the association between level of self- extraction behaviour and their demographic variables. The result shown that the demographic variables such as personal habits, Length of ICU stay in days and Duration of mechanical ventilators in days had shown statistically significant association, pretest level of Self Extraction Behaviour among Patients with Neurological disturbance in control group. The other demographic variables had not shown statistically significant association with pretest level of Self Extraction Behaviour among Patients with Neurological disturbance in control group.

### DISCUSSION

The study finding reveals that 42(84%) in experimental group and 40(80%) in control group had severe level of self- Extraction Behaviour and 8(16%) in experimental group and 10(20%) in control group had moderate level of self- Extraction Behaviour.

The second objective of the pre test study finding reveals pre-test mean level of self- extraction behaviour in experimental and control group was 11.40 and 11.46 respectively. The post test mean level of self-extraction behaviour in experimental and control group was 5.14 and 11.02 respectively. P value was < 0.05 in post test which is significant at <0.05, which implies that movement control mitts was effective than the control group.

This shows that the Movement Control Mitts were effective on self-extraction Behaviour. The level of Self Extraction Behaviour of patients with neurological disturbance differs before and after application of Movement Control Mitts. This finding is similar to study on audit of the use of hand control mittens with nasogastric tubes The result of the study showed among 26 patient with NG tubes, 16% of complete nutrition improved with NG tube only, and 52% of complete nutrition is obtained with NG tube plus mittens.<sup>8</sup>

The third objective of the present study finding reveals that the demographic variables like personal habits, Length of ICU stay in days and Duration of mechanical ventilators in days had shown statistically significant association, pretest level of Self Extraction Behaviour p<0.05. The other demographic variables had not shown statistically significant association with of Self Extraction Behaviour among Patients with Neurological disturbances.

This study has the implication which are of primary concerns in various field of nursing such as practice, education, Nursing Administration and nursing Research. In the area of nursing Practice, the nurse in clinical setting should develop the skill to assess the self extraction behaviour with the base knowledge of this study. In field of Nursing Education, with Evidence of this study, nurse educator should motivate the students to learn about the assessment of self extraction Behaviour. For a nurse Administrator, this can aid to collaborate with hospital authorities in formulating policies for daily assessment sheet for self extraction behaviour. This study can encourage the nurses for further research studies on the ways to prevent the self extraction behaviour. And we recommend that the study can be replicated with a large sample for better prognosis of patient. More studies can be conducted on self extraction behaviour and its preventive measures.

With the limitations of the study, the current study concludes that the assessment of self extraction behaviour is very important in caring patients with neurological disturbances especially in critical care settings.

### CONCLUSION

The study concluded that the investigator designed Movement control mitts had great positive effect on controlling the Self Extraction Behaviour among patients with neurological disturbances. Movement control mitts will be used as well compromised restraint without causing any adverse effect among patients in future.

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