

## REHABILITATION OF STROKE PATIENTS TREATED AT A COMMUNITY BASED REHABILITATION CENTRE

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### **Abstract**

**Aim:** The overall aim of the study was to compile a profile of stroke patients receiving out-patient rehabilitation in the community. Included in the profile was the referral and rehabilitation process.

**Method:** The study design was descriptive, utilizing a retrospective survey of patient documentation. Patient records were used to collate the data.

**Results:** Records of 168 patients were included in the study. A large percentage (55.9%) of the patients were referred by primary level sources. Thirty three percent of the patients were assessed within their first two weeks post-stroke. Sixty nine percent of the patients received rehabilitation for less than 3 months with an average of one treatment session per week. Results indicate an improvement in functional status of the patients when comparing admission and discharge scores ( $p < 0.0005$ ).

**Conclusion:** Out-patient community based rehabilitation could have a positive effect on the functional status of stroke patients.

### **Introduction**

The rehabilitation of stroke patients can occur in acute settings such as stroke units as well as sub-acute settings such as nursing homes and rehabilitation hospitals, out-patient departments or even within the patient's home (Flick, 1999; WHO, 1989). In most developed countries stroke patients are admitted to hospital for rehabilitation in the acute stages. An admission rate of 95% is reported in Sweden (Holmqvist, Von Koch, Kostalus, Holm, Widsell, Tegler, Johansson, Alamazan, & De Pedro-Cuesta, 1999), while the admission rate in the UK varied from 70% (Rudd, Wolf, Tilling & Beech, 1997) to

55% (Van Gjin & Dennis, 1998). Admission of stroke patients to hospital in the acute stages is not as common in developing countries due to the lack of resources.

In South Africa there is lack of co-ordination of stroke rehabilitation programmes as well as a lack of a central health plan for the rehabilitation of stroke patients (Fritz, 1995). Those stroke patients who are hospitalized are often discharged with naso-gastric tubes and catheters as the beds are needed by patients who are seen to be more ill (Fritz, 1995). Stroke patients are discharged early from hospitals, even though community rehabilitation services have been

found to be inadequate (Hale & Walker, 1996). Limited information is available in the literature on patients who have never been admitted to hospital post-stroke only receiving rehabilitation in the community on an outpatient basis. Studies that compare hospital-based services to outpatient services all include patients who are initially admitted to hospital (Anderson, Rubenach, Mhurchu, Clark, Spencer & Winsor, 2000, Hui, Lum, Woo & Kay, 1995). Like many other developing countries, South Africa has adopted the primary health care approach as the most appropriate strategy to meet its health care needs (Department of Health South Africa, 1997). In a primary health care approach, more emphasis is placed on Community Health Centres, as they are the first point of entry into the health care system. The objective of Community Health Centres is to provide primary level care to all its patients. As the services at these centres include preventative, promotive, rehabilitative as well as curative services, the Community Health Centre is in most cases, the first medical facility the post-stroke patient would access for care.

The aim of the present study was to develop a profile of stroke patients attending the Bishop Lavis Rehabilitation Centre which is part of the Bishop Lavis Community Health Centre. Included in the profile were the referral and rehabilitation processes. The rehabilitation centre is managed by a full time physiotherapist and occupational therapist and students from a neighbouring university offer speech therapy services on a part time basis. The rehabilitation centre offers outpatient services to patients with a variety of diagnoses, on an individual basis and in groups. Home visits are carried out to

assess the re-integration of the patient into the home and community. Stroke patients constitutes the second largest group treated by the physiotherapist at the centre, the largest being patients with low back pain.

## Methods

A retrospective descriptive study of stroke patients treated at the centre was undertaken to compile a profile of these patients. All available records i.e. medical as well as the rehabilitation records (physiotherapy, occupational therapy and speech therapy clinical notes) of all the stroke patients treated at the center over a five year period and who were no longer attending the centre for treatment were reviewed and the relevant information retrieved (N = 168). Data collated included the following; demographic data, documented medical information, risk factors relating to the stroke, the referral process, treatment interventions, functional status on admission as well as at time of last attendance. The patients' ability to perform certain functional activities was documented as either being totally dependent, needing assistance or independent. The researcher captured and scored the following functional activities; eating, dressing, washing, toileting, bed mobility, bed to chair transfers and walking. A score of 2 was given if the patient was totally dependent in the activity, 1 if the patient needed assistance with the activity and 0 if the patient could perform the activity independently. Admission and discharge scores were calculated for each patient. The higher the overall score the greater the dependence on caregivers to perform these functional activities, the highest score the patient could obtain would be 16/16 (total dependence in all functional activities

scored) and the lowest score the patient 0/16 (totally independent in all functional activities scored). In some instances, data were missing from the available records, and this was taken into account in the calculation and presentation of the results. A data capture sheet was developed by the researcher to collate the relevant information. A pilot study was conducted to clarify whether the information the researcher wanted to capture was available in the files of the patients. Following the pilot study it was necessary to delete certain questions from the data capture sheet, as this information was not readily available in the folders. Questions that were deleted related to, the type of stroke, transport used by patients to access the rehabilitation centre, an indication of who the primary care-giver was, the referral of patients from the rehabilitation centre to other institutions, the statistics of the speech therapist as well as the visual status of the patients. Data was analysed using the statistical package of Social Sciences (SPSS) as well as the Statistical Analysis System (SAS).

## Results

Data relating to the demographic and the medical profile was presented elsewhere (Rhoda & Hendry, 2003). The study sample consisted of 54% females and 46% males. The mean age of the patients was 59 years (SD 11 years) with ages ranging from 33 years to 83 years.

### Referral agency:

The following section of the results illustrates and discusses the referral process, providing information on the referral agency and source.

**Table 1: Referral Agency (N=165)**

| Referral Institution | n  | %    |
|----------------------|----|------|
| Primary              | 92 | 55.9 |
| Secondary            | 34 | 20.9 |
| Tertiary             | 38 | 23.2 |

The patients referred to the centre for rehabilitation could either have been referred from acute tertiary hospitals, sub-acute secondary hospitals or primary out-patient or community institutions. In the present study the majority of patients (59%) were referred by primary level settings.

### Referral Source

Table 2: is an illustration of the referral sources. Most of the subjects (56%) were referred by medical officers, which included private general practitioners. A total of 59 persons (36%) were referred by either Physiotherapists or Occupational Therapists. The rehabilitation centre has an open referral policy and patients could therefore be referred by sources other than health professionals. In the present study eight (4.6%) were referred by family or community members.

**Table 2: Referral Source (N=168)**

| Referral Source        | Number | %   |
|------------------------|--------|-----|
| Medical Officer        | 93     | 56  |
| Physiotherapist        | 33     | 20  |
| Occupational Therapist | 26     | 16  |
| Nursing Sister         | 4      | 2   |
| Self/Family            | 7      | 4   |
| Social Worker          | 1      | 0.6 |
| Community Source       | 1      | 0.6 |
| Not recorded           | 3      | 1.8 |

**Rehabilitation Process**

The following section of the results reports on the rehabilitation process.

**Assessment Times Post-Stroke**

As stroke patients were referred by different sources they were assessed at different times post-stroke. Table 3: illustrates the time lapsed between the date of stroke and date of initial assessment.

**Table 3: Time period between date of stroke and date of assessment at Bishop Lavis Rehabilitation Centre (n= 152)**

| Period              | Number | %    |
|---------------------|--------|------|
| 0-7 days            | 24     | 15.7 |
| 8-14 days           | 26     | 17   |
| >2 wks-12 wks       | 65     | 42.7 |
| >3 months-12 months | 29     | 19   |
| >1 year             | 8      | 5.2  |

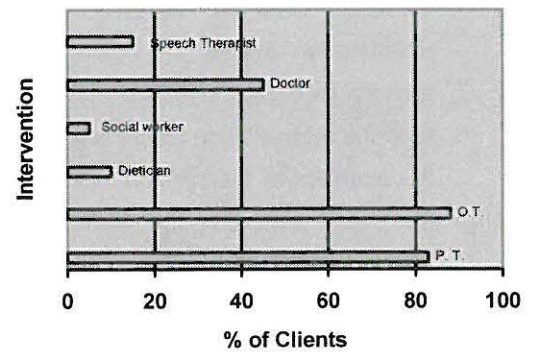
Thirty three percent of the patients were assessed within the first two weeks post-stroke. The majority of the patients were assessed within the first three months post-stroke (75.4%). There were, however, eight patients who were assessed at the centre more than one year after having suffered a stroke.

**Rehabilitation Interventions**

Figure 1: is an illustration of the treatment interventions each patient received at the Bishop Lavis Community Health Centre. The majority of the patients were treated by both a

physiotherapist (P.T.) and occupational therapist (O.T.). Following a stroke, a medical officer (DR) will initially assess a patient. However, only 45% were seen by the medical officer at the Bishop Lavis Community Health Centre. The remainder of the population would have been referred either a medical officer at a secondary or tertiary institution, by a doctor working at another community health centre or by a general practitioner. From the results of the study the services of the dietician, social worker and speech therapist were under utilized with less than 20% receiving these services.

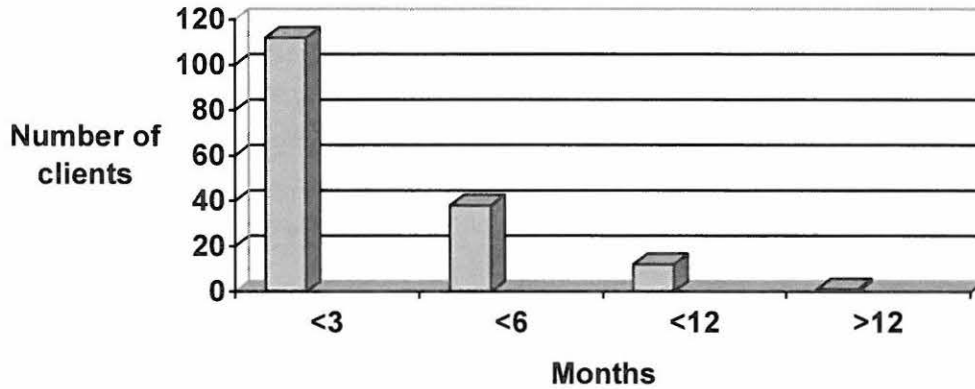
**Figure 1: Treatment Received (N=168)**



**Duration of rehabilitation**

Figure 2: is an illustration of the duration of rehabilitation for the study population. The majority of the patients (69%) underwent rehabilitation for less than three months. There was, however, one patient who received rehabilitation for more than a year.

**Figure 2: Duration Of Rehabilitation (N=162)**



The majority of the patients received between one and ten treatment sessions (Table 4). When compared to the total time spent in rehabilitation, the patients effectively underwent rehabilitation sessions once a week.

**Table 4: Number of physiotherapy (P.T.) and occupational therapy (O.T.) treatment sessions received. (N= 168)**

| Treatment Sessions    | P.T. Number of patients | O.T. Number of patients |
|-----------------------|-------------------------|-------------------------|
| 1 – 10                | 138                     | 130                     |
| 11 – 20               | 14                      | 23                      |
| 21 – 30               | 5                       | 6                       |
| 31 – 40               | 0                       | 0                       |
| 41 – 50               | 1                       | 0                       |
| No treatment sessions | 10                      | 9                       |

Certain patients were visited at home to assess their ability to perform functional activities within their own home settings. Either the physiotherapist or the occupational therapist visited a total of 60% of the patients at home. The rehabilitation center also established a

stroke patient support group. Patients were given the option of attending the group. Only 23% of the patients who were part of the study population attended the group.

**Functional Status of the Patients.**

The functional statuses of the patients were captured as indicated in the methodology section of this article. The mean admission score was 4.33 (SD 4.45), and the mean discharge score was 1.93 (SD 3.37). A paired two tailed t-test indicated a significant improvement in the ability of the patients to perform the functional activities,  $p < 0.0005$ .

**Discussion**

The rehabilitation of stroke patients in community settings as the one described in the study is a frequent occurrence in developing countries such as South Africa. A large percentage of the patients treated at this center were in the acute stages post-stroke. This differs from what is found in other studies where the majority of acute stroke patients receive in-patient

rehabilitation as opposed to outpatient rehabilitation (Hui, et al., 1995, Rudd, et al., 1997 & Anderson, et al., 2000).

Although a team of professionals namely, Physiotherapist, Occupational Therapist, Dietician, Medical Officer, Social Worker and Nursing Staff, are employed at the Bishop Lavis Community Health Centre, they were not all actively involved in the management of the patients in the study. The success of rehabilitation of stroke patients, whether in an acute hospital setting or in the community, depends on the organization and/or structure of the rehabilitation service (Helgason & Wolf, 1997). As maximal functional recovery is reached within the first three months post-stroke (Jorgenson, Nakayama, Raaschou, Vive-Larsen, Stoier & Olsen, 1995), the time spent rehabilitating patients were reasonable and no unnecessary time was spent on individual rehabilitation of patients who would probably only make minimal, if any, improvement. The frequency of rehabilitation received by these patients was much less than what is provided in other countries. In the United States, single or multiple therapies between 2-5 times a week is recommended (Flick, 1999). It has been suggested that more rehabilitation is better than less for stroke patients, especially those who have moderate levels of disability (Hui, et al., 1995, Ferda, Birtane, Tabatabae, Kokina & Ekuklu, 2001).

In conclusion, although the above results could have a negative influence on the functional outcome of stroke patients, an improvement in the functional status of the patients in the present study was however noted. Further

studies, which include the use of validated standardized outcome measurement tools to measure functional status in patients who mainly receive outpatient rehabilitation, need to be conducted to confirm these findings. A multidisciplinary team approach should be encouraged among health professionals working at primary health care centres, managing patients with chronic diseases of lifestyle such as stroke.

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