



ORIGINAL RESEARCH PAPER

Physiotherapy

COMMUNITY PARTICIPATION USING COMMUNITY INTEGRATION QUESTIONNAIRE IN TRAUMATIC BRAIN INJURY PATIENTS (MODERATE TO SEVERE) WITHIN 1 YEAR POST INJURY – A SURVEY

KEY WORDS: Traumatic Brain Injury, moderate and severe head injury, Community Integration Questionnaire

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ABSTRACT

BACKGROUND AND OBJECTIVE:

The objective of this study is to 'To measure the community integration after moderate to severe traumatic brain injury by using CIQ within 1 year post injury period, so as to provide better outcomes for the individual with head injury in future.

Method This survey was conducted in the SDM College of physiotherapy, Dharwad. Total numbers of 50 patients were taken for the study. Patients with moderate to severe TBI were evaluated on CIQ within 1 year post injury . Collected data was sent for statistical analysis.

Conclusion: The study concluded that, there is an impact of TBI (moderate to severe) on community participation 1 year post injury.

INTRODUCTION:

Traumatic brain injury (TBI) is an insult to the brain not of degenerative or cognitive nature but caused by external physical or mechanical force, that produces a diminished or altered state of consciousness (according to the brain injury association of America).¹ Globally, nearly 50 million people are injured with TBI every year. In that, 75% are under 45 years of age. The incidence of TBI in India is nearly 2 million every year. In Karnataka, it is 79,100 per year while in Bangalore alone, it is nearly 10,000 head injury per year.^{2,3} Individuals of 21 to 35 age group represented 40% of TBI and that of children (<15 years) were 5% and elderly accounting for 20%. The Male and female ratio is 4:1.² Road traffic injuries are the major cause of TBI, which accounts for 59%, followed by falling 25% and violence 10%.³In India, 71% mild, 15% moderate and 13% are with severe brain injuries according to GCS.

In TBI, patient may get isolated from the community because of physical disability and altered mental status that leads to participation restriction. Earlier studies revealed that clinical determinants of poor community integration include a more severe injury, poorer functional performance and disability, extended post-traumatic amnesia, prolonged hospital stay, loss of emotional control and poor cognition, poor physical condition and pre-morbid functioning and severe activity limitation.⁴

Different scales such as community integration questionnaire (CIQ), community Integration measures (CIM), Craig handicap assessment reporting technique (CHART), brain injury community rehabilitation outcome, reintegration to normal living scale (RNL) etc. can be used to measure the cognitive functioning, behavioral and physical deficits and the impact of community participation after TBI.^{4,5}

(CIQ) was invented by Willer and Colleagues. It also differentiates among survivors with 3 different levels of independence that is living independently, living in the community with support or institutionalized.⁷ It also differentiates among survivors with 3 different levels of independence that is living independently, living in the community with support or institutionalized.⁷ CIQ has high interrater reliability between patients with TBI and their family members.⁸ It also has a good test re-test reliability with r= 0.91 for CIQ, r = 0.93 for home integration, r = 0.86 for social integration and r = 0.83 for productive activities.^{6,9,10}

A study says that, cognitive and psychological impairments after TBI contribute to chronic disability.¹¹ A person who was previously employed or doing household or any extracurricular activities will not be able to do those activities after TBI. The patient becomes dependent on the medical provider and family members for the basic needs. It leads to altered mental status and participation

restriction in the community. A physical therapist need to have a thorough knowledge of the patients problems which restrict him to get back to his previous level of activities i.e., ADL, participation in home environment, social life, participation in community etc. It is estimated that about 12 months or more are required for the natural recovery from TBI (Dikmen et al, 1995). So, there is need for useful evidence, reviewing and reporting community integration measures for those who have sustained TBI, in order to provide better outcomes for the individual in future.^{4,5}It is needed to estimate their community integration level within 1 year post injury.

Materials and method: Ethical clearance was obtained from the Ethical Committee of the S.D.M College of Medical Sciences and Hospital, Dharwad. The patients who fulfill the inclusion criteria were taken into the study. Patients willing to participate were explained about the purpose of the study. A written or oral consent was taken. The baseline characteristics such as age, gender, occupation, GCS at the time of admission, total number of hospital stay and Hospital discharge destination were taken from the patient's previous records (discharge Summary). The records were taken from MRD. The patients included were moderate to severe post traumatic brain injury within 1 year. Patients were excluded if they had any pre-traumatic neurological, oncological, systemic impairment (spinal cord injury, psychiatric disorder, cancer, etc.) that may interfere with TBI related disability assessment

After finding their inclusion criteria and exclusion criteria, the Participants were interviewed using the CIQ. Patients were contacted directly or via Phone calls. Family members or care givers were allowed to give response to the Questions if the patient was not able to answer or write. CIQ assesses the participation of the person in the community. It has 3 subscales; home integration, social integration and productive activities. Home integration has total 5 questions with 0 – 2 points; where, 0 is someone else is doing activities and 2 is the person himself is doing. In social integration, there are total 6 questions with 0-2 points. With this, 0 is participating alone or never going in the community. 2 is the person is participating with friends or going for leisure activities 5 or more times in a month. Productive activities contain job school variables. In that also if the patient is retired due to age question number 15 is used. The total score is from 0 to 5; where 0 is not working nor looking for work and 5 is full time working. The total scoring of the CIQ is 0 to 29. Higher the score more is the community integration.

According to the questionnaire, the total scoring of CIQ was done. The data were sent for the statistical analysis to measure the community integration after moderate to severe Traumatic brain

injury within 1 year post injury period. SPSS 21.0 software was used for data analysis.

RESULTS:

Table 1: Distribution of respondents by age groups

Age group	No of respondents	% of respondents
<=20yrs	7	14.00
21-40yrs	29	58.00
41+yrs	14	28.00
Total	50	100.00
Mean	36.06	
SD	13.37	
Males	46	92.00
Females	4	8.00
Employed	31	62.00
Unemployed	19	38.00

Table 2: Distribution of GCS at the time of admission (severe and moderate) by age groups

Age group	Severe GCS	%	Moderate GCS	%	%
<=20yrs	1	14.29	6	85.71	14.00
21-30yrs	3	23.08	10	76.92	26.00
31-40yrs	2	12.50	14	87.50	32.00
41+yrs	6	42.86	8	57.14	28.00
TOTAL	12	24.00	38	76.00	100

Chi-square=4.2528 P=0.2351

Table 3: Comparison of status GCS (severe and moderate) with total CIQ and its domains by t Test

Variable	GCS	Mean	SD	t-value	p-value
Total CIQ	Severe GCS	8.00	4.20	-2.9832	0.0045*
	Moderate GCS	14.34	6.94		
Home integration	Severe GCS	1.58	1.44	-1.8956	0.0640
	Moderate GCS	2.79	2.04		
Social integration	Severe GCS	4.17	2.33	-1.7849	0.0806
	Moderate GCS	6.21	3.73		
Productive activity	Severe GCS	2.25	1.76	-4.3938	0.0001*
	Moderate GCS	5.34	2.22		

Discussion :

Objective of the study was to measure the CI after moderate to severe TBI 1 year post injury period. We included 50 participants with an age range of 18 to 65 yrs. As shown in Table 1, mean age of the participants was 36.06 ±13.37. Out of the 50 participants 46 (92%) were male, while 4 (8%) were female. Out of 50 respondents 31 (62%) were employed, 19 (38%) were unemployed.

Table 2: shows Distribution of GCS at the time of admission (severe and moderate) by age groups. There were total 38 (76%) participants with moderate TBI and total 12 (24%) with severe TBI.

Table 3, shows the comparison of GCS with total CIQ and its domains which is the objective of the study. A comparison was done by t-test with a p value set at ≤ 0.005. The total CIQ score was less in participants with severe GCS (mean= 8, SD=4.20) than with moderate GCS (mean= 14.34, SD= 6.94). Level of significance p=0.0045. For HI, t = 1.89, p = 0.064. For SI, t = -1.78 and p = 0.08. For PA, t = -4.39 and p = 0.0001. The study showed that, patients with severe TBI, according to GCS at the time of admission have more impact on their CI as compared with the moderate GCS. Productive activities are more affected than HI and SI. Severity of the injury as a single outcome or in combination with pre-morbid and demographic variables has an effect on CI.60 As the severity of the disease increases, post traumatic complications also increase. So, individuals with severe TBI can suffer from more complications and long term disability as compared with the individuals with moderate TBI. They suffer from complications such as, PTA,

epilepsy, motor and cognitive (depression, anxiety) issues, difficulties in concentration, etc. So, their dependency will be more than individuals with moderate TBI. Productive activities include work or job, attending school or rehab programs. Individuals with more affection in TBI will be able to perform basic household activities, but unable to work outside alone, so their PA are more affected than other variables of the CI.15 The most important thing is, severe TBI is most common in young population following RTAs.2 They are more involved in PA and SI than HI. Generally, individuals with severe TBI have a fear of losing friends and social support.

Therefore, they try to get engaged more in passive leisure activities 14 and hence, in comparison of GCS (moderate to severe) HI and SI are not significantly affected. Also in our study, most of the subjects were male, and male are most commonly involved in PA as compared to women; which could be one of the possibilities of PA getting more affected than HI and SI.

According to our findings, CI is the combination of each of the 3 areas of home, social network and productive activities. The individuals with disabilities select themselves to get adjusted and balance their lives in a manner that, they may show greater integration in one area over another.13 Thus, the housewife selects to get involved more in the home rather than PA, Our findings correlate to a study that has been done on the clustered analysis of CIQ Subscales. The study indicated 3 distinct patterns of CI. One group of patients demonstrated balanced pattern of CI with high levels of independence in everyday home activities and social participation. 2nd group was actively involved in PA but less in household. 3rd group was poorly integrated with low levels of i Injury. University of Pittsburgh 2012 Sept 20. ndependence in all the 3 activities.14

According to our results, we accept the alternative hypothesis where there is an impact of moderate to severe TBI on patient's participation in the community. Individuals with moderate to severe brain injury were significantly less integrated on every subscale of CIQ but there is more affection of PA than HI and SI within 1 year of the injury.

Variables associated with poor CI were male gender, more severe TBI, advanced age.

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