



## ESTABLISHING A NEUROPSYCHIATRY CLINIC AT TYGERBERG HOSPITAL

Chris la Cock, Frans J Hugo, Rudi Coetzer, Gustav van Greunen, Catherine Kotzé, Robin A Emsley

**Objective.** Neuropsychiatry is a neglected subspecialty in South Africa. The aim of this study was to assess the need for neuropsychiatry clinics by evaluating a recently established unit in South Africa and testing opinions of heads of academic psychiatry departments.

**Design.** Three separate aspects were investigated. First, a retrospective analysis of patient records from the University of Stellenbosch neuropsychiatry and neuropsychology clinic (USNNC) was undertaken. Second, interviews were conducted with the clinical staff of the clinic, and third, questionnaires were sent to all heads of psychiatry departments in South Africa.

**Setting.** USNNC, situated at Tygerberg Hospital.

**Subjects.** Patients attending the USNNC, clinicians of the USNNC and heads of academic psychiatry departments in South Africa.

**Main outcome measures.** Patients were assessed by means of a standard clinical assessment procedure and a multi-axial diagnosis was made according to the criteria of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*, 4th ed. A semi-structured interview was conducted with the USNNC clinical staff to assess their opinions regarding the clinical importance of such a specialised clinic, possibilities for training, opportunities for research and possible improvements that could be made. The staff included a psychiatrist, a psychologist, an occupational therapist, a neurologist and a nuclear physician. An adapted questionnaire was used to assess the attitudes of heads of psychiatry departments in South Africa toward neuropsychiatry.

**Results.** Mild neurocognitive disorder was the most common DSM-IV diagnosis. Head injuries were the most common

Axis III disorder. According to USNNC clinicians, a multidisciplinary neuropsychiatric clinic provides for improved diagnosis and management of these disorders, as well as providing excellent training opportunities for psychiatry registrars and students of related disciplines. Heads of departments of psychiatry in South Africa had a clear understanding of the entity of neuropsychiatry but were divided on the question of fostering neuropsychiatry as a subspecialty. Most were confident that their graduates acquire the necessary clinical skills to evaluate and treat common neuropsychiatric disorders.

**Conclusions.** Mild cognitive impairment, often due to head trauma, is most appropriately managed within a multidisciplinary setting. Such a facility provides good training opportunities for students in various disciplines. Much-needed research on treatment outcomes and cognitive rehabilitation can be undertaken in this setting. Improved communication between psychiatry departments in South Africa should lead to a pooling of resources and the provision of a better service to neuropsychiatric patients.

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During the 19th century most practitioners treating psychiatric patients were qualified in both neurology and psychiatry. In fact, some of the great early German psychiatrists were also qualified neuropathologists. The emergence of the psychodynamic theories may have served to drive a wedge between psychiatrist and neurologists. Lishman<sup>1</sup> writes that psychiatrists were keen to exploit these new analytical approaches, while neurologists were happy to leave the muddle of mental illness to others. Recent years have witnessed a rekindled interest in neuropsychiatry, with once again a blurring of the borders between psychiatry and neurology.

Neuropsychiatry studies the psychiatric aspects of neurological disorders and deals with the borderland territory between clinical neurology and clinical psychiatry.<sup>1</sup> Black defines neuropsychiatry as the branch of medicine that is concerned with the ABCs of psychiatry.<sup>2</sup> 'A' is for anatomy, 'B' for brain lesions causing psychiatric syndromes, and 'C' for cognitive impairment. Finally, 's' is for signs on physical examination, such as catatonia and movement disorders. Neuropsychiatry clearly overlaps with psychiatry, neurology, the basic neurosciences and neuropsychology. As such the delineation of neuropsychiatry is not straightforward. Many psychiatrists and neurologists have a special interest in neuropsychiatry and often practise in the field without having received formal training.

Curricula for neuropsychiatry are not well established and there are conflicting opinions regarding the most suitable

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training pathways towards such a career.<sup>3</sup> The prominent contemporary neuropsychiatrist, J L Cummings, first completed a residency in neurology, followed by a behavioural neurology fellowship and then a research fellowship in neuropathology and neuropsychiatry. B S Fogel did residencies in neurology and psychiatry, with research training in geriatric psychiatry. It is clear that in North America and Europe neuropsychiatry is not just regarded as a special interest, but rather a formalised discipline. Associations such as the American Neuropsychiatric Association and British Neuropsychiatric Association are well established. As far as we are aware, the existence of training programmes and dedicated neuropsychiatry clinics has not been investigated previously in South Africa. In this paper, we report on our initial experiences with the University of Stellenbosch neuropsychiatry and neuropsychology clinic (USNNC) and the status of neuropsychiatric training in South Africa. The USNNC was established in January 1995 and is staffed by a psychiatrist, a psychologist and an occupational therapist. A nuclear physicist (for single photon emission computed tomography (SPECT) studies) and a neurologist also form part of the team. The clinic evaluates and provides treatment for patients with psychiatric symptoms resulting from neurological illness.

## METHODS

Three procedures were followed. Firstly, clinical records of all patients seen at the USNNC for the period June 1995 - July 1996 were retrospectively examined. During this period patients were evaluated by means of a standard psychiatric assessment including a Mini-Mental Status Examination (MMSE).<sup>4</sup> When clear signs of cognitive impairment were found (MMSE < 26) a bedside assessment of cognitive functions was performed using the format proposed by Strub and Black.<sup>5</sup> Less obvious forms of cognitive impairment were further evaluated by formal neuropsychological assessment. (Currently, the procedure of evaluation at the USNNC is more formalised, consisting of the Structured Clinical Interview for DSM-IV,<sup>6</sup> the MMSE and the Neuropsychiatric Inventory.<sup>7</sup> Bedside testing of cognitive functions is done with the Executive Function Interview<sup>8</sup> and the Strub and Black<sup>5</sup> format.) The following information was extracted from the clinical records: patient demographics, psychiatric and general medical diagnoses, use of psychometric tests, other special investigations, and utilisation of ancillary services.

Secondly, semi-structured interviews were conducted with the clinical staff of the USNNC. The interview included questions relating to the general value of the clinic, training opportunities, the clinical importance of the clinic, opportunities for research and suggestions for improvements.

Finally, an adapted version of a questionnaire developed by Duffy *et al.*<sup>9</sup> to assess attitudes toward training in neuropsychiatry in the USA was sent to all heads of academic

psychiatric departments in South Africa. The questionnaire consisted of 12 questions designed to assess attitudes regarding the status of neuropsychiatry and the existence of appropriate training programmes. Respondents were also asked to define the skills they regarded as being necessary for good neuropsychiatric practice. The following universities received the questionnaire: Cape Town, Free State, MEDUNSA, Natal, Pretoria, Stellenbosch, Transkei and Witwatersrand.

## RESULTS

During the study period 115 new referrals were seen. Patients were referred from diverse sources, the most frequent referrals being from psychiatrists and neurosurgeons in both private and public services. The average patient age was 39.2 years (range 17 - 75 years, SD 13.93). Sixty-five per cent of the patients were male and 35% female. A total of 461 patient visits were made to the clinic; these involved 21 neuropsychological assessments, 43 structured bedside cognitive evaluations, 183 occupational therapy sessions and 214 follow-up visits. Fifty-three patients underwent SPECT imaging studies of the brain.

DSM-IV Axis I diagnoses are given in Table I. The most common diagnoses were: cognitive disorder not otherwise specified ( $N = 38$ ) (one patient had a post-concussional disorder and the rest mild neurocognitive disorder); dementia ( $N = 31$ ); personality change due to a general medical condition ( $N = 26$ ); and mood disorder of the depressive type ( $N = 21$ ). Some patients had more than one Axis I diagnosis. Axis II diagnoses included 4 patients with mental retardation. In 11 patients, the Axis II diagnosis was deferred and 100 had no Axis II diagnosis. Axis III diagnoses are shown in Table II. Head trauma was the most common ( $N = 46$ ). Other less frequent diagnoses (listed under 'Other' in the table) included HIV encephalopathy, brain abscess, brucellosis, Creutzfeldt-Jakob disease, meningitis, Parkinson's disease, Huntington's disease, basal ganglia calcification, corpus callosum dysgenesis, carbon monoxide poisoning, hereditary arteriopathy, cerebral aneurysm, normal pressure hydrocephalus, hypoglycaemia, electrical shock and migraine. The Axis IV psychosocial stressors were diverse. A common stress factor for many patients with mild cognitive impairment was increased work stress due to impaired occupational functioning. Average level of functioning on Axis V as assessed by the Global Assessment of Functioning scale was 58.3 (range 20 - 85, SD 12.58).

Interviews with clinicians of the USNNC clinic indicated that they all strongly favour the multidisciplinary approach of the clinic. Liaison between the disciplines of psychiatry, psychology, occupational therapy, neurology and nuclear medicine is regarded as the strength of the USNNC. The clinicians all felt that patients with mild cognitive impairment are often not appropriately managed in unidisciplinary settings. The clinicians felt that the availability of SPECT imaging facilitated the assessment of individuals with mild



Table I. DSM-IV Axis I diagnoses for the 115 patients

DSM-IV Axis I diagnoses	N	% of total
Delirium, dementia, amnesic and other cognitive disorders	78	57.4
Cognitive disorder NOS	38	27.5
Dementia due to a head injury	23	16.7
Dementia of the Alzheimer's type	3	2.2
Vascular dementia	4	2.9
Amnesic disorder NOS	4	2.9
Amnesic disorder due to a general medical condition	3	2.2
Alcohol-induced persisting dementia	1	0.7
Alcohol-induced persisting amnesic disorder	2	1.5
Mental disorders due to a general medical condition not elsewhere classified	26	18.8
Personality change due to general medical condition	26	18.8
Mood disorders	24	17.4
Bipolar I disorder	3	2.2
Mood disorder due to a general medical condition	6	4.3
Major depressive disorder	15	10.9
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Psychotic disorder due to general medical condition	1	0.7
Panic disorder	3	2.2
Alcohol dependence	1	0.7
Cannabis abuse	1	0.7
Sedative, hypnotic or anxiolytic use disorders	2	1.5
Dissociative amnesia	1	0.7
<b>Total</b>	<b>138</b>	

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cognitive impairment, and often identified pathology when computed tomography (CT) scan or magnetic resonance imaging (MRI) studies were reported as being normal. It was also felt that the clinic offers excellent opportunities for training, particularly at postgraduate level, and that more use could be made of these opportunities. (Registrars in the Department of Psychiatry at the University of Stellenbosch rotate through the USNNC every 6 months. The rotation is not compulsory for all registrars in the Department and currently two registrars spend 8 hours per week in the clinic. They are trained to acquire skills in the assessment and management of neuropsychiatric disorders.) The clinicians agreed that teaching should be formalised to include a certificate or diploma in neuropsychiatry or neuropsychology. Furthermore, they were of the opinion that neuropsychiatry and neuropsychology represent distinct disciplines with specialised knowledge and clinical skills so that both are recommended as subspecialties. Finally, the clinicians point out that the clinic provides an opportunity to conduct much-needed clinical research in

Table II. Axis III diagnoses for the 115 patients

Axis III diagnoses	N	% of total
Head injuries	46	44.7
Epilepsy	9	8.7
Neurosyphilis	5	4.9
Alzheimer's disease	3	2.9
Systemic lupus erythematosus	5	4.9
Hypertension	4	3.9
Anoxia/hypoxia	3	2.9
Alcohol	3	2.9
Cerebrovascular accidents	3	2.9
Neurofibromatosis	2	1.9
Brain tumours	2	1.9
Multiple sclerosis	2	1.9
Other	16	15.5
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neuropsychiatry. The pharmacological treatment of personality changes following brain injury and cognitive rehabilitation are just two examples of areas requiring good basic research. Neuropsychological assessment strategies need to be standardised for South Africa.

Two of the eight questionnaires that were sent to the heads of the various psychiatric departments were not returned. Results are shown in Table III. All respondents indicated a clear understanding of the term neuropsychiatry. Two departments had a formal neuropsychiatric unit or clinic. Opinions were divided on the question of fostering neuropsychiatry as a subspecialty. Three departments provided specific training in neuropsychiatry but only one had a compulsory rotation in neuropsychiatry. Most departments considered that a graduating psychiatry registrar needed to be able to interpret a head CT and MRI scan, electroencephalogram (EEG) and neuropsychological test results. Most were confident that their graduates have the necessary clinical skills to evaluate and treat common neuropsychiatric disorders, except for the ability to read an EEG.

## DISCUSSION

Our experience with the introduction of the neuropsychiatry clinic has been largely positive. We believe that even in the South African situation where clinical loads are often overwhelming, the existence of a dedicated unit to deal with these frequently neglected patients is justified. In fact, given the high levels of violence and head trauma in our society, such units may be particularly appropriate.<sup>10</sup> Clinical neuropsychology and brain injury rehabilitation were initially established in Israel after the Yom Kippur War in 1973 when a large number of patients presented with head injuries.<sup>11</sup> The rehabilitation services established for these patients later expanded to include other neuropsychiatric disorders.



training pathways towards such a career.<sup>3</sup> The prominent contemporary neuropsychiatrist, J L Cummings, first completed a residency in neurology, followed by a behavioural neurology fellowship and then a research fellowship in neuropathology and neuropsychiatry. B S Fogel did residencies in neurology and psychiatry, with research training in geriatric psychiatry. It is clear that in North America and Europe neuropsychiatry is not just regarded as a special interest, but rather a formalised discipline. Associations such as the American Neuropsychiatric Association and British Neuropsychiatric Association are well established. As far as we are aware, the existence of training programmes and dedicated neuropsychiatry clinics has not been investigated previously in South Africa. In this paper, we report on our initial experiences with the University of Stellenbosch neuropsychiatry and neuropsychology clinic (USNNC) and the status of neuropsychiatric training in South Africa. The USNNC was established in January 1995 and is staffed by a psychiatrist, a psychologist and an occupational therapist. A nuclear physicist (for single photon emission computed tomography (SPECT) studies) and a neurologist also form part of the team. The clinic evaluates and provides treatment for patients with psychiatric symptoms resulting from neurological illness.

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## DISCUSSION

Our experience with the introduction of the neuropsychiatry clinic has been largely positive. We believe that even in the South African situation where clinical loads are often overwhelming, the existence of a dedicated unit to deal with these frequently neglected patients is justified. In fact, given the high levels of violence and head trauma in our society, such units may be particularly appropriate.<sup>10</sup> Clinical neuropsychology and brain injury rehabilitation were initially established in Israel after the Yom Kippur War in 1973 when a large number of patients presented with head injuries.<sup>11</sup> The rehabilitation services established for these patients later expanded to include other neuropsychiatric disorders.

Table III. Anonymous questionnaire regarding attitudes towards neuropsychiatry training in South Africa (adapted from Duffy and Camlin<sup>9</sup>)

	Yes	No
1. Do you have a clear idea what clinical identity is described by the term neuropsychiatry?	6	0
2. Do you have a formal neuropsychiatric unit/clinic in your department?	2	4
3. Do you think it is helpful to foster the development of neuropsychiatry as a special clinical subspecialty?	3	3
4. If you answered 'yes' to question 3, what do you think the appropriate training of a neuropsychiatrist should be?		
a. Adult psychiatry training plus a 1-year residency in a neuropsychiatry unit	0	0
b. Adult psychiatry training plus 1-year residency in a neurology unit	0	0
c. Adult psychiatry training plus a 6-month residency in a neuropsychiatry unit and a 6-month residency in a neurology unit	3	0
d. Adult psychiatry training alone	0	0
5. Do you think that neuropsychiatry should fall under the auspices of		
a. Psychiatry	6	0
b. Neurology	2	4
6. Does your teaching programme identify itself as providing specific training in neuropsychiatry?	3	3
7. Does your programme have a required clinical rotation in neuropsychiatry?	1	5
8. Which of the following, if any, do you think should be a required skill of any graduating psychiatry resident?		
a. Ability to interpret a head CT scan	6	0
b. Ability to interpret a head MRI scan	5	1
c. Ability to read an EEG	5	1
d. Ability to interpret a SPECT scan	2	4
e. Ability to understand and clinically translate neuropsychological test results	6	0
If you answered 'yes' to any of the above, are you confident that residents graduating from your programme are in fact competent in those particular skills?		
a. Ability to interpret a head CT scan	6	0
b. Ability to interpret a head MRI scan	5	1
c. Ability to read an EEG	1	5
d. Ability to interpret a SPECT scan	1	5
e. Ability to understand and clinically translate neuropsychological test results	4	2
9. Do you provide a core didactic curriculum in:		
a. Neuro-imaging	3	3
b. Neuropsychological assessment	4	2
c. Mental status examination	6	0
d. Neurological examination	6	0
e. Electrophysiological assessment (EEG)	1	5
10. Do you currently have any clinicians in your department who identify neuropsychiatry as their primary clinical interest?	2	4
11. Are you confident that graduates of your training programme will possess the clinical skills necessary to evaluate and treat patients with the behavioural disorders associated with:		
a. Seizures	6	0
b. Head injury	6	0
c. Mental retardation	5	1
d. Multiple sclerosis	6	0
e. Parkinson's/Huntington's disease	5	1
f. Cerebrovascular disease	5	1
g. Dementing illness	6	0
12. If there are 'no' answers to any of the above, which of the following hamper your attempts to provide more training in core neuropsychiatric skills?		
a. Insufficient time available	1	1
b. Insufficient faculty with the necessary skills	0	2
c. Insufficient clinician interest	1	1
d. Insufficient resource allocation to this area	1	1



The presence of an experienced and skilled multidisciplinary team enables these patients to be correctly assessed and managed. In spite of the fact that many of these disorders cannot be cured, much can be done for these individuals. For example, a correct diagnosis and identification of areas of functional impairment may be used to explain to the patient and family why difficulties are being experienced in areas such as work and marital relations. It is then easier for appropriate adjustments to be made. Also, some treatment strategies may help considerably. While pharmacological interventions have been poorly researched, the judicious use of various drugs often has positive effects. Additionally, well-planned rehabilitation programmes may help substantially and compensation claims may be more fairly dealt with. Unfortunately, the significant functional impairment that often accompanies the less obvious forms of cognitive disorder is often not recognised unless specific tests are applied.

The most common Axis I diagnosis was mild neurocognitive impairment, which is part of the category 'cognitive disorder not otherwise specified'. We consider the word 'mild' here to be a misnomer as these patients usually experienced great difficulty in adjusting to the demands of society. A mild degree of cognitive impairment may be misconstrued as malingering when the obvious deficits associated with dementia are not present.<sup>12</sup> These individuals benefited the most from the service that the clinic provides. A neuropsychiatric clinic with a multidisciplinary approach has the ability to comprehensively evaluate the possible deficits and provide a multifaceted management plan. Our experience has taught us that milder forms of impairment necessitate a more comprehensive evaluation in order to validate and delineate the deficits.

In a similar study to ours, Lishman<sup>1</sup> reported on 300 patients seen at the Maudsley neuropsychiatry clinic. He categorised the disorders into organic and non-organic disorders, with the most common diagnosis in the group 'organic psychosyndromes' being dementia, followed by sequelae of head injuries. This is comparable to our sample, which showed head injuries to be the commonest Axis III diagnosis.

Occupational therapy forms the basis of rehabilitation programmes. The occupational therapist is involved in psycho-educative sessions and rehabilitation. Accurate assessment of cognitive deficits provides the basis for cognitive rehabilitation. Because the type and degree of cognitive impairments encountered in the clinic are so diverse, rehabilitation programmes have to be individually tailored.

In a survey of members of the American and British Neuropsychiatric Associations, Coffey *et al.*<sup>13</sup> found that while clinicians are generally enthusiastic about assessing clinical outcome in neuropsychiatry, they rarely make comprehensive diagnostic evaluations and apply specific outcome measures to the broad range of neuropsychiatric conditions encountered clinically. The USNNC clinic makes use of standard diagnostic

criteria, but we consider that more frequent use of standardised rating scales would improve our ability to assess outcome.

Psychiatric registrars used the structured bedside cognitive evaluation proposed by Strub and Black.<sup>5</sup> We found this instrument to be effective in training registrars in the use of bedside tests of cognitive functions. A neuropsychiatry unit also affords excellent training opportunities for neurology registrars. At present, the USNNC does not have the services of neurology residents and this needs to be addressed.

Duffy and Camlin<sup>9</sup> report that 37% of respondents in a similar USA survey were unclear about the term 'neuropsychiatry'. This is in contrast to our sample where all respondents felt that they had a clear idea of what neuropsychiatry encompassed. Both the respondents of the American study and our study thought that neuropsychiatry should fall under the auspices of psychiatry. The Americans were of the opinion that the most appropriate training for a neuropsychiatrist is fellowship training within a psychiatric department. Benjamin *et al.*<sup>3</sup> regard residencies in both neurology and psychiatry as important.

Most heads of psychiatric departments were confident that registrars are able to interpret structural brain imaging investigations. Surprisingly, while most respondents thought that the ability to read an EEG should be a required skill of a graduating psychiatry registrar, only one was confident that his residents were in fact able to perform this. Only 26% of the American survey were of the opinion that reading an EEG should be a required skill of a psychiatric resident. All respondents in our survey required their residents to be able to understand and clinically translate neuropsychological test results, but two doubted their residents' ability to do this. It was encouraging to note that most of our respondents considered that graduates from their departments were sufficiently equipped to treat patients with common neurobehavioural disorders. Only two psychiatric departments in South Africa had clinicians who regarded neuropsychiatry as their primary area of interest.

A limitation of this study is that only heads of academic psychiatry departments received the questionnaire investigating attitudes to neuropsychiatric training. It would be of value to send the questionnaire to a larger sample of psychiatrists in order to determine the need for neuropsychiatric training. This may indicate whether neuropsychiatry should be incorporated in continuing medical education programmes. Colleagues in neurology and neurosurgery may also express a need for training in neuropsychiatry.

At present, cognitive rehabilitation is the only treatment option for cognitive impairment caused by head injury.<sup>14</sup> While cognitive rehabilitation is sometimes controversial, we believe that the approach to rehabilitation strategies should be scientifically based and founded upon accurate clinical and



neuropsychometric assessment. The USNNC aims to develop effective cognitive rehabilitation programmes for use in South Africa. Communication is invited from other departments of psychiatry so that sharing of experiences and pooling of ideas may lead to improvement in neuropsychiatry services throughout South Africa.

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