

Psychiatric consultations and the management of associated comorbid medical conditions in a regional referral hospital

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Background. Psychiatrists are often called upon to evaluate patients with a medical condition and psychiatric symptoms, either as a complication thereof or initial presenting symptoms. There are often grey areas with regard to neuropsychiatric disorders in which psychiatrists and specialists from other clinical disciplines would need to co-manage or share ideas on the comprehensive treatment of a presenting patient.

Objectives. This study was undertaken to provide a demographic and clinical profile of all patients consulted by the consultation-liaison psychiatry (CLP) service at the Helen Joseph Hospital (HJH) in Johannesburg, and to describe the clinical management of patients admitted with a diagnosis of a mental disorder associated with a comorbid medical condition, including delirium, dementia and a mood or psychotic disorder due to a general medical condition.

Methods. A retrospective record review of all patients referred to the HJH CLP team over a 6-month period.

Results. A total of 884 routine and emergency consultations were done for 662 patients (males $n=305$; females $n=357$) between the ages of 13 and 90 years who were referred from various other clinical departments. The most common documented reason for referral was a request for assessment ($n=182$; 27.5%), which consisted of mental state assessment, reconsultation and assessing capacity. A total of 63 patients (10.0% of cases consulted) were admitted to either the medical or psychiatric wards with a confirmed diagnosis of delirium, dementia and/or a mood or psychotic disorder due to a general medical condition (although admission wards were identified in 55 files only). The medical wards admitted the majority ($n=37$; 67.3%) mostly for delirium ($n=28$; 50.9%). HIV was identified as the most common systemic aetiological factor ($n=23$; 67.7%).

Conclusion. In this study, a female patient between 31 and 45 years of age was slightly more likely to be referred to the HJH CLP service for assessment, and was more likely to be managed in the medical wards for delirium, which was most often associated with HIV/AIDS. The study highlighted the need for development of guidelines to facilitate adequate and effective use of this service for the local practice of CLP in a general specialist referral hospital like HJH, which would cover the following: clinical management; training needs; and administrative procedures.

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Consultation-liaison psychiatry (CLP) was conceptualised as far back as the late 1800s when Benjamin Rush promoted interest in the integration of medicine: 'the psychosomatic unity of the body and soul'.^[1] Others have described CLP as the practical application of all psychiatric knowledge, ideas and techniques to situations in which healthcare providers understand and take care of their patients.^[2] In his study, Kornfeld^[3] referred to a meeting in 2001 where the American Board of Psychiatry and Neurology recommended that CLP should be approved as a subspecialty with a new designation of 'psychosomatic medicine'.

The evaluation of the mental healthcare of patients with serious medical illness is often complex and requires an integrated clinical approach. CLP services should seek to identify and reduce barriers to care and raise the level of comfort, setting more realistic expectations from the consultations without distracting the treating team from their main objectives.^[1] It is imperative to conduct the assessment and management of the acute presentation of psychiatric problems and disorders, cognisant of the context of its significant and regular overlay with comorbid medical conditions.

According to the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (text revision) (DSM-IV-TR) of the American Psychiatric Association, it is generally understood that to diagnose a psychiatric disorder which resulted from a comorbid medical problem, there should be a neurophysiological link.^[4] In some cases mental disorders could also develop from the psychological effects of an existing comorbid medical problem, in which case it might prove challenging to discern these two aetiological factors. There could also be an overlap at times, depending on the pathological processes of the existing comorbid medical problems, as in the case of HIV/AIDS.^[2,4] This causal relationship was, for example, reported by Price *et al.*,^[5] who referred to the bidirectional interaction between HIV/AIDS and mental health. Comorbid DSM-IV-TR medical conditions such as delirium, dementia, psychotic disorders due to general medical conditions (PGMC), and mood disorders due to general medical conditions (MGMC) form a core part of the burden of disorders, which a consultation-liaison team will routinely have to manage.^[4]

Oosthuizen *et al.*^[6] raised concerns that due to the rapid expansion of knowledge in the medical field, most clinicians have to choose to

focus on a particular area of medicine and as such resulting in the compartmentalisation of medical practice. This presents challenges in clinical practice as patients often present with a multitude of overlapping problems. They emphasised the importance for doctors, and more so for psychiatrists, to recognise the close relationship and ongoing interaction between mental disorders and general medical conditions.^[6] Another challenge is that patients with known pre-existing psychiatric disorders also develop comorbid medical conditions, sometimes even with an increased prevalence.^[6]

Integrated CLP services at Helen Joseph Hospital (HJH) in Auckland Park, Johannesburg, have been part of the service-rendering footprint of the 30-bed acute adult admission psychiatric unit in a general specialist referral hospital setting. The clinical responsibilities of the unit include inpatient care, an outpatient clinic and to provide CLP services. Prior to 2009, no separate independent CLP block was offered and as such, registrars and medical officers took turns in rendering the service. It was felt then that the load of the liaison service was too much to maintain for longer periods than 2 - 4 weeks at a time per doctor. Since January 2009, a more independent structure for CLP was opted for, with one consultant responsible for the inpatient unit and the other for the CLP service and outpatients.

The purpose of this study was to review the CLP service at the HJH during this period, with particular reference to patients who were diagnosed with a mental disorder associated with a comorbid medical condition, i.e. with a DSM-IV-TR diagnosis of delirium, dementia, PGMC, or MGMC. The objectives for this study therefore were to: (i) provide a demographic and clinical profile of all patients routinely consulted by the HJH CLP services during a specified study period; and (ii) describe the clinical management of patients who were subsequently admitted following the initial CLP consultation.

Methods

This study was a retrospective record review of all patients referred to the CLP services at the HJH over a 6-month period, January to June 2009. HJH serves mainly an adult population, with 13 years as a minimum age of intake. The ethics clearance for this study was granted by the Human Research Ethics Committee of the University of the Witwatersrand.

The data were collected from routine consultation summaries as per routine 'Request for Consultation' form. A data sheet was compiled for each user, including variables such as: referring department; age; gender; reason for referral; provisional diagnosis; and follow-up arrangements (management). All patients with a comorbid medical condition who were subsequently admitted to either the psychiatric or the medical wards were identified. The definition of a 'comorbid medical disorder' for the purpose of this study was: all patients who, after assessment by the consulting doctor, were diagnosed with and met the DSM-IV-TR criteria for: (i) delirium; (ii) dementia; (iii) a MGMC; or (iv) a PGMC.^[4] The complete clinical files of the subsequently admitted group were reviewed, and an additional data sheet was completed including additional variables such as: psychiatric and physical symptoms (general and systematic physical examination), special investigations conducted, treatment received, length of stay and arrangements on discharge. Data were captured and analysed anonymously by allocating a study code to each record. Data analysis was done using Epi-Info and SAS statistical software. With

regard to the comparison of different variables with the length of stay, statistical significance was, however, not considered because of the small numbers in the different categories.

Results

From January to June 2009, a total number of 884 routine and emergency consultations were done by the CLP service at HJH. Some patients were consulted several times, which amounted to a total of 662 patients (cases) consulted over this 6-month period. Referrals for consultation following a suicide or para-suicide attempt were routinely attended to by the Department of Psychology and these numbers were not included in the data for this study.

Referring department. The number of consultations from different departments (total; average per month) were as follows: Accident and Emergency Services (535; 89); Internal Medicine including intensive care unit (ICU) (294; 44); Surgical (including orthopaedics and general surgery) (43; 7); and Allied departments, including Psychology and Social Services (12; 2).

Age. Of the total number of patients consulted (N=662), of whom 357 were female and 305 were male, only 656 of the patients had their ages documented (Table 1). This represents a ratio of 1.2:1 female to

Table 1. Age and gender of patients consulted by the HJH Department of Psychiatry, January - June 2009

Age (years)	Male, n (%)	Female, n (%)	Total, n (%)
5 - 15	4 (0.6)	4 (0.6)	8 (1.2)
16 - 30	131 (20)	117 (17.8)	248 (37.8)
31 - 45	106 (16.2)	130 (19.8)	236 (35.9)
46 - 60	50 (7.6)	70 (10.7)	120 (18.3)
>60	11 (1.7)	33 (5)	44 (6.7)
Total	302 (46)	354 (54)	656 (100)

Table 2. Reasons documented for the referral of patients to the HJH Department of Psychiatry, January - June 2009

Reason for referral	Male, n (%)	Female, n (%)	Total, n (%)
Assessment*	92 (14.1)	90 (13.7)	182 (27.8)
Behaviour disturbance†	30 (4.6)	26 (4)	56 (8.6)
Psychosis	13 (2)	30 (4.6)	43 (6.6)
Confusion	26 (4)	25 (3.8)	51 (7.8)
Mood symptoms‡	48 (7.3)	80 (12.2)	128 (19.5)
Psychosocial stressor	48 (7.3)	46 (6.9)	94 (14.2)
Suicide attempt/ suicidal thoughts	48 (7.3)	60 (9.1)	108 (16.3)
Total	305 (46.1)	357 (53.9)	662 (100)

*Assessment includes: mental state assessment, determination of capacity, and reconciliation.

†Behaviour disturbance includes: disorganisation; restlessness and aggression.

‡Mood symptoms include: depressed; irritable; and elevated.

male patients. The age categories considered were: 5 - 15 years; 16 - 30 years; 31 - 45 years; 46 - 60 years; and over 60 years. The majority of patients were between the ages of 16 and 45 years ($n=484$; 73.1%), with the smallest number younger than 15 years ($n=8$; 1.2%).

Reasons for referral. The documented reasons for referral to CLP services at HJH during this period included: 'for assessment' (mental state assessment; reconsultation; and assessing capacity); 'behaviour disturbance' (disorganisation; aggression; and restlessness); 'psychosis'; 'confusion'; 'mood symptoms' (depressed; irritable; and elevated); 'psychosocial stressors'; and because of a suicide attempt or suicidal ideas. For the total number of cases ($N=662$), the most common reason for referral documented, was for assessment ($n=182$; 27.5%), evenly distributed for males (13.9%) and females (13.6%) (Table 2). The gender distribution was fairly equal for most other reasons for referral, except for mood symptoms, where close to twice as many females were recorded to have been referred for presenting with mood symptoms ($n=80$; 12.1%), compared with males ($n=48$; 7.3%).

Provisional diagnoses. The top five most common provisional diagnoses made following the initial consultation ($N=884$) were: unspecified or no axis I diagnosis (149; 16.9%), which included axis II personality traits or disorders and intellectual impairment as the main presenting problem; delirium ($n=107$; 12.1%); depressive disorders ($n=103$; 11.7%), schizophrenia (92; 10.4%); and bipolar disorders (82; 9.3%) (Table 3).

Subsequent admissions. Following initial consultation, only 10% of patients ($n=63$), 32 males and 31 females, were subsequently admitted to either the medical wards or the acute psychiatric inpatient unit, with a confirmed primary axis I diagnosis of one of the four associated with comorbid general medical conditions (delirium, dementia, MGMC or PGMC) (Table 4). These 63 patients represent 218 of the initial consultations, which amounted to an average of 3.5 CLP consultations per patient. This translated to about 10 admissions per month on average. Delirium was the most common diagnosis in these patients ($n=34$; 5.1%) and the least common was MGMC ($n=6$; 0.9%) (Table 5).

Admission ward. Only 55 files contained confirmation regarding admission to medical or psychiatric wards. Most of these cases were admitted to the medical wards ($n=37$; 67.3%), compared with admissions to the psychiatric ward ($n=18$; 32.7%). Most patients admitted to the medical wards had a diagnosis of delirium ($n=28$; 51.9%). Of the total of 13 patients with dementia, more were however admitted to the psychiatric ward ($n=8$; 14.6%). Patients with the diagnosis of MGMC ($n=2$; 3.6%) were admitted to both wards, and those with PGMC ($n=4$; 7.3% and $n=5$; 9.1%) were more or less equally distributed between the psychiatric and medical wards, respectively.

Age. The majority of patients admitted with a confirmed axis I diagnosis associated with these comorbid medical conditions, for whom age was documented ($n=63$), were between 31 and 45 years old ($n=22$; 34.9 %) (Table 6). From this group, most patients were diagnosed with delirium ($n=12$; 5.1%). The frequency of delirium and dementia was shown to increase with age. No patients over 60 years of age were diagnosed with MGMC or PGMC. Although eight patients younger than 15 years were consulted during the study period, none was admitted.

Table 3. Provisional axis I diagnosis after consultation by the HJH Department of Psychiatry, January - June 2009

Provisional axis I diagnosis	n (%)
Unspecified or no axis I (including axis II personality and intellectual impairment)	149 (16.9%)
Delirium	107 (12.1%)
Depressive disorders	103 (11.7%)
Schizophrenia	92 (10.4%)
Bipolar disorders	82 (9.3%)
Substance-induced psychotic disorders	78 (8.8%)
PGMC	54 (6.1%)
Substance abuse	53 (6%)
Dysthymic disorder	48 (5.4%)
Dementia	35 (4%)
MGMC	22 (2.5%)
Anxiety disorders	19 (2.1%)
Conversion disorder	13 (1.5%)
Adjustment disorders	9 (1%)
Schizoaffective disorders	7 (0.8%)
ADHD	5 (0.6%)
Substance-induced mood disorders	4 (0.5%)
Bereavement	2 (0.2%)
Substance intoxication	2 (0.2%)
Total	884 (100%)

ADHD = attention deficit/hyperactivity disorder.

Gender. Females ($n=26$; 47.3%) and males ($n=29$; 52.7%) were equally represented in the group of 55 patients for whom the admission ward was documented. There were, however, close to three times as many females ($n=18$; 34.6%) admitted to the medical wards, compared with admissions to the psychiatric ward ($n=7$; 12.7%). Females were slightly over-represented for delirium ($n=19$; 30.2%) compared with males ($n=15$; 23.8%). While there was a higher proportion of female users with a diagnosis of dementia ($n=8$; 12.7%) and MGMC ($n=4$; 6.3%), more males were diagnosed with PGMC ($n=10$; 15.9%). There was in fact no female patient with a diagnosis of PGMC.

Underlying medical conditions. The underlying associated medical conditions in patients admitted for delirium, dementia and psychotic or mood disorders due to a general medical condition during the study period were categorised as either systemic ('extracranial'), or neurological ('intracranial') causes. While HIV/AIDS-related presentations were included as a 'systemic' cause in this study's analysis, HIV/AIDS should be regarded as an overlapping cause, as in the later stages of the illness the brain and other 'intracranial' structures are particularly affected. Systemic causes as the underlying medical condition were documented in a total of 34 of these cases and included: infective causes (HIV/AIDS); toxic causes (overdose with medication and ingestion of other toxic substances); metabolic (diabetes mellitus); and nutritional insufficiencies. In most cases the underlying systemic causes were due to HIV infection and presented often with later stages of AIDS ($n=23$; 67.7 %), and most of them were admitted to a medical ward ($n=19$; 55.9%). Underlying

neurological (intracranial) aetiological factors included vascular conditions, cerebral or meningeal infections, previous history of trauma, and epilepsy. Intracranial causes were documented for 32 cases, with vascular problems, i.e. history of/clinical features of cerebrovascular accidents ($n=11$; 34.4%) and epilepsy ($n=14$; 43.8%) the most common causes. The majority of patients with epilepsy were admitted in the medical wards, whereas those with an underlying vascular cause were evenly distributed between the medical and the psychiatric wards.

Treatment outcome and discharge. The outcome variables for the 63 patients subsequently admitted to either a medical or the psychiatric ward after initial consultation were the length of stay (LOS) and referral endpoints (where these patients were referred on discharge). The median LOS was calculated for all the demographic and clinical variables reviewed. This value varied depending on the variable that was assessed. There was just a slight difference in median LOS for the patients in the medical wards (13 days), and those who were admitted to the psychiatric ward (11 days). Patients with an underlying metabolic 'systemic' cause and those with vascular neurological causes were the only two categories who had a slightly higher median LOS (21.5 days and 24 days, respectively). The sample size was, however, too small to calculate any statistical significance.

Referral endpoints were documented for only 35 of the 63 patients admitted after initial consultation, mostly for those who were admitted to the psychiatric ward. Most of these patients were referred to the HJH psychiatric outpatient clinic ($n=18$; 51.4%) and to HJH medical specialist clinics ($n=9$;

25.7%). Only a very small proportion of patients were transferred to other psychiatric hospitals ($n=3$; 8.6%), e.g. Tara and Sterkfontein hospitals. Most ($n=26$; 74.3%) of these patients were referred for further psychiatric follow-up, compared with only a smaller proportion ($n=9$; 25.7%) who were referred to a medical specialist clinic.

Discussion

As a retrospective clinical record review, this study has the inherent limitations of incomplete data collected from information available in the existing hospital records. It is also important to note that restricting comorbid medical disorders only to patients with a DSM-IV-TR diagnosis of delirium, dementia, MGMC or PGMC is another inherent limitation in this study. However, the aim of this study was to focus on the main diagnoses of the routine interdepartmental referrals at this hospital. In addition, the power of this study was limited by the small size of the sample, and as such the statistical significance could not be demonstrated. It was nonetheless helpful to describe and highlight the situation with regard to CLP services in HJH, as a local general specialist referral hospital in an urban setting.

As mentioned, HJH and its psychiatric unit is a facility for adults and adolescents older than 13 years, which accounts for the very low representation of paediatric patients in this sample. Therefore, the patient slightly more likely to be consulted by the CLP team at HJH during this cross-sectional period was a younger adult female, either for 'assessment', or because of a mood-related reason. In this study patients between 16 and 60 years made up 92% of the sample, while more patients in younger age groups were consulted compared with a study by Lipowski and Wolston,^[7] in which 70% of the subjects were between 20

Table 4. Patients admitted with a comorbid general medical condition after consultation by the HJH Department of Psychiatry, January to June 2009

Axis I	Patients, n (%)
Delirium	34 (53.9)
Dementia	13 (20.6)
PGMC	10 (15.9)
MGMC	6 (9.5)
Total	63 (100)

Table 5. Comorbid medical conditions per gender in patients admitted to the medical and psychiatric wards at HJH following psychiatric consultation, January – June 2009

Axis I diagnosis	Male, n (%)	Female, n (%)	Total, n (%)
Delirium	15 (2.3)	19 (2.9)	34 (5.1)
Dementia	5 (0.8)	8 (1.2)	13 (2)
MGMC	2 (0.3)	4 (0.6)	6 (0.9)
PGMC	10 (1.5)	0	10 (1.5)
Total	32 (4.8)	31 (4.7)	63 (9.5)
Total patients consulted	305	357	662

Table 6. Comorbid medical conditions per age category in patients admitted following consultation by the HJH Department of Psychiatry, January – June 2009

Confirmed axis I diagnoses associated with comorbid medical condition	Consultations per age categories (years)					Total
	5 - 15	16 - 30, n (%)	31 - 45, n (%)	46 - 60, n (%)	>60, n (%)	
Delirium	0	10 (4.0)	12 (5.1)	6 (5.0)	6 (13.6)	34
Dementia	0	0	2 (0.8)	6 (5.0)	5 (11.4)	13
MGMC	0	1 (0.4)	4 (1.7)	1 (0.8)	0	6
PGMC	0	3 (1.2)	4 (1.7)	3 (2.5)	0	10
Total admissions	0	14 (5.6)	22 (9.3)	16 (13.3)	11 (25.0)	63 (10%)
Total patients consulted	8	248	236	120	44	656*

*Age was documented for only 656 of the total of 662 patients consulted.

and 60 years of age. Reasons for this could be: (i) different aetiological factors for the local medical problems (developed v. developing countries); (ii) the shorter study period of 6 months; and (iii) that only one general hospital was studied here. In a Kenyan study by Ndetei *et al.*,^[8] the patients ranged from 18 to 92 years, with a mean age of 34.2 years. They reported that more than half (52.4%) were 30 years or younger, and that 53.7% were females, which closely resembled this study.

Unlike the findings of the study by Lipowski and Wolston,^[7] in which depressive disorders were the most common provisional diagnoses made, in this study most patients consulted were not given any axis I mental disorder after initial consultation, but rather an axis II diagnosis associated with personality problems or intellectual impairment. Gangat *et al.*^[9] quoted a table from international diagnostic patterns in CLP. This table listed 'organic reaction,' or delirium as defined by DSM III, to be in the top six diagnostic patterns ranging from 5.5% to 19.3%, which concurs with the findings of this HJH study. As a consequence, the majority of patients in this study were admitted to the medical wards, because of the presenting symptom complex of delirium, which included psychotic symptoms such as hallucinations and delusions.

Delirium is generally known to occur commonly in more vulnerable populations such as the elderly. In his review, Meagher^[10] reported that delirium occurred in about 15 - 20% of general admissions, with higher frequency in the elderly, which is closely approximated in this study ($n=6$, 13.6%). The frequency of delirium contributed significantly to the admissions of patients younger 60 years, which could probably be explained by the higher prevalence of more advanced HIV/AIDS in younger adults seen in this group.

The World Health Organization (WHO)'s 2009 AIDS Epidemic Update^[11] reported that sub-Saharan Africa still remained the region most heavily affected by HIV, and accounted for 67% of HIV infections worldwide, of which 68% of new HIV infections in 2008 occurred among adults and 91% of new HIV infections among children. The WHO report highlighted that HIV prevalence generally tends to peak at a younger age for women than for men, i.e. between the ages of 30 and 34, while the highest levels of HIV infection occur in men in their late 30s and early 40s. As a result of these trends, it should follow that complications and HIV/AIDS-associated deaths will probably peak according to similar age trends. These findings could possibly support the shift found in the prevalence of delirium and the other psychiatric disorders due to general medical conditions in younger individuals, as demonstrated in this study.

Dementia is usually diagnosed more commonly in persons older than 60 years, e.g. according to the studies by Ferri *et al.*^[12,13] on the global prevalence of dementia. In the HJH study dementia, like delirium, was also diagnosed more commonly in more patients younger than 60 years. The Ferri *et al.* studies also reported that Africa had the lowest prevalence rates of dementia for all age groups, although they focused on the prevalence of dementia rather than its subtypes.^[12,13]

Prevalence rates for MGMC that are due to general medical conditions not directly affecting the central nervous system (CNS) were reported to be far more variable, while those due to neurological conditions ranged from 25% to 40%.^[4] The prevalence rate in the HJH study was low, but can most probably be accounted for by the

small sample size. This will also apply to the figures on PGMC. While in the study by Mochan *et al.*^[14] there was no clear evidence linking vasculopathy or vasculitis with HIV-associated stroke, an association greater than chance between HIV and stroke has been suggested. The HIV spectrum of disease might also be a common cause of symptomatic seizures, especially in advanced cases in which opportunistic infections are commonly associated in less-developed countries.^[15] In the HJH study, vascular problems and epilepsy were the most commonly associated neurological causes represented by 34.4% and 43.8% of the study sample respectively.

In terms of LOS, Kishi *et al.*^[16] cautioned about interpreting the length of inpatient stay in relation to the psychiatric consultation, as many factors would influence this. Although it was beyond the scope of this study to investigate these relationships, it demonstrated that the median LOS for this study group was quite variable and depended on a number of factors, such as age, ward admitted to and the underlying cause. It has however been reported by Kornfeld^[3] that effective CLP services contribute to a reduction in LOS.

Conclusion and recommendations

Vhythilingum and Chiliza^[17] emphasised the need and the use of CLP services as an essential subspecialty in developing countries. Psychiatrists and administrators should devise innovative ways to implement such services even in a less-resourced environment. The lack of uniformity in local CLP practice made it difficult to assess the quality of a specific service and to benchmark it against other centres.^[18,19] Based on the findings of this study and on reports in the literature,^[1,3,4,16,18,20-22] guidelines for the local practice of CLP services in a general specialist referral hospital like HJH should be developed. As CLP is a field of growing importance, it will be imperative to build up and maintain routine data on CLP services rendered, as regular reviews will contribute to improvement of the service, as well as research on local CLP practice.

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