

Brief Communication

Length of stay of patients in different rehabilitation programs. A hospital experience in Saudi Arabia

Maher S. Al-Jadid, JBPM[✉]R, FAFRM (H),
Asirvatham A. Robert, MSc, MPhil.

Approximately 650 million people live with disability of several types, and the number is increasing due to increase in chronic diseases, injuries, car crashes, falls, violence, and other causes, such as ageing.¹ The causes of impairments vary throughout the world, as well as the prevalence, and consequences of disability. These variations are the result of different socio-economic circumstances, and of the different provisions that each society makes for the well-being of its members. Medical rehabilitation services are needed for people who have sustained any diseases or injury. Some patients may need outpatient follow up, while others may need admission to hospitals. These depend on many factors, such as the severity of injury or disease, acuteness, consequences, associated diseases or injuries, nature of the health care services provision (private versus government), and accessibility to psychosocial support. As admission to a hospital is always expensive, government and insurance companies prefer outpatients, day care, or even home care programs. It is well known that rehabilitation beds within the hospitals are more expensive compared to

medical/surgical beds. Studies reported that reducing the duration of hospital stay is very important to reduce the cost of care, and to avoid chronic initialization attitude of patients and family.² The duration of hospital stay depends not only in clinical factors, but also in social and economic factors.² Reducing the length of stay (LoS) of one full day reduces an average of 3%, or less of the total cost of care. Further, prolonged hospital stay is associated with nosocomial infections, immobility, pressure sores, deep vein thrombosis, and deconditioning.³

The objective of this study was to demonstrate the differences in LoS of patients on different rehabilitation programs. The study was approved by the Research and Ethics Committee of Sultan Bin Abdulaziz Humanitarian City (SBAHC), Riyadh, Kingdom of Saudi Arabia. Patients who completed the rehabilitation programs at SBAHC from January 2005 to December 2008 were included for the analysis and patients aged ≥ 81 years were excluded due to small proportion. Admission records of 3837 (2614 males, 1223 females) patients were identified with the mean age of 32.9 ± 16.4 years. Data analysis was carried out using Microsoft Excel 2002 (Microsoft Corporation, Seattle, WA, USA) and GraphPad InStat Version 3 (GraphPad Software, San Diego, USA). Data are presented as mean \pm standard deviation (SD). Descriptive analyses were carried out to describe the data in the study. Table 1 shows difference in gender, frequency of patients, and LoS of different rehabilitation programs. The mean LoS of the study

Table 1 - Differences in gender, frequency, and length of stay of different rehabilitation programs.

Program	Age, mean	Gender		Total number of patients n (%)	Length of Stay (Mean \pm standard deviation)
		Male	Female		
<i>Length of stay ≥ 50 days</i>					
Burns	24.2	5	2	7 (0.18)	54.7 \pm 33.4
Arthritis	58.4	23	17	40 (1.04)	52.1 \pm 27.4
Multi trauma with brain or spinal injury	28.6	34	5	39 (1.0)	51.7 \pm 29.4
Guillian-Barre' syndrome	38.4	10	4	14 (0.36)	53.4 \pm 26.7
Traumatic brain injury	26.9	412	63	475 (12.4)	57.4 \pm 27.7
Traumatic spinal cord injury	34.3	405	93	498 (13.0)	58.4 \pm 29.1
<i>Length of stay < 50 days</i>					
Amputee	46.7	70	12	82 (2.14)	46.4 \pm 28.5
Multi trauma without brain or spinal cord injury	26.7	7	2	9 (0.23)	33.1 \pm 24.6
Orthopedic	52.5	55	43	98 (2.55)	42.5 \pm 26.5
Stroke	61.5	561	272	833 (21.7)	46.1 \pm 29.4
Non traumatic spinal cord injury	41.8	91	46	137 (3.57)	44.2 \pm 28.4
Neurological disorders (adult)	31.1	206	154	360 (9.38)	40.2 \pm 24.3
Neurological disorders (pediatric)	7.6	586	404	990 (25.8)	32.2 \pm 18.7
Non traumatic brain injury	31.3	57	45	102 (2.66)	43.5 \pm 28.6
Developmental delay, infections, respiratory failure	39.7	92	61	153 (3.99)	32.8 \pm 19.4
Total	32.9	2614	1223	3837 (100)	46.7 \pm 25.7

group was 46.7 ± 25.7 . The male to female ratio of the study population was 2:1. Compared to female, male population was higher in all rehabilitation programs.

A recent study reported that the pediatric neurologic disorders such as mental retardation 26.3/10000 and cerebral palsy 23.4/10000 were the common neurologic disorders among Saudi children.⁴ The present study observed that a higher proportion of patients was found in pediatric neurological disorders (990 [25.8%]) followed by stroke (833 [21.7%]) whereas, burns (7 [0.2%]) followed by multi trauma without brain or spinal injury (9 [0.2%]) indicated a lower proportion. Research show that spinal cord injury (SCI) is one of the major disabilities dealt with in clinical rehabilitation settings and is multifactorial in that the patients suffer from motor and sensory impairments as well as many other difficulties.⁵ Individuals with SCI have a high lifetime risk for medical complications and need more rehabilitation.⁶ In this study, we observed higher LoS among traumatic spinal cord injured patients (58.4 ± 29.1) followed by traumatic brain injury (57.4 ± 27.7), whereas shorter LoS was found in pediatric neurorehabilitation (32.2 ± 18.7 days).

The need of rehabilitation services is imperative for people who have sustained severe injury often due to trauma, stroke, infection, tumor, surgery, or progressive diseases in order to improve their quality of life. However, the need for rehabilitation crosses all age groups, although the type, level, and goals of rehabilitation differ. People with chronic impairments, often older people, have different goals, require less intensive or active rehabilitation or a longer period of rehabilitation, and need different types of therapy (passive rehabilitation) than younger people.⁷ In addition, late referral to hospitals or delayed admission due to availability of beds, or eligibility issues are major contributor for LoS. For one reason or another, the initial period of admission is usually lost, as the main focus would be on treating preventable secondary complications during the early stage of admission.

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In conclusion, this report indicates a higher proportion of patients in pediatric neurorehabilitation, where most of the patients are diagnosed with cerebral palsy and stroke program. The higher LoS was observed among traumatic spinal cord injured patients and traumatic brain injured patients. The major limitations of this study were the limited number of risk factors examined and samples from a single hospital in Riyadh city. Further research is needed to address the limitations indicated in the study. Despite the limitations, the study provides valuable data related to Saudi population. Besides, this study has also brought out the need for extensive research in this area in Saudi Arabia, which would facilitate planning and designing appropriate strategies and interventions.

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From the Department of Neurosciences (Al-Jadid), Rehabilitation Medicine Division, Riyadh Military Hospital, and Research Center (Robert), Medical Affairs, Sultan Bin Abdulaziz Humanitarian City, Riyadh, Kingdom of Saudi Arabia. Address correspondence and reprints request to: Dr. Maher S. Al-Jadid, Department of Neurosciences, Rehabilitation Medicine Division, Riyadh Military Hospital, PO Box 14126, Riyadh 11424, Kingdom of Saudi Arabia. Tel. +966 (1) 4777714 Ext. 25301. Fax. +966 (1) 4722400. E-mail: maljadid@rmh.med.sa

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