

## Employment Status Six Months after Discharge from Inpatient Rehabilitation for a Mild-to-moderate Physical Disability

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### Abstract

**Introduction:** Physical disability presents unique challenges to the individual, family and community. One of these challenges is returning the individual to work. The current study looks at individuals with a mild-to-moderate physical disability 6 months post-discharge from inpatient rehabilitation and their employment status and perceived barriers to returning to work. **Materials and Methods:** Prospective study of consecutive Singaporean patients, aged 21 to 65 years, discharged from the acute inpatient Rehabilitation Medicine Service at Changi General Hospital with a mild-to-moderate physical disability, as determined by discharge Modified Barthel Index score, and their employment status 6 months after discharge. **Results:** There were 68 patients who met the study criteria; of these, 31 (45.6%) were successfully employed by 6 months post-discharge from inpatient rehabilitation. There was a statistically significant difference ( $P = 0.0004$ ) between the 2 groups based on gender, with more males likely not to return to work as compared to their female counterparts. **Conclusion:** In this small prospective study, males were more likely not to return to work than females. Those of slightly younger age with more advanced education were more likely to return to work and fear of worsening of physical disability was the most common reason cited for not returning to work after a mild-to-moderate physical disability.

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**Key words:** Physical disability, Rehabilitation, Work

### Introduction

A new physical disability presents unique challenges to the individual, family and community. One of these challenges is employment and productive reintegration of the individual back into their community. A major goal of rehabilitation is returning the individual to their premorbid interests and activities including resumption of work.

Previous studies have shown that the individual's perception of illness and disability are important factors in determining functional recovery and resumption of social and familial roles.<sup>1</sup>

The current study looks at individuals with a mild-to-moderate physical disability as determined by discharge Modified Barthel Index (MBI) score, their employment status at 6 months post-discharge from inpatient rehabilitation and any perceived barriers to returning to work.

### Subjects and Methods

A prospective qualitative study from November 2004 to November 2005 of patients discharged from Rehabilitation Medicine Service (RMS) with a mild-to-moderate physical disability and their employment status within 6 months of discharge from inpatient rehabilitation was undertaken after obtaining permission from the Institutional Review Board of Changi General Hospital.

Inclusion criteria included Singaporean permanent resident or citizen between the ages of 21 and 65 years who were employed outside of the home at time of hospitalisation and discharged from RMS with a mild-to-moderate physical disability as determined by their discharge MBI.<sup>2</sup>

The MBI is a 100-point assessment tool that measures an individual's ability to perform activities of daily living (ADL) and the amount of assistance the individual requires in completion of ADL. Moderate physical disability is a

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score of 50 to 74 out of 100, mild is 75 to 90, and minimal physical dependence 91 or greater.

Return to work was defined as being employed, whether in a new position or pre-hospitalisation job, part-time or full-time at 6 months post-discharge from RMS.

Six-month follow-up was used as individuals had mild-to-moderate physical disabilities, with no cognitive deficits and were felt to be safe to return to work within 6 months.

Qualitative study design was chosen, as the aim of the project was to ascertain the individual's reason for not returning to work within the 6-month follow-up.

Demographic data were obtained for each patient along

with diagnosis necessitating rehabilitation, coexisting illness diagnosed by primary referring team, discharge MBI, marital status, highest level of education achieved, discharge location, depression and persistent pain.

Diagnosis of depression was given if at least 5 of the following symptoms were present during the same 2-week period and represented a change from previous level of function. These symptoms included depressed mood, marked diminished interest or pleasure in almost all activities, unintentional significant weight loss, weight gain, or a change in appetite, insomnia or hypersomnia, psychomotor agitation or psychomotor retardation, fatigue or loss of energy, feelings of worthlessness, impaired

Table 1. Patient Demographics

	Total		Working by 6 months follow-up		Not working at 6 months	
	No.	%	No.	%	No.	%
Total no. of participants	68	100	31	45.6	37	54.4
Age	49.6 ± 1.2 years				51.1 ± 1.1 years	
<i>P</i> = 0.9998						
Sex						
Male	51	75	17	54.8	34	91.9
Female	17	25	14	45.2	3	8.1
<i>P</i> = 0.0004						
Race						
Chinese		67.7	17	54.8	29	78
Malay		26.5	10	32.2	8	22
Indian		2.9	2	6.5	0	0
Others		2.9	2	6.5	0	0
<i>P</i> = 0.0759						
Marital status						
Married	62	91.2	29	93.5	33	89.2
Single	6	8.8	2	6.5	4	10.8
<i>P</i> = 0.5279						
Education						
Minimal to none	22	32.4	5	16.1	17	46
Completed primary education	20	29.4	9	29.0	11	29.7
Completed secondary education	16	23.5	10	32.3	6	16.2
Technical/Vocational	4	5.9	3	9.7	1	2.7
Junior college	4	5.9	3	9.7	1	2.7
University	2	2.9	1	3.2	1	2.7
<i>P</i> = 0.0981						
Risk ratio of not working at 6 months and education						
Minimal to none:	2.9					
Completed primary education:	1.0					
Completed secondary education:	0.5					
Technical/Vocational:	0.3					
Junior college:	0.3					
University:	0.8					
Discharge location						
Own home	54	79.4	27	87.1	27	73
Other home	4	5.9	2	6.5	2	5.4
Community hospital	5	7.4	1	3.2	4	10.8
Other restructured hospital	3	4.4	1	3.2	2	5.4
Nursing home	2	2.9	0	0	2	5.4
<i>P</i> = 0.4581						

ability to concentrate, recurrent thoughts of death or suicidal ideation. Participants and family members were asked during their follow-up clinic sessions if and when any of these symptoms occurred.

Diagnosis of persistent pain was given when pain was present for at least 3 of the last 6 months.<sup>3</sup> During regular scheduled follow-up with the same Rehabilitation Medicine specialist, patients were asked about presence of pain, if they had experienced any of the symptoms of depression, and if they had returned to work and if not to state the one reason that prevented them from returning to work.

Descriptive statistics were used to compare patient characteristics. The student's *t*-test was used to compare means of continuous variables and chi-square test for categorical data. Statistical significance was set at  $P < 0.05$ .

## Results

From November 2004 to November 2005, there were 68 patients enrolled in the study; of the 68, 31 (45.6%) were able to successfully return to work by 6 months after hospital discharge and 37 (54.4%) were unable to. All of the 68 participants completed the study.

There was a statistically significant difference between the 2 groups based on gender ( $P = 0.0004$ ), with more males likely not to return to work as compared to their female counterparts (Table 1).

There was no statistically significant difference between the 2 groups based on ethnicity or age (Table 1). The average age of participants in the return to work group was  $49.6 \pm 1.2$  years and  $51.1 \pm 1.1$  years in those unable to return to work within 6 months.

The diagnosis of cerebrovascular disease due to infarct was the most common diagnosis requiring rehabilitation in both groups followed by haemorrhagic stroke. There was a 1.3 greater probability of those with haemorrhagic stroke, spinal cord injury and traumatic brain injury to be in the group unable to return to work at 6 months (Table 2). Coexisting illnesses were similar for both groups, with hypertension occurring most often followed by diabetes mellitus, hyperlipidaemia and cardiovascular disease.

There were more individuals with limited formal education in the group that did not return to work within 6 months of discharge from inpatient rehabilitation than in the group that was working at 6 months ( $P = 0.0981$ ). There was a 2.9 greater probability of individuals with minimal education to be unemployed at 6 months post-rehabilitation discharge (Table 1).

Table 2. Clinical Characteristics

	Total		Working by 6 months follow-up		Not working at 6 months	
	No.	%	No.	%	No.	%
Total no. of participants	68	100	31	45.6	37	54.4
Diagnosis						
Infarct	36	52.9	17	54.8	19	51.4
Haemorrhagic stroke	10	14.7	4	13	6	16.2
Fracture	5	7.4	3	9.6	2	5.4
Amputation	7	10.2	3	9.6	4	10.8
Spinal cord	5	7.4	2	6.5	3	8.1
Traumatic brain injury	5	7.4	2	6.5	3	8.1
<i>P</i> = 0.9813						
Risk ratio of not working at 6 months and diagnosis of:						
Infarct: 0.9						
Haemorrhagic stroke: 1.3						
Fracture: 0.6						
Amputation: 1.1						
Spinal cord injury: 1.3						
Traumatic brain injury: 1.3						
Co-existing illness						
Hypertension	33	48.5	16	51.6	17	46
Diabetes	21	30.9	10	32.3	11	29.7
Hyperlipidaemia	9	13.2	4	12.9	5	13.5
Cardiovascular	5	7.4	1	3.2	4	10.8
<i>P</i> = 0.6890						
Discharge Modified Barthel Index						
<i>P</i> = 0.9974						
Persistent Pain	12	17.6	6	19.4	6	16.2
Depression	7	10.3	4	12.9	3	8.1

Of the 37 participants who were unable to return to work, 18 stated fear of worsening their physical and medical condition as the reason they did not return to work. Nine of the 37 participants were embarrassed by their need to use a gait aid when returning to work and therefore chose not to return to work. Transportation and environmental barriers were cited by 6 participants as their reason for not returning to work, 3 of the participant's families requested they not return to work, and 1 individual was unable to return to work because of uncontrollable urinary incontinence (Table 3).

## Discussion

The present study falls within the scope of previously published data on rates of return to work. Prior studies, usually disability specific, have reported a highly variable rate of return to work after physical disability, from 13% to 58%.<sup>4,5</sup> In the current study, 31 of the 68 (45.6%) participants had returned to work by 6 months post-discharge from inpatient rehabilitation.

The current study showed that males were more likely not to return to work than females ( $P = 0.0004$ ); and although not statistically significant, those of slightly older age and limited education were more likely not to return to work at 6 months.

Previous studies have shown that those with a higher education, younger age, higher socioeconomic background, less physically demanding work and strong social ties were more likely to return to work by 3, 6, 9 and 12 months post-injury and were less likely to have significant depressive symptoms.<sup>6-8</sup> There was an increase in the risk ratio of haemorrhagic stroke, amputation, spinal cord injury and traumatic head injury in the group unemployed at 6 months. However, as the sample size was quite small, these differences may not be as significant as those from a larger group of participants.

Pain was infrequently cited as a reason for not returning to work in the current study, which is consistent with study performed among amputees in Japan.<sup>9</sup>

Some limitations of the study included the small number of participants, a single rehabilitation unit, no data on type

of work prior to hospitalisation, and a short follow-up period; as some studies have shown that it takes longer than 1 year and up to 5 years post-disability to return to employment.<sup>10-12</sup>

Another limitation of study is in its design as a qualitative study. Qualitative studies are most often used in exploratory research to better define the problem and its scope. The data obtained in the current study indicated the individual perception to barriers in returning to work after a mild-to-moderate physical disability and it cannot be used as a generalisation to the population at large. Hess and colleagues<sup>13</sup> pointed out that returning to work is a dynamic process after physical disability, with the "level of importance of each variable changing with time post-injury". With a longer follow-up period, different perceived barriers to returning to work may be revealed.

The intent of the study was to provide insight into possible perceptions and barriers to returning to work after a mild-to-moderate physical disability. The next step would be for a multicentre, and perhaps disability specific evaluation of ability to return to work.

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Table 3. Perceived Barriers to Return to Work

Variable	No. (n = 37)	%
Afraid condition will worsen "if exert"	18	48.6
Use of gait aid "embarrassing"	9	24.3
Transport not available/or costly	6	16.2
Family wishes them to stop working	3	8.1
Urinary incontinence	1	2.7