Rehabilitation assessment in general practice: Why general practitioners should know about disability

It is becoming increasingly common to manage disability within the community.

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Helen Sammons has been involved in clinical (public and private), managerial, academic (under- and postgraduate training) and community aspects of rehabilitation for the past 14 years. She developed the present undergraduate MB ChB rehabilitation curriculum for Stellenbosch University. With her present research on this curriculum, she hopes that rehabilitation will eventually be incorporated into all undergraduate medical curricula in South Africa.

The prevalence of disability in South Africa is 5%.[1] In the public sector the goal is to provide 90% of patient care at primary health care level by 2010.[2] Managed health care and resource limitations determine where privately funded patients receive their care. Therefore, the general practitioner will frequently find him/herself having to manage the needs of the disabled person within the community.

Rehabilitation is achieved by modification of the impairment, compensation for loss of function with assistive devices and techniques, facilitation of social adjustment and acceptance, and modification of the environment.[3,4]

This is usually achieved in the context of an interdisciplinary, inpatient rehabilitation programme or a multidisciplinary, outpatient rehabilitation programme. In both these settings the full professional team, consisting of the rehabilitation medical practitioner and nurse, speech therapist, occupational therapist, physiotherapist, social worker, dietician and neuropsychologist, is on hand. Assessments are completed by all team members and decision making is based on input from all of them. Once maximal possible function has been achieved, 95% of patients are discharged home on maintenance therapeutic programmes.

What happens to newly disabled persons after initial investigation, management, and stabilisation? Admission to specialist in- or outpatient rehabilitation programmes depends on clinician awareness of such programmes, admission criteria, availability of programmes and financial resources. Sadly, most deserving patients do not have access to such programmes and are often discharged home without adequate or with incomplete rehabilitation, in both the private and public sectors.

Training in disability and rehabilitation for undergraduate MB ChB students and postgraduate family medicine practitioners is virtually non-existent in South Africa. Internationally, despite rehabilitation training, general practitioners fail to detect 40% of disabilities.[5]

Patients who have had rehabilitation as well as those who have not had adequate or complete rehabilitation often end up at the general practitioner with a particular problem. The aim of this article is to provide a brief overview of the multiple and complex needs of the person with disability.

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Terminology

Impairment is when an illness or injury leaves a person with abnormalities of body structure (e.g. amputation) or function (e.g. hypothyroidism). Impairments are manifestations of pathology and can be temporary or permanent, progressive, regressive or static, intermittent or continuous, and slight or severe.

Activity limitation is when these impairments affect the ability to perform daily activities, e.g. wash, dress, groom, walk, and produce speech.

Participation restriction is when a person is unable to participate in societal and life situations.

Function is an umbrella term used to describe normal body functioning, and ability to participate in activities.

Disability, on the other hand, is the presence of impairments, activity limitations, and participation restrictions.

Environmental factors comprise the physical, social, and attitudinal environment in which people conduct their lives. These factors can facilitate function or be barriers, causing disability.

Personal factors are features that are not part of the health condition, e.g. gender, race, age, fitness, habits, coping styles, social background, education, which affect functional outcome.[6]

All these components interact, influencing a person's functioning and disability, as summarised in Fig.1.

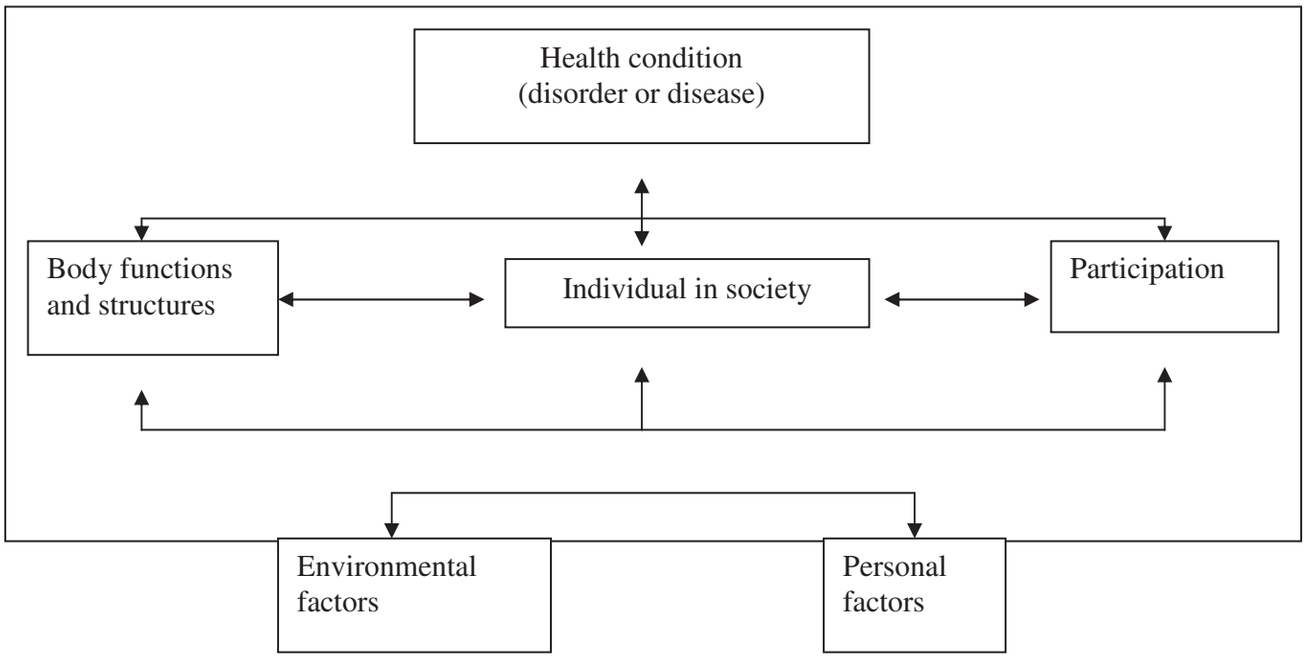

Fig. 1. Schematic representation of the interaction of the various factors affecting an individual's ability to function in society.

Fig. 2. These photographs demonstrate the impact of impairment on function. A patient with osteoarthritis of the hip has reduced mobility of the hip, functionally cannot climb a step, and in terms of community integration, cannot get into a taxi.

Therefore, the assessment of a disabled individual entails:

- a routine medical assessment
- an assessment of activities (and limitations) and participation (and restrictions)
- an assessment of contextual factors (environmental and personal).

Role of the general practitioner

Every consultation, whether the patient is presenting with problems related to the disability (functional issues, complications, chronic medication, completion of insurance or medical reports, reassurance), or unrelated problems, provides an opportunity to:

- initially confirm the diagnosis and prognosis
- monitor maintenance of previously achieved levels of functioning
- assess abilities and reinforce positive life roles rather than a sick role[7]
- identify current problems (medical and functional)
- identify current and potential complications (medical and functional)
- treat appropriately at primary level
- make appropriate referrals (medical, therapeutic and community)
- co-ordinate all interventions
- organise follow-up
- advocate the needs of persons with disabilities (e.g. supply of suitable continence devices and medications from medical aids and community health centres).

Comprehensively identifying all problems and potential complications

A systematic approach guided by a framework, such as the list given in Table I, ensures comprehensive patient management. Complications often develop insidiously and the list given below ensures that, potentially, nothing is missed. Not all patients have all these problems, but all problems related to disability are covered by the list. The general practitioner doesn't have to treat all the problems directly, but must be able to identify and refer appropriately. Some problems may be managed simultaneously by two or more members of the multidisciplinary team, including the patient and his/her family, e.g. spasticity may require prescription of muscle relaxants, as well as therapeutic exercises and positioning.[8] This generic approach allows one to manage any disability and not only diagnoses with which one is familiar.[9]

Table I. Problems and complications frequently encountered in persons with disabilities

Medical-related aspects
Optimal medical management
Nutritional requirements
Skin and pressure care
Bladder and bowel
Pain and discomfort
Vision
Sexual dysfunction
Therapeutic-related aspects
Behaviour and psychosocial adaptation, cognition and perception
Community re-integration, work, leisure activities
Activities of daily living, mobility
Transport
Communication (reading, writing, facial expression)
Feeding, swallowing, dentition
Other
Finances
Education and training of patient and carer

The assessment

The history will dictate the extent to which each system needs to be examined. Standard medical evaluation techniques suffice but

must also include functional and contextual assessment. Observation of the patient during the history taking and examination forms part of the objective examination, which supports or refutes the complaints. This is of special importance when assessing work potential. Examination of individual systems is well documented in standard medical and rehabilitation textbooks.[10,11] The following section is a brief overview of key issues in each of these problem areas.[12, 13]

Optimal medical management

Confirm the diagnosis. Further investigation and referral may be necessary. An accurate diagnosis guides the prognosis and appropriate management.

Medical problems may be acute[14] or chronic and generally fall into the following categories:

- underlying cause and risk factors of the disability (e.g. vascular, trauma)
- complications of deconditioning and immobility (pressure ulcers, deep vein thrombosis, contractures, aspiration, respiratory infection, constipation, reduced fitness, postural hypotension, osteoporosis)[15]
- secondary effects of the underlying insult (seizures, spasticity, autonomic dysreflexia, neuropsychiatric disturbances, incontinence)
- secondary complications (urinary infection, renal reflux, bladder stones, depression, pain).

All impairments across all systems must be optimally managed to afford the patient the best possible outcome. Co-morbidities may limit rehabilitation, e.g. limited cardiac reserve may limit effort tolerance during amputee mobility training. The level of functioning immediately before the most recent disabling event will limit rehabilitation outcome.

With regard to prescription and recreational substances, polypharmacy, drug interactions (e.g. warfarin) and effect of medications on functional ability must be considered. Sedatives, antidepressants, and alcohol may further impair borderline cognitive functioning. A person with a hypertonic bladder can become incontinent with the addition of diuretics. Alcohol reduces the epileptogenic threshold.

Nutrition

Patients with hypertension, diabetes and dyslipidaemia have special dietary requirements. Those with pressure sores have an increased need for protein, calories, vitamins (C), and minerals (Zn). Immobile patients become constipated, often aggravated by poor fibre and fluid intake. Patients who tend to have urinary accidents may limit their fluid intake. Sedentary patients have reduced energy needs, while those with mobility impairments who mobilise actively with manual wheelchairs, prostheses or walking aids have increased energy demands.

Skin and pressure care

Prolonged immobility of patients with or without sensory impairment results in increased risk of pressure ulcers. Pressure mattresses and wheelchair cushions alone cannot prevent pressure sores. The patient or carer must take responsibility for pressure relief every 2 - 4 hours, day and night. Precipitating and aggravating factors include wet skin (incontinence), frictional forces (spasms and pulling the patient across the sheet), anaemia and debility (diabetes, HIV), contractures (prominence of bony points), crumbs and creased bedding, as well as substance abuse. The patient must be strictly kept off the affected area. Examine for pressure from orthoses, prostheses and assistive devices, e.g. lateral maleolar pressure from the foot plate hanger of the wheelchair.

Perceptual and sensory fall-out can result in unnoticed trauma. Diabetics need regular monitoring of extremities, usually by a third party, if their vision is poor.

Betadine as a wound dressing should be avoided in patients with vascular compromise.

Scars should be mobilised to reduce cosmetic deformities and restriction of movement. Aqueous cream can be used for this purpose.

Bladder and bowel management

Exclude pre-morbid causes of incontinence. Bladder and sphincter function need to be assessed. Predictable, complete emptying without intermittent leaks and avoidance of complications are the key aims in persons with physiological incontinence, e.g. spinal cord injuries. Patients with brain injury (stroke, head injury) may be functionally incontinent owing to poor cognitive ability or perception of the need to use the toilet, or poor mobility to access the toilet, commode or urinal bottle, or to manipulate clothing in time. A regular voiding schedule is therefore indicated. Males who sit to urinate may find that they have residual urine in their bulbous urethra after voiding. This results in post-micturition dribble that can be managed by lifting the scrotum after voiding in order to empty the urethra.

Facilitation of regular bowel emptying is critical from the first day of injury to promote long-term social continence and to prevent complications (megacolon, impaction, and diverticulitis). Chronic constipation may lead to proximal liquefaction of stools, with the patient presenting with diarrhoea.

Pain and discomfort

Spasticity and pain should be treated early and aggressively. The longer these symptoms are present, the more difficult they are to treat. Pain is a symptom – not a diagnosis – and a cause needs to be sought and symptomatic treatment initiated. Spasticity may be aggravated by changes in weather, infections, urinary stones, ingrown toenails, change in psychological status and/or pressure sores.

Claudicating distance must be assessed in patients with vascular conditions. Common causes of stump pain in amputees include infection, neuroma and ischaemia.

Vision

Pre-morbid refractory and visual problems should be corrected. Diabetics should be monitored for preventable causes of blindness (cataracts and proliferative retinopathy). Brain-injured patients with hemianopia and hemi-neglect should be approached from the hemiplegic side to provide maximal stimulation. Prism spectacles may improve hemianopia, but only perceptual retraining and not spectacles will help hemi-neglect. Visiomotor disorders can be treated with visual therapy – exercises that focus on the eye muscles involved in eye movements and accommodation. If diplopia causes headaches and dizziness, eye patching can be alternated daily.

Sexual dysfunction

The physical and relationship aspects of sexual performance and interaction need to be assessed. Patients may have a fear of over-exertion after having had a vascular event. Altered sensation may affect the sexual experience. Impotence may be related to the lesion, e.g. in spinal cord injury, or be a consequence of, for example, digoxin, recreational drugs or vascular disease.

The ability to maintain menstrual hygiene and the need for family planning must be assessed. Pregnancy may not be contraindicated, but spasticity and deformity may affect childbirth, and functional ability may affect child-rearing ability.

Behavioural and psychosocial adaptation, cognition and perception

The level of education can affect communication (history giving and understanding). In work rehabilitation, the level of education influences career options in the open labour market.

Some common behavioural problems that need to be understood in persons with brain injury are:

- As the level of consciousness improves, the patient may become restless and aggressive; sedation needs to be used judiciously to avoid affecting cognitive functioning.
- Patients with cognitive deficit and loss of internal motivation are viewed by family as lazy.
- A head injury victim's aggressive outbursts followed by total non-recollection of events may be seen as manipulative behaviour.

Depression may be pre-morbid, reactive or organic after brain injury and requires appropriate management and treatment.

Patients with severe cognitive impairments are often not suitable for active short-term rehabilitation programmes especially if they cannot retain learned information. However, families should be appropriately trained how to apply therapeutic principles (e.g. positioning), prevent complications (e.g. pressure sores) and provide a cognitive and physically stimulating environment.

Community reintegration, work, school, leisure

Patients should become integrated members of the family and community, fulfilling defined roles and participating in pre-morbid activities, e.g. shopping, socialising, religious activities. An occupational therapist or clinical psychologist can assess for mainstream or special school placement. Patients interested in sport can be referred to Sport for the Disabled.

If the person is employed at the time of onset of disability, employment should be maintained at all reasonable costs. Families often insist on boarding for financial reasons. Alternatives (sick leave, temporary disability, UIF, insurance, state disability) should be considered. Termination of work should be carefully considered, taking into account the prognosis, natural history to date and completion of all therapeutic interventions. In difficult cases the help of an occupational therapist should be sought. Structured activity in the open, sheltered, or protected labour market, or in the domestic environment, or a group that gathers weekly serves physical and emotional therapeutic goals.

Activities of daily living

Gender, age, and social standing may influence an individual's incentive to become independent, and thus the need for intervention. Brain injury can affect intrinsic motivation. Placement in a care facility usually negates the need for an active rehabilitation programme. The majority of self-care tasks are performed for the resident and ambulation is not encouraged unless safe and unless the individual is independent.

Once discharged from a rehab programme, patients and carers are responsible for their own maintenance therapy, comprising participation in daily activities, stretching and positioning. Referral to a therapist should be considered if functional deterioration is due to factors beyond the patient's control, e.g. repeat stroke, change of caregiver.

Assess which rehabilitation interventions have been received. If there is poor acceptance, patients may 'shop' in the hope of finding the 'magical cure' for their impairments. Observation of communication and physical abilities during the evaluation adds information to the assessment. A home visit will provide insight into the environmental challenges some patients face. Typically, one thinks of unpaved outdoor surfaces, outside toilets and lack of running water and electricity that patients from disadvantaged communities face, but split-level homes, narrow passages, and inaccessible baths and toilets can be just as limiting. An occupational therapist will advise on appropriate alterations, e.g. ramps, grab rails.

Assess the person's abilitiy to eat (including cutting of food, bringing food to the mouth, chewing and swallowing), wash the upper and lower body adequately, get in and out of the bath, dress the upper and lower body (including fastening of laces, underwear, zippers and buckles and putting on orthoses and prostheses), toilet (getting to the toilet, adjusting clothing timeously and safely, cleaning him/herself and getting up from the toilet and readjusting clothing), groom (washing and combing of hair, shaving, putting on make-up) and sleep. If possible, the patient should choose what clothing should be worn. Safety can be improved with a bath mat on the floor of the shower or bottom of the bath. It is easier to get out of the bath by turning around onto the knees than it is to try to push or pull up from a seated position.

Ask about chores such as sweeping, cleaning floors, washing, hanging up clothes and ironing them, making beds, preparing food, cooking, gardening, and general household tasks. These questions can guide one as to the work potential of a person. If the person has a dependant child in his/her care, address issues such as holding a young baby, changing nappies, and bathing an infant.

If functional hand movement has not returned within 3 months after brain injury, it is unlikely to happen. Patients with increased tone must *not* squeeze a stress ball as this will aggravate flexor tone.

Mobility includes mobility in bed, playing sport, and transfers in and out of a wheelchair to bed, toilet, chair, ground, and car. Bedridden patients are encouraged to sit up out of bed for limited periods, e.g. during mealtimes. Seating should be in the form of a wheelchair or similar supportive chair. 'Lazy boys' are not recommended as they negatively affect postural control. In neurologically impaired patients, walking is only advised when it is learnt in the correct neurodevelopmental sequence in order to promote correct walking patterns. Enquire as to safety, distance, speed, need for assistive devices, and ability to negotiate stairs (how many, with or without a railing), curbs, obstacles and uneven terrain.

Power cannot be accurately tested in the presence of contractures and spasticity. Painful loss of range of movement at large joints may indicate heterotopic ossification.

What assistive devices or orthoses have already been prescribed? Are these being used as prescribed and are they enhancing function as initially intended? Correct wheelchair seating, on a suitable pressure cushion, with the hips, knees and ankles at 90° with the pelvis positioned so that the spine follows its normal curvatures, is important (Fig. 3).

Fig. 3. Correct positioning. Left: poor posture. Right: correct posture, using appropriate seating equipment.

Transport

What transport is used to access health facilities and to fulfil personal needs? Can the person transfer in and out of a vehicle and stow assistive devices?

A patient requires competent physical and mental functioning to be able to drive. Someone who has suffered brain injury may lack sophisticated skills, e.g. concentration, insight, judgement, reasoning, and ability to cope in an emergency. Do they have access to transport for the disabled if locally

available? Do they have a disabled parking disc if they use private transport?

Communication (reading, writing, facial expression, hearing)

Dysarthria, dysphasia, comprehension, and cognition problems are detected when the patient attempts to give the history him/herself. Patients are encouraged to talk, rather than the accompanying carer answering on their behalf. If the history needs to be taken from the carer, the patient must still be the primary focus of the interview. Establishing an accurate yes/no response, followed by naming of common objects, are the first therapeutic steps in communicating with an aphasic patient. A communication board is only effective for persons with adequate cognitive ability. An ENT surgeon/audiologist's opinion may be required to ascertain if a hearing device will be beneficial.

Feeding, swallowing, dentition

With a facial palsy, dentures may no longer fit comfortably. They need to be altered or remade. Some people prefer to be without their dentures, but generally teeth will make an individual eat, look, and speak better. Assess oral and dental hygiene. Oral thrush is often a reason for patients to avoid eating. Patients who drool are encouraged to 'suck' back the saliva rather than continuously dab the side of the mouth as the will stimulate further drooling.

Does oral intake of solids and fluids match energy demands (increased or decreased)? Can the person chew and swallow solids and liquids? Is there choking, regurgitation through the nose or aspiration? Has the person had repeated lower respiratory tract infections? Can they maintain adequate nutrition? In patients with unilateral brain lesions, choking is more likely to be due to poor positioning than to neurogenic causes. Once positioning is corrected, patients who continue to choke should be evaluated by a speech therapist or ENT practitioner by means of videofluoroscopy. A nasogastric tube does not eliminate aspiration of upper GIT secretions. A PEG feeding tube is the preferred option for long-term assisted feeding.

Finances

Interventions need to be planned within the limitations of the patient's financial resources, be they private, medical aid, compensation, or state funded.

Education and training of patient and carer

The doctor plays an important role in communicating the diagnosis, prognosis and management plan to all parties involved – patient, family, carer, health funder, and employer.

Conclusion

The above systematic approach will result in a problem list and management plan which usually include several referrals and follow-ups. An understanding of disability and its consequences empowers the general practitioner to comprehensively manage all aspects of care of the disabled individual within the community.

The disabled person can then achieve and maintain optimum health which, as defined by the WHO, is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.[16]

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In a nutshell

- The general practitioner often becomes the manager/co-ordinator of chronic care for disabled individuals.
- The rehabilitation assessment comprises medical, functional and contextual components, which are interdependent.
- All impairments across all systems must be evaluated.
- Rehab outcome is determined by pre-morbid level of functioning.
- The examination confirms the medical and functional status.
- A management plan reflects the multiple and complex needs of the disabled individual.
- Management usually requires the input of more than one individual from medical, therapeutic and community resources.
- Patients with pressure sores must not lie or sit on the affected area.
- Patients' employment must be maintained at all reasonable costs.