PATIENT CHARACTERISTICS AND PREDICTION OF LENGTH OF STAY IN A GENERAL HOSPITAL INPATIENT PSYCHIATRIC UNIT.

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ERRATA

p. 33	The first sentence should read: The variable "length of stay" was defined as the number of days from the date of admission to the psychiatric unit to the date of discharge from the unit.
p.33	The last line should read: These included CAT scan and EEG.
p.34	line 6. Omit "length of hospital stay,"
p.49	line 5. 39% should read 3.9%
p.73	5.5% (in line 3 and table) should read 4.8%.
	94.5% (in line 5 and table) should read 81.8%.

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RESULTS (PART I)

RESULTS (PART II)

SUMMARY OF THE THESIS.

This thesis reports a retrospective case notes study involving 292 patients admitted to the psychiatric ward of the Royal Adelaide Hospital, Adelaide, South Australia, during the period January to December, 1989. The first part of the study was carried out to provide relatively up-to-date information concerning the sociodemographic and clinical characteristics of inpatients in a general hospital psychiatric unit. The aim of the second part of this study was to identify factors which predicted length of hospital stay in the unit. For this purpose, inpatients were divided into two groups: a short stay group with a length of stay of twelve days or fewer, twelve days being the median length of stay, and a long stay group with a length of stay of more than twelve days.

The long stay and short stay groups were then compared on twenty-five demographic and clinical variables. In addition, an expanded list of thirty-eight demographic and clinical variables were used as independent variables against length of stay as the dependent variable in a stepwise multiple regression analysis to identify a set of predictors accounting for the maximum variance in length of stay.

Chapter One of this thesis is concerned with the historical background of general hospital psychiatric units. Chapter Two is concerned with the review of literature relating to general hospital psychiatry and length of psychiatric inpatient stay. Chapter Three introduces the present study.

The results of this study are detailed and discussed in Chapters Four, Five and Six. The study concludes with the suggestions that this research may provide baseline data against which other epidemiological studies of inpatient populations of general hospital psychiatric units can be compared, and, that since non-clinical variables such as staff attitudes and ward milieu are inevitably more difficult to define and measure, clinical and demographic variables may serve as the most reliable predictors of length of stay for comparison with future studies.

This thesis contains no material which has been accepted for the award of any degree or diploma in any university and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference is made in the text.

Signed . . . . . .

February 26th, 1992.

I, Md. Nazmul Ahsan, hereby consent to this thesis being made available for photocopying and loan if applicable, if accepted for the degree of Master of Clinical Science.

Signed . . . . . .

February 26th, 1992.

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CHAPTER I.

AN HISTORICAL OVERVIEW

PSYCHIATRIC UNITS IN THE GENERAL HOSPITAL

AN HISTORICAL OVERVIEW

I. INTRODUCTION

History enriches our understanding of the present. It is therefore important to examine the origins, the people and the ideas responsible for the historical development of general hospital psychiatric units, because past ideas remain relevant to modern practice. Benedetto Croce, (in Muller, 1953), states that true history is always contemporary. Furthermore, he contends that the past is meaningful as it exists for us; that is, as it is given meaning by us.

An examination of the history of psychiatric units in general hospitals leads to the acknowledgement of the accomplishments of our predecessors. To understand why general hospital psychiatric units emerged, and what the pioneers accomplished in establishing these units, one needs to trace their development from the very beginning. Therefore, the historical background of general hospital psychiatric units is briefly outlined here, highlighting the growth of these units, and showing how this growth was influenced by sociopolitical events such as the two World Wars. Finally, past ideas as to the advantages of psychiatric treatment in a general hospital setting are discussed.

II. GROWTH OF PSYCHIATRIC UNITS

a. The Thirteenth to Seventeenth Centuries

In the thirteenth century a general hospital with a medical school was built in Cairo (Sandwith, 1888). One of the departments of this hospital began to treat "insanity". In a few years, however, brutal custodial care of chronically "insane" poor patients replaced this department. A similar institution for the medical treatment of

mental illness was built within a medical school near Constantinople in 1560 (Davidson, 1875) but again, as with its predecessor in Cairo, a period of enlightened treatment soon gave way to custodial care. In 1576, the Wurzburg general hospital had a mental ward (Rowe, 1912). In Paris in 1666, two wards of the Hotel Dieu were used for treatment of "acute insanity" (Briggs, 1910). All these hospitals were thus concerned with the treatment of patients who had acute and chronic psychiatric disorders.

b. The Eighteenth century

In Britain, the first psychiatric unit in a general hospital was established in the late 1720's at Guy's Hospital in London. This unit was established by Thomas Guy for the management of twenty incurable lunatics. The unit existed in this form until 1861 (Brook, 1964). In America the beginnings of general hospital psychiatry can be traced to the opening of the Pennsylvania Hospital in Philadelphia in 1751. In 1755 an enlightened programme was established in this hospital for the care of mentally ill. Indeed, according to its charter the Pennsylvania Hospital was established, among other reasons, for the cure and treatment of lunatics (Ebaugh, 1940). Late in the eighteenth century American and Western European physicans were beginning to specialize in the treatment of mentally ill patients. Benjamin Rush joined the staff of the Pennsylvania Hospital and in 1780 founded the first general hospital psychiatric unit (Keill, 1981).

c. The Nineteenth century

The first attempt in America to integrate psychiatry and medicine in clinical practice and teaching of medical students was initiated by Benjamin Rush (Lipowski, 1985). He regarded a major task of his professional life to be the education of physicians about psychiatry. In a key paper entitled "On the Utility of a Knowledge of the Faculties and Operation of the Human Mind to a Physician", he wrote;

> "Man is, in the eye of a physician, a single and indivisible being, for so intimately united are his soul and body, that one cannot be moved, without the other. The actions of the former upon the latter are numerous and important. They influence many of the functions of the body in health. They are the causes of many diseases and if properly directed, they may easily be made to afford many useful remedies." (Rush, 1811, pp 256).

In 1838 Jean Etienne Esquirol was instrumental in the passage of a French law prohibiting the jailing of mental patients (Kaplan et al., 1980). This law established the need for the hospitalization and medical care of mentally ill patients. As a result, patients could be treated by physicians, research could be carried out, and medical students could be taught by clinical example. French research and teaching was widely regarded as the best in the world and most Americans who sought overseas training went to France. France clearly led the world in psychiatry for the first half of the nineteenth century (Sweeney, 1962).

In America in 1841, the general hospital ward of Pennsylvania Hospital had become a separate asylum (Chapin, 1898). From Benjamin Rush's death in 1813 and until 1867 no systematic course on mental diseases was given in America (Ebough, 1944). Between 1860 and 1900 a number of writers in the American Journal of Insanity raised their voice for the establishment of the clinical teaching of psychiatry to medical students (Lipowski, 1985). One author complained about the "persistent practice of medical schools in condemning psychological medicine to banishment from their borders" (Earle, 1868). Two editors of journals, Hurd and Mosher, wrote persuasively about the need to establish psychiatric outpatient and inpatient departments respectively in the general hospital (Hurd, 1899; Mosher, 1900). John P. Gray, editor of the American Journal of Insanity from 1854 to 1886 and superintendent of the Utica State Hospital, was credited with advancing scientific thought in this area (Sweeney, 1962). He emphasized that many cases of mental illness were related to physical

disorders. In 1875, S. Weir Mitchell's bed treatment for neurasthania highlighted the need for general hospital psychiatry (Sweeney, 1962).

In Germany in 1865, Wilhelm Griesinger had established teaching wards for neuropathy and psychopathy at the Royal Charite (general hospital) in Berlin. Griesinger has been called the "father" of the psychopathic hospital movement (Sweeney, 1962). He was largely responsible for the high calibre of teaching in late nineteenth century German psychiatry. At his death, five of sixteen German University hospitals had psychiatric services (Smith, 1903). All sixteen University hospitals attempted to fulfill Griesinger's objectives, which exerted influence on the development of American psychiatry (Southard, 1913). The rise of psychiatry in both Germany and the United States occurred largely in the last half of the nineteenth century.

In 1869 Professor Laycock suggested psychiatric teaching wards at the (general) Royal Infirmary in Edinburgh. His proposal was supported in 1871 by Sir Arthur Mitchell and Sir John Sibbald (Briggs, 1910; Editorial, 1902; Sibbald, 1902). In 1890, a Glasgow general hospital psychiatric ward was reported to be functioning with attention to different aspects related to medical education (Committee report, 1891). In 1896 in Britain, Henry Rayner recommended "receiving wards", preferably in general hospitals, for psychiatric patients, which would be most important for general practitioners (Stansfield, 1896; Rayner, 1897). In Britain, O.R. Urquhart's approving attention was drawn to the existence of Professor Knud Pontippoden's wards, opened in 1863 at the general hospital commune in Copenhagen (Pontippoden, 1902; Urquhart, 1902).

d. The Twentieth century

In Germany all 16 University hospitals had established psychiatric units by 1902. The German government made psychiatry a compulsory subject in the medical curriculum with bedside teaching and examinations required (Bresler, 1902).

In America in 1902 the famous "Pavilion F" of Albany Hospital was opened for the treatment of mental diseases. Patients were admitted without formality and with the

same freedom as those received in wards for the sick and injured (Mosher, 1909). The first annual report of "Pavilion F" showed that the first patient, suffering from drug addiction, was admitted on the 18th of February, 1902. He was discharged as improved and "continued well and appreciative throughout the year" (Sweeney, 1962, pp 231). It took eleven years before the next such unit, the Henry Phipps Psychiatric Clinic of the Johns Hopkins Hospital was opened in 1913 (Osler, 1913). William Osler and Adolf Meyer spoke at its inauguration and emphasized the importance of bringing psychiatry into general hospitals. Meyer became the first director of the clinic and from that position began to exert his profound influence on American psychiatry (Lipowski, 1985).

The third such unit was established at the Henry Ford Hospital in Detroit in 1923 (Heldt, 1927). Heldt, its director, provided the first estimate of the prevalence of psychiatric disorders in a general hospital: about thirty percent. He also noted the frequency of referrals for psychiatric consultations, which was 172 over a three month period (Heldt, 1927).

Heldt's estimate was later supported by Mosher who studied five hundred admissions to the Mayo Clinic and reported that thirty-five to forty percent of them showed a psychiatric disorder (Moersch, 1932). The facts and figures offered by Heldt and Moersch highlighted the need for the provision of psychiatric consultations to medical and surgical divisions of general hospitals.

The first real impetus to the development of psychiatric units in general hospitals occurred in 1933. At that time the Medical Sciences Division of the Rockefeller Foundation, under the leadership of Alan Gregg, decided to place major emphasis on the development of psychiatry by establishing departments of psychiatry within certain University hospitals. Funded with Rockefeller grants, psychiatric units were set up at Massachusetts General Hospital in 1934 by Stanley Cobb, at Billings Hospital at the University of Chicago in 1935 by David Slight, at Barnes Hospital at George Washington University in St. Louis in 1938 by John C. Whitehorn and

Edward Gildea, and at Duke Hospital at Duke University in 1940 by Richard Layman (Greenhill, 1979).

In the 1960's, under the influence of the Joint Commission on Mental Illness and Health, general hospital psychiatry began a remarkable ascent (Greenhill, 1979). A further increase in general hospital psychiatry units followed President Kennedy's 1963 Message to Congress calling for the establishment of community mental health centres (Lebensohn, 1963). Every community general hospital with more than one hundred beds was encouraged to have a short-term inpatient psychiatric unit. The decline of state hospitals enhanced further growth of the general hospital. In America in 1940 there were fewer than 40 general hospital psychiatric units. By 1963 there were about 500, in 1971 there were about 1,000, and in 1978 there were about 1,650 inpatient units in general hospitals (Greenhill, 1979).

In Britain in the first half of the twentieth century the Middlesex Hospital became associated with St. Luke's and the York Clinic was founded at the Guy's Hospital. However, these two units treated only a small, unrepresentative group of mentally ill patients (Brooks, 1964).

It was not until after World War II that the psychiatric units of general hospitals became well established. Usually these psychiatric units developed from a closed observation ward with a predominantly chronic population to a short stay unit with rapid turnover (Capoore and Nixon, 1961). The thrust towards the development of psychiatric units in district general hospitals (D.G.H.) began in the early 1960's with the publication of the Hospital Plan for England and Wales (Ministry of Health, 1962). This plan was later consolidated in Hospital Services for the Mentally Ill (D.H.S.S., 1971). Both these reports aimed at the ultimate replacement of the large traditional mental hospitals by D.G.H. psychiatric units (Mohadevan and Forster, 1982).

In Australia in 1902 general hospitals began to admit some psychiatric cases (Springthorpe, 1902). More definite moves were made to provide inpatient psychiatric treatment in general hospitals in the1960's and special psychiatric units were developed

in conjunction with a number of them (Gold, 1965). Table 1.1 shows the number of psychiatric beds in the general hospitals of the six States in Australia in the1960's.

TABLE 1.1

THE PROPORTION OF PSYCHIATRIC BEDS IN GENERAL HOSPITALS IN AUSTRALIA, 1964-1966

State	Number of General Hospital Beds[1]	Number of Psychiatric Beds[2]	Percentage of Psychiatric Beds in General Hospitals
New South Wales	13303	159	1.2
Victoria	7092	89	1.3
South Australia	2979	14	0.5
Queensland	7817	250	3.2
Western Australia	1369	28	2
Tasmania	1122	8	0.7

[1]Figures derived from the "Australian Medical Directory" (1964)
[2]Figures for number of psychiatric beds derived from Mai (1966)

In Australia there has been an increasing emphasis on the development of psychiatric units in general hospitals in the capital cities. All university departments of psychiatry in Australia are based in such units (Burvill, 1977).

Psychiatry units in general hospitals have been increasing all over the world from the beginning of the 20th century. However, studies reveal that since the Second World War there has been an accelerated world trend towards general hospital psychiatry. Indeed, in 1978, Italian Public Law No. 180 abandoned the mental hospital (Bollini and Mollica, 1989), and the 1978 Reform Law required that all psychiatric admissions had to take place in the General Hospital psychiatric wards (de Girolamo et al., 1988).

III. INFLUENCE OF THE WORLD WARS

In the early part of the twentieth century, World War I provided a major stimulus to the development of general hospital psychiatry. In 1917 during the U.S. army recruitment, the magnitude of neuropsychiatric problems first became evident. The neuropsychiatric section, a branch of the army medical service, was created for the

examination and disposing of such cases. Almost 50,000 men were rejected from military duty because of nervous and mental disorders and about 72,000 inductees were discharged from the service because of neuropsychiatric conditions (Ireland, 1923). In December 1920, Thomas Salmon, a professor at Columbia University, reported that 27% of all disabled veterans were neuropsychiatric cases (Heldt, 1923). In Detroit, T.J. Heldt (1923) emphasized that most of the veterans with psychiatric illness needed outpatient care or short-term hospitalization, not institutionalization, because the great majority suffered from both psychoneurosis and organic conditions. The status of psychiatry rose greatly during World War II. During the war, psychiatrists worked closely with their colleagues in medicine and surgery, and demonstrated innovative and effective methods of treating nervous and mental casualties (Schwab, 1989). The development of psychiatric wards in general hospitals was much influenced by World War II (Mai, 1966; Brill, 1947). Multiple influences came together after World War II. First was the war itself in which psychiatric units were an integral part of military hospitals. Second was the encouragement of the United States National Institute of Mental Health and the role of U.S. Public Health psychiatrists. Hospital administrators interested in filling newly constructed post-war hospitals were a third and important contributing factor. Early development in biological psychiatry and the beginning of the reaffiliation of psychiatry with medicine were other important influences (Sederer et al., 1984).

IV. ADVANTAGES OF PSYCHIATRIC UNITS

In discussing the advantages of psychiatric units in general hospitals, Karl Menninger (1924) made special reference to some of the economic factors, which remain prominent considerations in general hospital psychiatry today. He stated that psychiatric units in general hospitals were "the most economic way" to care for mental cases. In his words, the patient "gets more for his money" (pp 3). Other advantages of

psychiatric units in general hospitals were outlined in 1909 by Mosher (Schwab, 1989). In summary, these were:

(1) the general hospital can offer treatment for acute mental cases "whether idiopathic or complicating medical or surgical disease" (pp 507);

(2) the general hospital can offer treatment for incipient and doubtful mental cases;

(3) the general hospital can maintain contact with the family and community;

(4) the general hospital can help to educate the public and thus lessen the social stigma;

(5) the general hospital can provide excellent educational experiences for interns and nurses;

(6) psychiatric consultations with other specialists in the general hospital can fill a need for treating patients with "mental symptoms which complicate medical and surgical disease at times".

In turn, psychiatric consultation with other specialities can benefit psychiatric patients because many of them have physical abnormalities as well. These principles are still fundamental to general hospital psychiatry.

Billings and his colleagues (1937) indicated that the functioning of psychiatric liaison departments decreased the hospital stay of psychiatric patients on the wards of the general hospital and saved the hospital money. Billings (1941) concluded that the integration of the principles of psychiatry with those of the other branches of medicine reduced diagnostic and therapeutic confusion. He further pointed out that the integration shortened the hospital stay for the patient and thereby saved the hospital, patient and community money.

V. SUMMARY

In this review, the development of general hospital psychiatric units over the centuries has been outlined, and the situation in Britain, America, Germany, France, and in Australia described. France led the world in psychiatry for the first half of the nineteenth century, whereas the rise of psychiatry in Germany and the United States occurred largely in the last half of the nineteenth century. Psychiatric units were established in general hospitals periodically before the present century, but all failed to

provide effective treatment. Some were closed, some were converted to the function of chronic custodial care, and some gave up any attempts at treatment. However, this historical review also shows that the first such units to maintain successful treatment programmes were in the beginning of the twentieth century. A large number of such units are now functioning in different countries.

In the early part of the twentieth century, studies backed by factual evidence strongly recommended the provision of psychiatric consultations to medical and surgical divisions of general hospitals. In the same period, World War I provided a sharp impetus towards general hospital psychiatry. World War II promoted psychiatry's acceptance through its success in returning traumatized soldiers to the battlefield. The financial importance of general hospital psychiatry to hospital administrators has also been reported in the early part of the twentieth century. Psychiatric units in general hospitals generated savings for the hospital, the patient and the community. The other advantages of psychiatric units in general hospitals were included in the principles outlined by Mosher in 1909, and these are still fundamental to general hospital psychiatry. Now the potential exists for psychiatry, from its well established base in the general hospital, to move with medicine in exploring new directions in health care.

CHAPTER II.

REVIEW OF THE LITERATURE

I. INTRODUCTION

The aim of this review is to provide an overview relating to general hospital psychiatry and length of psychiatric inpatient stay. It will initially focus on areas such as the background of general hospital psychiatry, changes in the type of inpatient populations, general hospital psychiatric units and admission policies, diagnostic categories and Australian studies relating to inpatient characteristics in general hospital psychiatric units. It will cover aspects of the literature, such as factors influencing length of stay, early attempts in predicting length of stay, third party payers and length of stay, community mental health programmes and length of stay. Finally, it will review previous findings of studies which have utilised multiple regression analyses, with special attention to the demographic and clinical variables, subjects and settings, definition of length of hospitalisation and the statistical procedures employed.

II. GENERAL HOSPITAL PSYCHIATRY

a. Background

Until recently, the various state and private institutions for the legally insane, be they "lunatic asylums" or "mental hospitals", provided virtually the only setting in which patients with psychiatric illness could receive inpatient treatment. Throughout the nineteenth century, psychiatry was largely isolated in asylums while medicine became increasingly specialized, technical and biomedical in its orientation (Lipowski, 1986). As shown in the historical survey of Chapter One, the first autonomous psychiatric unit in a general hospital was established by Dr J.M. Mosher at the Albany Medical Centre, New York in 1902, there being an increasing trend towards the practice of psychiatry in general hospitals particularly since the Second World War.

However, the real interest in providing psychiatric treatment in general hospitals was fuelled in the 1950's and 1960's by the development of more effective treatments,

appreciation of the pathogenic effect of mental hospitals in promoting social disability, and recognition of the need to maintain patients' family and community ties by providing treatment as nearby as possible to the patient's community (Richman and Harris, 1985). Furthermore, general hospital psychiatry presents broad opportunities for service delivery, education and research (Flamm, 1979). The development of general hospital psychiatric units can be regarded as one of the major changes in mental health services in the past two to three decades. A large number of inpatients have been served by these units. In the United States, Kiesler (1982) has calculated that almost 60% of the admissions occur in general hospital psychiatric wards, while in Denmark (Munk-Jorgensen et al.,1986) it was estimated that both in 1977 and in 1982 about 40% of all admissions were to general hospital psychiatric wards. In Italy, as mentioned in Chapter One, it was established by law that all psychiatric admissions must be in general hospital psychiatric wards. Burvil (1977) documented that in Australia most general hospital psychiatric units have twenty to forty beds, all of which are for acute patients.

b. Changes in the type of inpatient populations

As discussed in Chapter One, general hospital psychiatric units were initially more involved in the management of severely ill mental patients. Psychiatrists in public hospitals appeared generally to accept the hospital's role in treating involuntary and unmanageable patients. There is considerable controversy over who "rightfully" should be served by general hospital psychiatry and much of the argument centres on patients who are involuntarily admitted to inpatient units and/or who are characterized by severe management problems (Greenhill, 1979; Flamm, 1979; Leeman, 1980; Leeman, et al., 1976). The current literature indicates that the general hospital psychiatric units serve a different patient population than state mental hospitals previously did or do now (Greenhill, 1979; Pilowsky, 1977). The literature suggests that both overall numbers and particular categories of psychiatric patients have increased markedly in the recent past. These changes have been stimulated by new technologies, better integration of health and other human service systems and by

changing fiscal concerns (Keill, 1986). In current practice general hospital psychiatric services are used by people with a wide range of dignostic categories. The aim of this section is to review studies related to characteristics of inpatient populations in general hospital psychiatry units

It is reported from the U.S.A. that the psychiatric unit in the general hospital has shifted from treating in-hospital referrals to treating patients from other sources (Benson, 1976; Greenhill, 1979). The latter were more often recipients of Government Funded health assistance (Medicaid), younger and had a diagnosis of schizophrenia (Benson, 1976). A serious issue for such psychiatric units is that they seldom accept transfers from the general hospital. The units prefer to admit only patients with psychiatric disorders and only from the community. The reason is that the pressure from the community to take psychiatric patients is great. Furthermore, staff on psychiatric units believe that admission of medically ill patients will contaminate the therapeutic milieu, because psychiatric nurses find it difficult to take care of medical patients and psychiatric patients at the same time (Greenhill,1979).

A number of studies have shown that general hospital psychiatric units have dramatically increased the amount of care being provided to severely and persistently mentally ill patients, much of which would previously have been provided in state mental hospitals (Thompson et al., 1988; Bachrach, 1986; Schulberg, 1984). The inclusion of most severely disturbed psychotic patients in general hospital psychiatric inpatient programs is viewed positively by a number of psychiatrists. They perceive this trend as a challenge and a source of revitalization of their programs (Cotton et al., 1979; Becker, 1976; Smith and McKerracher, 1964). For example, Cotton et al. (1979) describe a carefully planned program, with changes in treatment procedures and intensive staff training, to accommodate the flow of chronic patients into their hospital inpatient unit.

Another significant change in the nature of the general hospital psychiatric programmes is the increase in patients who have both psychiatric illness and non-psychiatric medical disorders, where either may be the primary diagnosis at a given

time (Keill, 1986). Bruns and Stoudemire (1990) have reported that the characteristics of the patient population of a medical-psychiatric program within the private sector have changed over the three years since the program opened. Among other changes, a relative increase in patients with organic mental disorders has been observed.

c. General hospital psychiatric ward and admission policies

Pinsker and his co-authors (1981) point out that the question of whether general hospitals are suited to admission of patients on an involuntary or commitment status has always been a controversial issue. They note that many general hospitals have asserted that they should limit care to those suitable for voluntary treatment on an open ward. Pinsker et al. regard this decision to be based primarily on political and symbolic rather than clinical arguments. In fact, they consider general hospital psychiatric units to be the logical sites for admission and management of involuntary patients, the limitation of admission to voluntary patients would exclude many acutely psychotic patients with excellent prognoses best treated in a general hospital psychiatric unit. They argue that the limitation of psychiatric units to the voluntarily admitted patients in open wards would thus preclude psychiatry from joining in the mission of the general hospital to provide the best possible care to the community it serves (Pinsker et al., 1981). Becker (1976) wrote that "the involuntarily committed patient can be treated within the general hospital without disruption of its therapeutic milieu" (pp 1068). In fact, Becker went so far as to say that the general hospital psychiatric inpatient unit is;

> "unwilling in many cases to accept the indigent patient, feels incapable of managing the disruptive, aggressive or acutely suicidal patient [and] is failing to serve the psychiatric needs of an appreciable segment of the community" (1976, pp 1068).

d. General hospital psychiatric ward and diagnostic categories

Patients in certain diagnostic groups such as mixed functional and organic states, eating disorders, and some personality disorders tend to need longer term hospital care, although they may be seen for short periods in a general hospital setting for diagnostic work-up or for life threatening phases of their illnesses (Beresin and

Gordon, 1981; Adler, 1981). Many other specific clinical entities effectively managed with a brief stay in a general hospital setting are delusional disorders, puerperal psychosis, obsessional disorders, somatization disorder, conversion disorder, chronic pain disorders, hypochondriasis and malingering (Taylor et al., 1985).

e. Australian studies relating to inpatient characteristics

Gold (1965) studied inpatients with psychiatric disorders in a Tasmanian general hospital, describing the demographic, clinical and diagnostic categories of the patients. He concluded that most patients suffering either a neurosis or a psychosis were able to benefit from treatment received in the general hospital. Only 24 out of 281 patients required admission to the state mental hospital. One-hundred-and-one patients had both psychiatric and physical disorders. Forty-nine admissions were for attempted suicide. There were slightly more females in the series and the migrant population was over-represented. Nearly 70% of the patients were discharged home in less than two weeks.

Mai (1966) carried out a similar study of psychiatric inpatients in the Queen Elizabeth Hospital, a South Australian teaching general hospital. He analysed the data of an inpatient unit in terms of demographic, clinical and diagnostic variables. He reported a female:male ratio of 3:1, which rose to 11:1 among those of over seventy years of age. The author commented that the reason for the greater disparity in this series was uncertain. The disparity was not a reflection of the overall sex ratio of patients admitted to the hospital, among whom there was an approximately equal sex incidence during the survey period. Further analysis showed that the excess of female patients admitted in this age group did not appear to be related to the death of a spouse. A slightly higher number of migrants were reported than would be expected from their proportions in the general population. Depressive states accounted for 51%, psychoneuroses (excluding depression) for 30%, and schizophrenia for 8% of all admissions, and 19% of admissions followed a suicide attempt. Forty-six percent of patients discharged were followed up in the outpatient department and 8% were

transferred to a mental hospital. Fifty percent of patients had a medical condition in addition to a psychiatric diagnosis.

Brayley et al. (1989) focussed on psychotropic drug prescribing in a general hospital inpatient psychiatric unit. They surveyed inpatients prescribed drugs at the time of admission and discharge. They found a significant reduction in patients prescribed minor tranquillizers from 20% at admission to 8% at discharge and a significant increase in those prescribed tricyclic antidepressants from 26% at admission to 42% at discharge. The study concludes that this higher percentage of antidepressant prescriptions at discharge reflects a different patient population in the general hospital inpatient psychiatry unit compared to psychiatric hospitals.

This literature survey indicates that only two out of three Australian studies have been undertaken on general hospital inpatient psychiatry units to delineate demographic and clinical characteristics, and both were published in the 1960's. For the last two decades there has been no Australian study of patients treated in such units. There has also been no recent review of patients treated in Australian units, nor has the question of such a unit's relationship to the rest of the general hospital or the community been reviewed. At this point sufficient data is not available to make an accurate assessment of the role of the psychiatric unit in the general hospital within Australia.

III. LENGTH OF PSYCHIATRIC INPATIENT STAY

There are many factors contributing to hospital expense, but the primary factor is length of inpatient stay (Rupp et al., 1984; Glick and Hargreaves, 1979). A number of studies have shown that patients randomly assigned to brief hospitalization almost invariably have equal and often superior outcomes to longer staying groups (Caffey et al., 1976; Glick et al., 1975; 1976; Herz et al., 1977; Hirsch et al., 1979). Although many studies have been done on the length of hospital stay in psychiatry, very little evidence is available to indicate the relative importance of the various factors which influence length of stay (Kirschner and Johnson, 1985).

a. Factors influencing length of stay

The literature reveals conflicting findings with regard to the important factors influencing length of inpatient stay. Doherty (1976) found that sociological variables involving patient behaviour and role expectations (notably around sex) were significantly related to length of stay whereas psychopathology and diagnosis (for females) were not. Boelhouwer and Rosenberg (1983) found that diagnosis alone did not predict length of stay and that many other factors contributed to the prediction. They also found a number of demographic and clinical variables significantly associated with long or short stay patients. Their most striking finding was that length of stay was significantly related to treatment factors rather than diagnosis. Electroconvulsive therapy (ECT) was found to be the most powerful predictor of a longer period of inpatient treatment. Other factors associated with a longer stay in hospital were sex (female), marital status (single and widowed), occupation (unemployed), medical diagnosis (concomitant physical disorder), change of diagnosis, psychoses and affective disorder. Length of stay was also found to depend on the treating psychiatrist and whether the patient was privately insured or was a public patient. Thus their analysis indicated that diagnosis correlated poorly with length of stay and that treatment factors, rather than diagnosis, emerged as important as predictors of length of stay.

Mason et al. (1985) noted that sex, type of ward, race and medical illnesses were not significantly related to length of stay. However, age, self-discharge, number of previous hospitalizations and diagnosis were significantly related.

Kirshner and Johnston (1985) found that patients with prior admission elsewhere stayed longer whereas patients readmitted to the same unit stayed a significantly shorter time. They did not find a significant difference in length of stay by insurance status. Patients with private visiting psychiatrists had a longer average length of stay. They failed to find significant differences in length of stay by age, gender, marital status and concomitant medical diagnosis. They found that the patients with a diagnosis of a major mental illness stayed significantly longer than other patients. Patients with lower levels of prehospital functioning, as measured by the

DSM-III Global Assessment of Functioning scale score at admission, stayed significantly longer in the hospital.

A U.S. study by Heiman and Shanfield (1980) indicated that primary diagnosis and type of hospital influenced length of stay but age and sex did not. Michalon and Richman (1990) did not find any significant relationship between length of stay and the age or sex of the patients. However, they found a strong and highly significant relationship between diagnosis and length of stay. Year of hospitalization, admission status and disposition of the patients were also found significantly related to length of stay.

Munley et al. (1977), by means of stepwise mutliple regression procedure, identified five variables as the most efficient, statistically significant set of predictors of length of hospitalization: age, involuntary admission, number of prior psychiatric hospitalizations, recent employment history and past history of suicidal behaviour.

Herr et al. (1991), in their study on length of stay in a general hospital psychiatric unit, found that seven variables were significantly over-represented among the long stayers including treatment with ECT, medical consultations, unemployment, dementia, disposition to a place other than home, absence of alcohol or drug abuse and presence of psychosis without affective symptoms.

b. Early attempts in predicting length of stay

The review of the literature related to length of hospital stay indicates that researchers have for some time attempted to develop instruments useful for predicting length of psychiatric inpatient stay. The advantage of such an instrument would be to facilitate early release for short stay patients and the prompt beginning of appropriate treatment for long stay patients (Cyr and Haley, 1983). Such an instrument might be desirable at the time of admission or at least before the levelling effect of hospitalization becomes operative (Dunham and Meltzer, 1946; Lindemann, Fairweather, Stone, Smith and London, 1959). It has been hoped that the successful development of such an instrument would result in the more effective use of hospital facilities and staff resources (Dunham and Meltzer, 1946). Anker (1961) indicated that the advantages of

such an instrument in relation to personality characteristics would be its potential for suggesting specific types of treatment aimed at reducing chronicity. Use of such an instrument at least offers the advantage of separating likely short and long stay groups of psychiatric patients at the beginning of their hospitalization. For example, early identification of the long stay group is important because staff energies may be focused upon them and appropriate treatment programmes started (Johnston and McNeal, 1964). The power of such an instrument to predict length of inpatient stay is in part dependent on treatment conditions based on specific behaviours exhibited by patients has expected that the probable length of inpatient stay for each patient will vary under differing treatment conditions. Furthermore, he has commented that a predictive index of length of inpatient stay could be useful in establishing patient-program interactions (Becker, 1975).

c. Australian studies relating to length of stay

No study had been conducted which examines the relationship between demographic and clinical variables and length of psychiatric inpatient stay in an Australian setting. One Australian study has been reported from a psychiatric hospital inpatient unit (Sandford and Elzinga,1990) which provides information on the relationship between patient-patient interactions and length of hospital stay, and patient-staff interactions and length of hospital stay.

d. Third party payers and length of stay

Research on optimal length of hospital stay of patients is also needed in the light of the increasing role played by insurance companies and government agencies in financing health care services (Erickson and Paige, 1973). Accordingly, research on length of psychiatric inpatient stay has been motivated by the increasing attention paid by insurance companies and government agencies to indices of hospital utilization as a basis for funding decisions (Boelhouwer and Rosenberg, 1983).

Medicare's use of diagnosis-related groups (D.R.G's) and the frequent acceptance of length of stay as an indicator of resource utilization has also caused a

surge of interest in the predictability of length of hospital stay for psychiatric inpatients (Kiesler et al., 1990).

e. Community mental health program and length of stay

Proponents of community mental health programs generally take the view that the aim of psychiatric hospitalization should be to facilitate rapid recovery and return to community functioning rather than to promote social learning within the hospital setting. Nonetheless, a substantial number of longer stay patients are still encountered in psychiatric inpatient settings.

f. Previous findings of studies involving multiple regression analyses

Stepwise multiple regression analysis has been performed in a number of studies to predict length of inpatient stay using length of stay as the dependent variable and a list of demographic and clinical variables as independent variables. The percentages of variance in length of stay explained in previous studies were 23.94% by Johnston and McNeil (1964), 20.34% by Munley et al. (1977), 30.72% by Cyr and Haley (1983), 20% by Boelhouwer and Rosenberg (1983), and 26% by Kirshner and Johnston (1985). The literature review suggests that by and large, investigators have been unsuccessful in producing a prediction model using demographic and clinical data which accounts for a substantial criterion variance.

The literature on length of stay indicates that the types of demographic and especially clinical variables used as independent variables against length of stay have not been the same in all studies thus making comparisons difficult. It seems that the main difference between lists of demographic and clinical variables is in the types of clinical variables included. It may be reasonably concluded that the amount of variance in length of stay differs between studies partly due to differences in the list of independent variables included in regression equations.

Thus it is not only an increase in number of demographic and clinical variables, but also the inclusion of certain types of clinical variables that may be required to improve the proportion of explained variance in length of psychiatric inpatient stay (Cyr and Haley, 1983).

g. Variables used to predict length of stay

Different types and different combinations of variables were used by previous investigators with a view to establish the most powerful predictors of length of psychiatric inpatient stay. These included: simple demographic and clinical variables (Dunham and Meltzer, 1946; Lindemann et al., 1961; Munley et al., 1977; Cyr and Haley, 1983; Boelhouwer and Rosenberg, 1983; Mason et al., 1985; Kirshner and Johnston, 1985); the Minnesota Multiphasic Personality Inventory (MMPI) (Anker, 1961; Fulkerson and Barry, 1961); a combination of MMPI, demographic and clinical variables (Johnston and McNeal, 1964); predictor variables in relation to specific treatment conditions such as traditional mental hospital treatment conditions, and work oriented rehabilitation treatment conditions, (Becker, 1975); combined demographic and social competence variables (Miller and Willer, 1979); and combined demographic and diagnostic variables and a number of sociological variables (Doherty, 1976).

h. Number and type of demographic and clinical variables used

Varying numbers and types of demographic and clinical variables have been selected by investigators for statistical analysis. For example, Dunham and Meltzer (1946) considered 30 factors possibly associated with length of stay. Both Lindemann et. al. (1959) and Munley et. al. (1977) selected a list of 21 demographic and clinical variables. Cyr and Haley (1983) used an expanded list of 43 demographic and clinical variables. Boelhouwer and Rosenberg (1983) used 19-20 demographic and clinical variables. Kirshner and Johnston (1985) employed 12 demographic and clinical variables, while Mason et. al. (1985) used 8 variables. On the other hand, fewer demographic and clinical variables were used by other investigators (Johnston and McNeil, 1964; Doherty, 1976; Miller and Willer, 1979; Michalon and Richman, 1990; Heiman and Shanfield, 1980). The following lists of demographic and clinical variables employed in previous studies are presented to demonstrate the variations from one study to another.

(1) Dunham and Meltzer (1946)

1. Age. 2. Sex. 3. Marital status. 4. Religion. 5. Race. 6. Nativity of patient. 7. Educational level. 8. Economic condition. 9. Employment. 10. Person committing patient. 11. Type of onset. 12. General personality characterization. 13. Conflict with mother. 14. Conflict with father. 15. Extent of contact with opposite sex. 16. Premarital sex relations. 17. Living arrangement at commitment. 18. Birth order. 19. Alcoholic indulgence. 20. Physical deformity. 21. Psychiatric estimate of constitutional strength. 22. Family history of mental disease. 23. Behavioural tendencies. 24. Insight. 25. Orientation. 26. Intelligence level. 27. Duration of psychosis before hospitalization. 28. Psychiatric diagnosis. 29. Psychiatric prognosis.

(2) Lindemann et al. (1959)

1. Age at first neuropsychiatric hospitalization. 2. Age at time of current hospitalization. 3. Age entering service. 4. Marital status. 5. Religion. 6. Education. 7. Occupational classification level. 8. Number of previous hospitalizations. 9. Service-connection of disability. 10. Length of military service. 11. Months of service prior to first neuropsychiatric hospitalization. 12. Number of children. 13. Combat experience. 14. Neuropsychiatric diagnosis in service. 15. Diagnosis.16. Severity of external precipitating stress. 17. Predisposition. 18. Degree of incapacity. 19. Secondary diagnosis. 20. Legal competence. 21. Alcoholism.

(3) Munley et al. (1977)

1. Age. 2. Age at first psychiatric hospitalization. 3. Race. 4. Education. 5. Income. 6. Occupational level. 7. Recent employment history. 8. Number of prior psychiatric hospitalizations. 9. Length of last hospitalization. 10. History of commitment. 11. Service connection. 12. Schizophrenic diagnosis. 13. Presence of a secondary medical diagnosis. 14. Suicide attempt within 10 months prior to admission. 15. Past history of suicide behaviour. 16. Assaultive behaviour within one month prior to admission. 17. Past history of assaultive

behaviour. 18. Subjective report of depression upon admission. 19. Alcohol abuse within one month prior to admission.

20. Past history of alcohol abuse. 21. Type of discharge.

(4) Cyr and Haley (1983)

1. Age on admission. 2. Sex. 3. Marital status. 4. Education.

5. Occupation. 6. Employment status. 7. Referral source on admission. 8. Time of admission. 9. Number of previous admissions. 10. Type of admission. 11. Accompanied by on admission. 12. Primary diagnosis on admission. 13. Correspondent. 14. Correspondent's address. 15. Birth place. 16. Years of residence in country. 17. Cumulative length of stay in past 5 years.

Note: An expanded number of 43 variables from the original 17 demographic and clinical variables were used in the regression analysis.

(5) Boelhouwer and Rosenberg (1983)

1. Age. 2. Sex. 3. Marital status. 4. Employment status. 5. Place of residence. 6. Reason for admission. 7. Certain doctor group (Private Psychiatrist) 8. Admission diagnosis. 9. Discharge Diagnosis. 10. Use of medications (major tranquillizers, minor tranquillizers, antidepressants and lithium). 11. ECT.

12. Ward status. 13. Source of payment. 14. Admission to the Emergency room.

15. Presence of concomitant medical diagnosis. 16. Existence of a language problem. 17. Discharge plans.

(6) Kirshner and Johnston (1985)

1. Age. 2. Sex. 3. Marital status. 4. Type of insurance. 5. Source of referral. 6. Previous psychiatric hospitalization. 7. Route of admission.

8. Private attending psychiatrist in the hospital. 9. Type of discharge.

10. Co-existing medical diagnosis. 11. Disposition to further care. 12. Discharge psychiatric diagnosis.

(7) Mason et al. (1985)

1. Age. 2. Sex. 3. Race. 4. Ward. 5. Number of previous hospitalizations. 6. Discharge status. 7. Discharge diagnosis (psychiatric). 8. Discharge diagnosis (co-existing medical).

(8) Johnston and McNeil (1964)

1. Age. 2. Marital status. 3. Admission diagnosis (psychotic vs non psychotic).

(9) Miller and Willer (1979)

1. Sex. 2. Marital status. 3. Total number of admissions to a psychiatric hospital. 4. History of hospitalization one year previous to the current admission.

(10) Michalon and Richman (1990)

1. Age. 2. Sex. 3. Year of hospitalization. 4. Admission status. 5. Disposition. 6. Diagnosis.

(11) Doherty (1976)

1. Age. 2. Marital status. 3. Number of years of education. 4. Distance in miles from patient's community of origin to the hospital. 5. Patient diagnosis (Psychosis, Neurosis, Personality disorder). 6. Whether the patient was elected to the position of patient chairperson or not.

(12) Heiman and Shanfield (1980)

1. Age. 2. Sex. 3. Diagnosis. 4. Type of hospital.

i. Subjects and Settings

Little attention has been paid in most of the studies reviewed to achieving comparable samples or subsamples. Some investigators have worked with only one or two diagnostic categories while others have worked with all diagnostic categories in a particular setting. Some investigators have worked in the setting of mental hospitals while others have worked in a general hospital setting. These may be illustrated by a brief description of subjects and settings employed by the previous investigators. These were: 689 cases of schizophrenias and manic depressive psychoses of two American state hospitals for the period of 1932-1936 (Dunham and Meltzer, 1946); 248 neuropsychiatric cases of first admissions in a Veteran's Administration Hospital

during the second half of 1954 (Lindemann, 1959); 358 chronic neuropsychiatric patients with a diagnosis of schizophrenia for 204 cases in a Veteran's Administration Hospital (Anker, 1961); 316 psychiatric patients admitted to a Veteran's Administration Hospital (Johnston and McNeal, 1964); 53 males and 58 females with a diagnosis of chronic schizophrenia in Federal and State mental hospitals (Becker, 1975); 202 patients admitted to five general psychiatric treatment units at a Veteran's Administration Hospital (Munley et. al., 1977); 72 admissions in an active treatment ward at a psychiatric hospital (Miller and Willer, 1979); 877 patients in a psychiatric hospital in 1980 (Cyr and Haley, 1983); 765 inpatient records in a general hospital psychiatry unit (Boelhouwer and Rosenberg, 1983); 258 admissions to a general hospital psychiatry unit for the period1977 to 1978 (Kirshner and Johnston, 1985); 127 inpatients of a general hospital psychiatry unit (Mason et al.,1985).

j. Definition of length of hospitalization

The literature on length of psychiatric inpatient stay indicates a lack of consistency among studies in the definitions of short, intermediate and long term hospitalization. This variability in the definition of hospitalization is, of course, a major problem in research in the field of length of psychiatric inpatient stay. Some examples of this variability in definition are cited below.

1. Dunham and Meltzer (1946)

   Short stay: 0 - 30 days

   Medium stay: 31 - 60 days

   Long stay: 61 - 90 days.

2. Lindemann et.al. (1959)

   Short stay: 0 - 90 days

   Long stay: 91 - above.

3. Anker (1961)

   Short term: < 6 months

   Long term: > 1 year.

4. Johnston and McNeal (1964)

Short term: 0 - 3 months

Medium term: 4 - 12 months

Long term: > 12 months.

5. Boelhouwer and Rosenberg (1983)

Short stay: < 15 days

Long stay: > 15 days.

Boelhouwer and Rosenberg stressed the need for the use of the median rather than the mean for categorizing patients by length of psychiatric inpatient stay.

k. Statistical procedures

Variability in the statistical procedures employed by researchers in the studies of length of psychiatric inpatient stay is also a significant impediment to comparing findings. A brief description of statistical procedures employed by different researchers are noted here. These included: simple correlation (Dunham and Meltzer, 1946); chi-square and multiple regression analysis (Johnston and McNeal, 1964); chi-square analysis (Mason et al., 1985); stepwise multiple regression analysis (Munley et al., 1977); Pearson product moment correlation, analysis of variance and multiple regression technique (Becker, 1975); multiple linear regression analysis (Miller and Willer, 1979); maximum R2 improvement technique for multiple regression analysis (Cyr and Haley, 1983); analysis of variance and stepwise multiple regression analysis (Kirshner and Johnston, 1985); chi-square, linear correlation and stepwise multiple regression analysis (Boelhouwer and Rosenberg, 1983); stepwise linear regression analysis (Doherty, 1976).

IV. SUMMARY

In summary, a review of the literature reveals conflicting findings with regard to the importance of specific demographic variables (age, sex and marital status) and length of psychiatric inpatient stay. However, unemployment was found to be associated with longer hospitalization in the majority of the studies. Type of insurance

showed no significant relationship with length of stay. In some studies clinical variables such as number of previous admissions, prior admission elsewhere, patients with private visiting psychiatrists and referral to a private psychiatrist were found to be associated with longer hospitalization. Discharge against medical advice was significantly related to shorter length of stay. There were conflicting findings regarding the relationship between co-existing medical diagnosis and length of stay. In only one study was the relationship of DSM-III Axis-V Global Assessment of Functioning Scale ratings at admission with length of stay examined. A lower level of pre-hospital functioning as measured by DSM-III Axis-V GAF ratings at admission was significantly related to longer length of hospital stay.

Stepwise multiple regression analysis was performed in a number of studies to predict length of inpatient stay using length of stay as the dependent variable and a list of demographic and clinical variables as independent variables.

Although the importance of predicting length of psychiatric inpatient stay has been highlighted by the attitudes of Medicare, insurance companies and government agencies, a review of the literature indicates that no study had yet been conducted in Australia to examine the relationship between demographic and clinical variables and length of stay.

Variability in subjects, settings, variables, definition of hospitalization and statistical procedures employed by researchers have been identified as the major problems in this area.

V. COMMENTS

There are two broad aspects of the review of the literature relating to the inpatient populations of general hospital psychiatry units which have influenced the formulation of the present study. The first is that the majority of the reports have been from overseas studies. Only two Australian studies have been undertaken on general hospital inpatient psychiatry units and these were both conducted in the 1960's. There has been no recent review of patients treated in Australian units, nor has the question of

such a unit's relationship to the rest of the general hospital or the community been reviewed. Secondly, the findings of the majority of studies related to length of psychiatric inpatient stay have reported inconsistent findings, especially with regard to the variables important in predicting length of stay as elucidated by multiple regression analysis. Due to heterogeneity of subjects, settings, variables, definition of hospitalization and statistical procedures, it would be extremely difficult to compare directly the results of the previous studies. Some suggestions for achieving comparability between future studies arise out of this investigation.

CHAPTER III.

THE PRESENT STUDY

I. INTRODUCTION

This study is concerned firstly with the demographic, clinical and diagnostic characteristics of patients admitted to an inpatient psychiatry unit within a general hospital setting. Secondly, it is concerned with examining the statistical relationship between a short and long stay group of inpatients in relation to a number of demographic and clinical variables. Thirdly, this study is further designed to identify a set of independent variables which are strong enough to explain the maximum proportion of variance in length of stay.

The hypotheses of this study were developed following a pilot study. Thereafter, the hypotheses were further developed in the light of research findings related to length of psychiatric hospital stay, as reviewed in the previous chapter.

II. HYPOTHESES TESTED

The hypotheses tested for the present study were expressed in the null form, viz, that comparisons of inpatients who have a long stay in hospital with those who have a short stay will reveal no significant differences in terms of the following demographic and clinical variables;

Demographic variables:

(1) Age.

(2) Sex.

(3) Marital status.

(4) Occupational status.

(5) Insurance status.

(6) Source of referral.

Clinical variables:

(7) Referral to further care.

(8) Admission status.

(9) Number of previous psychiatric admissions.

(10) Previous psychiatric hospitalization (either the same hospital or another).

(11) History of past mental illness.

(12) Nature of presenting complaint(s).

(13) Attempted suicide.

(14) Use of Antipsychotics at admission.

(15) Use of Antipsychotics at discharge.

(16) Use of Antidepressants at admission.

(17) Use of Antidepressants at discharge.

(18) Use of anxiolytics and hypnotics at admission.

(19) Use of anxiolytics and hypnotics at discharge.

(20) Use of ECT and other method of treatment.

(21) Diagnostic categories based on DSM-III-R AXIS I (Psychiatric) and AXIS II (Personality disorder) diagnoses at discharge.

(22) Broad diagnostic groupings (Major and Minor mental illnesses based on DSM-III-R AXIS I and AXIS II diagnoses) at discharge.

(23) Concomitant physical disorder (AXIS III diagnoses of DSM-III-R) at discharge.

(24) Past GAF scale score (mean) at admission (AXIS V of DSM-III-R).

(25) Current GAF scale score (mean) at admission (AXIS V of DSM-III-R).

III. STUDY POPULATION AND METHODS

a. Subjects

The subjects of the study were psychiatric inpatients admitted to the Royal Adelaide Hospital during the period 1st January to 31st December, 1989. A list of all patients admitted to the psychiatry ward during 1989 was taken from the ward bed-state register. All case notes of patients admitted into the psychiatry ward (with adequate

information) during the period of 1989 were surveyed. Where patients had been admitted more than once during the period, data from the first admission only was included in the analysis. There were 296 first admissions over the period in question. Two case notes were excluded from the study due to inadequate information while two case notes could not be located. The final total sample for the study consisted of 292 cases. The mean age of the sample was 43.74 years (SD = 17.72); 56.5% were female, 32.2% were never married; 97.3% were caucasian; 34.4% were Catholic and 24.4% were Anglican; 28.9% were migrants; 13.9% were unemployed; 22.3% were referred from medical units and 18.1% were referred from private practice; 23.3% were admitted following an attempted suicide; 19.5% were involuntary patients; 68.9% had a concomitant physical disorder; 15.2% were diagnosed as a primary personality disorder; 39% as mood disorders; 11.6% as adjustment disorder; 9.2% as somatoform disorder; 8.2% as schizophrenia; 7.9% as organic mental disorders; and 15.1% received a principal diagnosis of personality disorders. Half of the patients had a length of stay of 12 days or fewer; the sample was therefore divided into two groups: a short stay group with a length of stay of 12 days or fewer and a long stay group with a length of stay of more than 12 days.

b. The research setting

This study was conducted in the psychiatry unit of the Royal Adelaide Hospital in Adelaide, a city of approximately 1 million people. Adelaide is the capital of South Australia, an Australian state which has a population of 1.35 million (Census, 1986). There are five general hospital psychiatry units and two mental hospitals in Adelaide. The psychiatric service in the Royal Adelaide Hospital, a 900-bed general hospital, includes a 24 bed ward. Since there is no designated catchment area, the unit accepts patients from all areas of the state, both urban and rural. The psychiatry unit of the Royal Adelaide Hospital is closely associated with the Department of Psychiatry of the University of Adelaide. This assured the standards of case recording of diagnostic decisions. Ward rounds are held on a daily basis at which new patients are seen by a consultant psychiatrist with a senior registrar, trainee registrars and other members of

the multidisciplinary team. New patients are presented by trainee registrars. At the time of the patient's discharge, a DSM-III-R (Diagnostic and Statistical Manual of Mental Disorders, Third Edition - Revised; American Psychiatric Association, 1987) multiaxial evaluation card (Appendix IV) is filled out by the senior registrar and the trainee registrars after discussion and a final diagnosis agreed upon. The unit is also closely related to the Pain Clinic and the Accident and Emergency Department of the Hospital. The unit's goal is treatment and stabilization of acute psychiatric illness as well as the initiation of aftercare involving community agencies and therapists. Extended milieu or individual treatment is not an objective of the unit but that does not mean that the patients are expected to leave within a predesignated time. The result of this relatively flexible policy was a length of stay that ranged from less than one day to 107 days. The mean length of stay was 16.390 days (SD=15.307) and the median length of stay was 12 days.

The unit has a highly structured program managed by consultant psychiatrists, registrars, nursing staff, psychologists, social workers and occupational therapists. In addition to psychopharmacological treatment, group and milieu therapies, including daily group meetings and weekly community meetings are emphasized. Treatment decisions are made by two teams, each of which comprises a psychiatrist, trainee registrars, a clinical nurse, a psychiatric nurse, a social worker, and an occupational therapist. The senior registrar and clinical nurse consultant are common to both teams. A staff psychiatrist, registrar and nurse function as a consultation-liaison team for the hospital as a whole.

c. Method

Approval was obtained from the Human Ethics Committee of the Royal Adelaide Hospital and the medical records officer was contacted. Much help and co-operation was offered by the staff of the Medical Records Department. A small series of case notes was initially surveyed as a pilot study. On that basis, a data collection proforma was designed (Appendix I). Data for the study were collected over a four month period. Demographic and clinical data were collected from patients' case notes.

The variable "length of stay" was defined as the number of days from date of admission to date of discharge. The long stay group of inpatients was compared with the short stay group to examine the relationship between 25 demographic and clinical variables and length of stay. Data were collected on psychotropic drug prescription and DSM-III-R diagnostic groupings both at admission and at discharge. Originally, AXIS I diagnoses were made using DSM-III-R criteria. These diagnoses were broadly categorised for the convenience of statistical analysis. Patients were rated on both the Severity of Psychosocial Stressors Scale and the Global Assessment of Functioning Scale (DSM-III-R, 1989). Severity of Psychosocial Stressors Scale and GAF scale scores were obtained utilizing the consensus arrived at among the registrars of the unit.

Information was collected on a total of 65 variables to delineate the demographic and clinical characteristics of the group as a whole. These variables included:

i. Sociodemographic variables

Age, sex, marital status, country of birth, period of residence if born overseas, race, religion, occupation, education, insurance status, source of referral, and type of referral to further care.

ii. Clinical variables

Admission

Admission status, number of previous psychiatric admissions, previous psychiatric hospitalization (same hospital or other).

Family and personal history

These included family history of drug and alcohol abuse, family history of mental disorders, family discord, marital discord, defacto discord, past history of physical illness, operation or accident, history of past mental illness, history of drug and alcohol abuse, nature of presenting complaints, inquiry into suicidal tendencies, method of suicide attempt, medical lethality of suicide attempt.

Investigation

These included CAT scan with result, EEG with result.

Treatment

These included antipsychotics prescribed at admission and discharge, antipsychotic parental preparation prescribed at admission and discharge, antidepressants prescribed at admission and discharge, anxiolytics and hypnotics prescribed at admission and discharge, other drugs (Lithium, Carbamazipine, antiparkinsonian drug) prescribed at admission and discharge, other methods of treatment (ECT and psychological approaches) prescribed, length of hospital stay, outcome of treatment.

Diagnosis

These included DSM-III-R AXIS I (Appendix III) first, second and third diagnosis at admission and discharge, DSM-III-R AXIS II (Appendix III) first and second diagnosis at admission and discharge, DSM-III-R AXIS III (Appendix III) diagnosis at admission and discharge, AXIS IV acute and enduring Psychosocial Stressors Scale score at admission and discharge (Appendix IV), AXIS V past and current Global Assessment of Functioning Scale score at admission and discharge (Appendix V).

In the first part of this study, inpatient populations were described in terms of a wide range of demographic and clinical variables. However variables were only included in predicting length of stay if the previous literature suggested they might be relevant, and if it was felt that the information was sufficiently reliable. However, data on the excluded variables are presented as part of the description of the sample (see Results Part I, and Discussion Part I).

In addition to the demographic, clinical and diagnostic characteristics of the inpatients, the present study also sought associations in length of stay between long stay and short stay inpatients on 25 demographic and clinical variables. These 25 variables were derived from the review of literature related to length of psychiatric hospital stay. They included age, sex, marital status, occupation, insurance status, source of referral, referral to further care, admission status, number of previous psychiatric admissions, previous psychiatric hospitalization (same hospital or another), history of past mental illness, nature of presenting complaints, attempted suicide, use of antipsychotics both at admission and discharge, use of antidepressants both at

admission and discharge, use of anxiolytics and hypnotics both at admission and discharge, ECT and psychological treatments, diagnoses, (DSM-III-R AXIS I and AXIS II discharge diagnoses), broad diagnostic groupings, DSM-III-R AXIS III diagnosis (concomitant physical disorder), DSM-III-R AXIS V past Global Assessment of Functioning scale score and DSM-III-R AXIS V current Global Assessment of Functioning Scale score.

An expanded list of 38 demographic and clinical variables were used in stepwise multiple regression analysis. These were:

1. Age. 2. Sex. 3. Marital status. 4. Occupation. 5. Insurance status. 6. Source of referral. 7. Referral to further care. 8. Admission status. 9. Number of previous admissions. 10. Hospital of previous admission. 11. Past history of mental illnesses. 12. Antipsychotics prescribed at admission. 13. Antipsychotics prescribed at discharge. 14. Antidepressants prescribed at admission. 15. Antidepressants prescribed at discharge. 16. Anxiolytics and hypnotics prescribed at admission. 17. Anxiolytics and hypnotics prescribed at discharge. 18. Organic mental disorder at admission. 19. Psychotic disorders at admission. 20. Mood disorders at admission. 21. Neurotic disorders at admission. 22. Psychoactive substance use disorder at admission. 23. Eating disorder at admission. 24. Personality disorder at admission. 25. Organic mental disorder at admission. 26. Psychotic disorder at discharge. 27. Mood disorder at discharge. 28. Neurotic disorder at discharge. 29. Psychoactive substance use disorder. 30. Eating disorder at discharge. 31. Personality disorder at discharge. 32. DSM-III-R Axis V diagnosis at admission. 33. DSM-III-R Axis V level of past functioning at admission. 34. DSM-III-R Axis V current level of functioning at discharge. 35. Attempted suicide. 36. Nature of presenting complaints. 37. Use of ECT. 38. Psychological approaches of treatment.

A specially designed proforma (Appendix I) was used to collect data from individual case notes. In order to preserve confidentiality no record was kept of the patient's identity.

IV. DEFINITIONS OF SELECTED TERMS

"Family discord" was defined as a state of hostile arguing among the family members leading to a persistent atmosphere of tension in the family (Kosky, 1989). Note of such a hostile family atmosphere in the case notes and the social worker's involvement in family therapy were accepted as evidence of family discord. "Marital discord" was defined as the presence of separation or divorce.

"Attempted suicide" was defined as a non-fatal act in which an individual deliberately causes self-injury or ingests a drug or poison or inhales gas with the intention of causing or risking death or harm. Patients with primary alcohol or drug intoxication were excluded by this definition. This definition is a combination of earlier approaches by previous researchers (Bancroft et. al., 1975; Stengel, 1963; Goldney and Pilowsky, 1980; Davis, 1989). Evidence of this defined clinical picture in the case notes was accepted for the diagnosis of attempted suicide. In doubtful cases recorded opinions of the clinicians were accepted.

The variable "medical lethality" of suicide attempt included high lethality, intermediate lethality and low lethality categories. High lethality was defined as those patients whose suicide attempt by self-injury, drug, poison or gas posed a definite threat to life and who were admitted to an Intensive Care Unit. Intermedidate lethality was defined as those patients whose suicide attempt by self-injury, drug, poison or gas warranted cautionary observation in a general recovery ward. Low lethality was defined as those patients whose suicide attempt by self-injury, drug, poison or gas produced negligible physical harm and who did not require any medical observation (Goldney and Pilowsky, 1980).

"Admission status" included voluntary and involuntary admissions. Involuntary admissions were defined as admissions under an order of detention by the South Australian Mental Health Act (1976-79), Section 14(1), (14(3) and 14(5) (Appendix VII).

"Principal diagnosis of personality disorder" was defined as personality disorder with no diagnosis in DSM-III-R AXIS I, or an AXIS I diagnosis of mental

illnesses such as adjustment disorder, neurotic disorder or psychoactive substance use disorder.

V. EXTRACTING DATA FROM CASE NOTES

Face sheets of the case notes were informative in terms of socio-demographic variables. However, "educational level" was not included in the face sheet (Appendix II) and family history in terms of family discord, and personal history in terms of marital discord were poorly documented in the case notes, making it very difficult to obtain accurate information on these variables. On many occasions, information on the Severity of Psychosocial Stressors Scale (AXIS IV of DSM-III-R) was not specified or clearly stated. In some cases diagnoses in DSM-III-R cards were not corrected at discharge, and where there were diagnoses both on AXIS I and AXIS II, the principal diagnosis was not recorded in the DSM-III-R cards. Therefore, it was necessary in these cases to compare and contrast with the relevant discharge summaries (Appendix VIII). Again, in some cases, this did not resolve the problem. Finally, reviewing case notes, it was very difficult to assess the exact outcome of the treatment. No clear comment was made on the case notes as to the outcome of treatment procedure. The use of treatment approaches other than pharmacotherapy and ECT was not made clear in the case notes. In summary, information was missing on a number of variables due to the absence of a standard proforma for history taking.

VI. DATA ANALYSIS

The Statistical Package for the Social Sciences Version 3.0 (SPSS-X) (SPSS INC., 1988) was used for data analysis. The Mann-Whitney U-test was used to compare the group means of continuous variables. Chi-square statistic was used to test the relationship between categorical variables. Chi-square analysis with Yates's correction was used for all 2 x 2 tables. Splitting of the chi-square value (Swinscow, 1976 and Appendix IX) was used to locate significant associations of a particular

category or categories between categorical variables. Tests were two-tailed at the 0.05 level of significance.

In addition, stepwise multiple regression analysis was performed. An expanded list of 38 demographic and clinical variables derived from 25 demographic and clinical variables served as independent variables with length of hospital stay as the dependent variable. Subprogram regression of SPSS-X Version 3.0 (SPSS INC., 1988) was used to carry out the analysis. The sample size in this analysis was N = 292. In the analysis variables were added one by one to the model until no remaining variables produced a significant F statistic.

CHAPTER IV.

RESULTS (PART I)

I. DESCRIPTIVE DEMOGRAPHIC AND CLINICAL DATA

a. Sociodemographic data

1. Age and Sex

Table 4.1 and Figure 1 (page 40) present the number of first admission inpatients with their associated age and sex distribution. Female patients among the inpatients dominated by a ratio of 1.3:1. The average age was 43.74 years (SD = 17.72), but the most frequently treated age group was 40-49 years. However, the overall age range was wide (16 years to 87 years). Female patients outnumbered males in all age groups except in the age groups 20-29 years and 80-89 years. The age and sex relationships are not significant.

TABLE 4.1

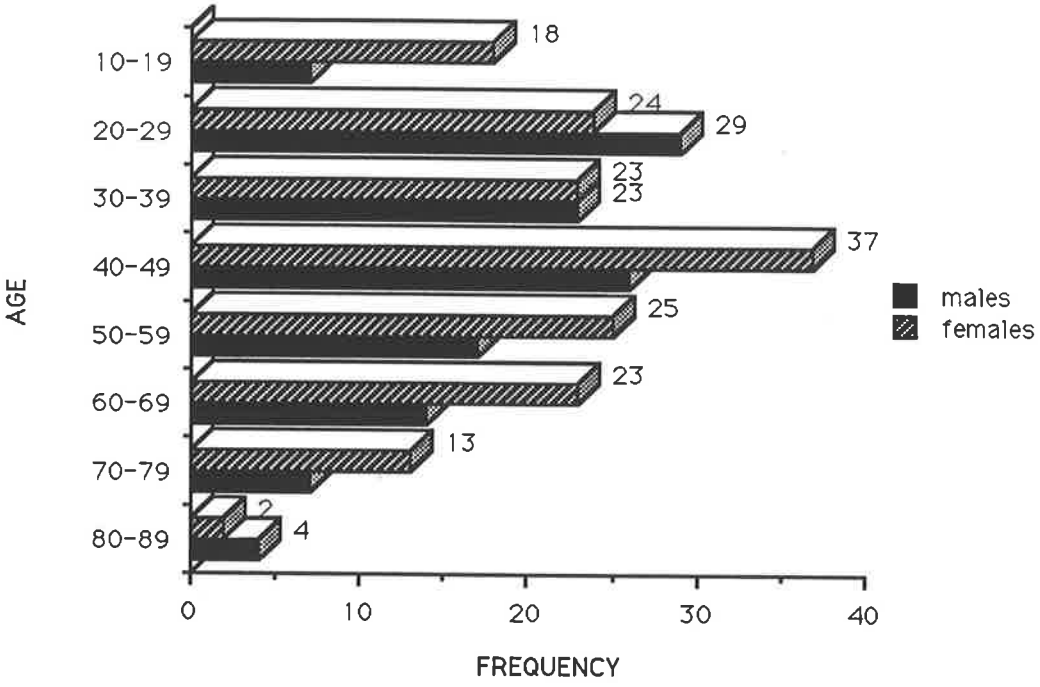
DISTRIBUTION OF CASES BY AGE AND SEX

Sex	Age								Total
	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	
Male	7	29	23	26	17	14	7	4	127
	(10.9)	(23.1)	(20.0)	(27.4)	(18.3)	(16.1)	(8.7)	(2.6)	
	28.0%	54.7%	50.0%	41.3%	40.5%	37.8%	35.0%	66.7%	43.5%
Female	18	24	23	37	25	23	13	2	165
	(14.1)	(29.9)	(26.0)	(35.6)	(23.7)	(20.9)	(11.3)	(3.4)	
	72.0%	45.3%	50.0%	58.7%	59.5%	62.2%	65.0%	33.3%	56.5%
Total	25	53	46	63	42	37	20	6	292
	100%	100%	100%	100%	100%	100%	100%	100%	
	8.6%	18.2%	15.8%	21.6%	14.4%	12.7%	6.8%	2.7%	100%

Expected frequency in parentheses.

$x^2 = 8.612$, df = 7, p = .281, n.s.

FIGURE I: DISTRIBUTION OF CASES BY AGE AND SEX (n = 292)



2. Age and Marital status

Table 4.2 shows the distribution of cases by age and marital status. The most frequent age group/groups for "never-married" patients was 20-29; for "married" patients, 40-49 and 50-59; for "widowed" patients, 60-69 and 70-79; and for "divorced" and "separated" patients, 40-49 years.

TABLE 4.2

DISTRIBUTION OF CASES BY AGE AND MARITAL STATUS

Marital status	Age								Total
	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	
Never married	24	37	13	6	5	6	0	1	92
	26.1%	40.2%	14.1%	6.5%	5.4%	6.5%	0	1.1%	31.5% 100%
Married	0	8	16	26	24	14	8	0	96
	0%	8.3%	16.7%	27.1%	25%	14.6%	8.3%	0%	32.9% 100%
Widowed	0	1	0	2	5	11	9	4	32
	0%	3.1%	0%	6.3%	15.6%	34.4%	28.1%	12.5%	10.9% 100%
Divorced	0	1	5	17	3	3	2	1	32
	0%	3.1%	15.6%	53.1%	9.4%	9.4%	6.3%	3.1%	10.9% 100%
Separated	0	2	9	12	5	1	0	0	29
	0%	6.9%	31.0%	41.4%	17.2%	3.4%	0%	0%	9.9% 100%
De-facto	0	4	1	0	0	0	0	0	5
	0%	80%	20%	0%	0%	0%	0%	0%	1.7% 100%
Total	24	53	44	63	42	35	19	6	286
	8.4%	18.5%	15.4%	22%	14.7%	12.2%	6.6%	2.1%	100%

3. Marital status and sex

Table 4.3 shows that there was a significant association between marital status and sex. Splitting of the total chi-square value indicates that the largest contribution (6.82) comes from the figures for the "never married" category. Further analysis demonstrates that male inpatients were significantly over-represented in the "never married" category compared to female inpatients. The "never married" status was most frequent in males, while the "married" status was most frequent in females.

TABLE 4.3

DISTRIBUTION OF CASES BY MARITAL STATUS AND SEX

Sex	Marital Status					Total
	Never married	Married	Widowed	Divorced	Separated	
Male	52 (39.6) 56.5%	37 (43.4)	11 (13.8) 34.4%	11 (13.3) 34.4%	12 (12.5) 41.4%	123 43.1%
Female	40 (52.4) 43.5%	64 (57.6)	21 (18.2) 65.6%	21 (17.7) 65.6%	17 (16.5) 58.6%	163 56.9%
Total	92 100%	101 100%	32 100%	31 100%	29 100%	286 100%

Expected frequency in parentheses.

$x^2 = 10.515$, $df = 4$, $p < .05$

Note: Information was missing on 6 cases.

4. Country of birth

Table 4.4 presents the distribution of cases by "country of birth" compared to the general South Australian population. Although the numbers are small, these figures support the general findings of previous authors (Krupinskin and Stoller, 1965; Gold, 1965; Mai, 1966), that migrants contribute relatively more to the numbers of psychiatric patients admitted to hospital than would be expected from their proportions in the general population. It is to be noted that patients having a country of birth other than Australia were classified as migrants.

TABLE 4.4

DISTRIBUTION OF CASES BY COUNTRY OF BIRTH COMPARED TO GENERAL POPULATION

Country of birth	Number of patients	Percentage	Percentage in general population[1]
Australia	204	71.1	76.5
Other	83	28.9	23.5
Not recorded	5		
Total	292	100%	100%

[1]Figures derived from population census (1986).

5. Race

Table 4.5 shows the distribution of cases by "race" compared to the general South Australian population. The figure for the category "other" is too small for comment. However, the "other" category contributed a higher percentage to the number of psychiatric patients admitted to the hospital than would be expected from their percentage in the general population.

TABLE 4.5

DISTRIBUTION OF CASES BY RACE

Race	No. of cases	Percentage	Percentage in general Population[2]
Caucasian	284	97.3	97.7
Aboriginal	2	0	1.1
Other	6	2	1.2
Total	292	100%	100%

[2]Figures derived from population census (1986).

6. Religion

Table 4.6 shows the distribution of the cases by "religion" compared to the general South Australian population. As can be seen from Table 4.6, Catholic patients represented the highest percentage of inpatients. In addition, it can also be seen that Catholic patients contributed a higher percentage to the number of patients admitted to the ward than would be expected from their percentage in the general population.

TABLE 4.6

DISTRIBUTION OF CASES BY RELIGION

Religion	Number of Cases	Percentage	Percentage in general Population[3]
Catholic	62	34.4	19.8
Anglican	44	24.4	18.0
Uniting Church	27	15.0	13.1
Lutheran	14	7.8	4.8
Presbyterian	2	1.1	1.4
Baptist	6	3.3	1.6
No religion	0		16.9
Others	25	13.9	24.4
Not known	112		
Total	292	100%	100%

[3]Figures derived from population census (1986).

7. Occupation

Table 4.7 shows the distribution of cases by occupation and sex. As can be seen, "unskilled" and "unemployed" inpatients were most frequently male, while "pensioners" and "students" were most frequently female. Thirty-four female patients were "housewives". The highest percentage of inpatients in both sexes were "pensioners".

TABLE 4.7

DISTRIBUTION OF CASES BY OCCUPATION AND SEX

Occupation	Male	Female	Total
Managerial	1 50.0% (0.9%)	1 50.0% (0.7%)	2 100% (0.8%)
Professional	2 66.7% (1.8%)	1 33.3% (0.7%)	3 100% (1.2%)
Skilled	8 50.0% (7.2%)	8 50.0% (5.4%)	16 100% (6.2%)
Unskilled	23 57.5% (20.7%)	17 42.5% (11.5%)	40 100% (15.4%)
Unemployed	22 61.1% (19.8%)	14 38.9% (9.5%)	36 100% (13.9%)
Pensioner	52 46.0% (46.8%)	61 54.0% (41.2%)	113 100% (43.6%)
Housewife	0% (0%)	34 100.0% (23.0%)	34 100% (13.1%)
Student	3 20.0% (2.7%)	12 80.0% (8.1%)	15 100% (5.8%)
Total	111 100% 42.9%	148 100% 57.1%	259 100%

8. Insurance status

Table 4.8 shows the distribution of cases by "insurance status". The majority (57.7%) of inpatients were covered by Medicare only, while 8.5% inpatients were covered by private insurance. Breaking down the figures for insurance status, 18.8% inpatients had status as "aged pensioners"; 8.1% as "sickness benefit recipient"; and 6.8% as an "unemployed permanent resident or citizen".

TABLE 4.8

DISTRIBUTION OF CASES BY INSURANCE STATUS

Insurance Status	Number	Percentage
Medicare only	135	57.7
Private insurance	20	8.5
Aged pensioner	44	18.8
Sickness benefit	19	8.1
Unemployed	16	6.8
Not known	58	
Total	292	100%

9. Source of referral

Table 4.9 shows that the inpatients were referred to the Unit from several sources. The highest percentage (22.3%) of inpatients were referred from medical units of the study hospital. The second highest (18.1%) percentage of inpatients were referred from private practitioners which included both psychiatrists and non-psychiatrists. The third source of referral was the psychiatric outpatient department (17.1%); 13.6% inpatients were referred from other hospitals; 10.1% were self-referred; and 9.1% were referred by other sources which included community health centres, nursing homes and social welfare agencies.

TABLE 4.9

DISTRIBUTION OF CASES BY SOURCE OF REFERRAL

Source of Referral	Number	Percentage
Private Practice	52	18.1
Inter-hospital transfer	39	13.6
Outpatient department	49	17.1
Casualty	16	5.6
Medical Unit	64	22.3
Surgical Unit	12	4.2
Self	29	10.1
Other	26	9.1
Not known	5	
Total	292	100%

10. Referral to Further Care on Discharge

Table 4.10 shows that the inpatients were discharged to a variety of settings for further care; 67.6% of the inpatients were referred to the psychiatry outpatient department of the study hospital; 14.9% were referred to private psychiatric care; 7.5% were referred to the other agencies which included community medical health centres, nursing homes, and social welfare agencies; 39% of the inpatients were referred to a general practitioner; and 3.6% were referred to a State psychiatric hospital (of which there are two in the Adelaide area).

TABLE 4.10

DISTRIBUTION OF CASES BY REFERRAL TO FURTHER CARE

Referral to further care	Number of Cases	Percentage
Private psychiatric practice	42 (14.4%)	14.9
Outpatient department	190 (65.1%)	67.6
State psychiatric hospital	10 (3.4%)	3.6
General practitioner	11 (3.8%)	3.9
Other	21 (7.2%)	7.5
Not referred	7 (2.4%)	2.5
Not known	11 (3.8%)	
Total	292	100%

b. Clinical data

i. Admission

11. Admission status and sex

Table 4.11 shows that 19.5% of the inpatients were admitted on an involuntary basis. Of these, 59.6% were females and 40.4% were males. There was no significant association between sex and admission status.

TABLE 4.11

DISTRIBUTION OF CASES BY ADMISSION STATUS AND SEX

Admission Status	Sex		Total
	Male	Female	
Voluntary	104 (102.2) 44.3% (81.9%)	131 (132.8) 55.7% (79.4%)	235 100% 80.5%
Involuntary	23 (24.8) 40.4% (18.1%)	34 (32.2) 59.6% (20.6%)	57 100% 19.5%
Total	127 (100%) 43.5%	165 (100%) 56.5%	292 100%

Expected frequencies in parenthesis.

Corrected $x^2 = .284$, df = 1, p = .593, n.s.

12. Admission status by diagnostic categories and admission status

Table 4.12 demonstrates that there was a significant relationship between admission status and diagnoses. Splitting of the chi-square value shows that the major contributions (13.1) to the total chi-square come from the figures for the categories "Organic Mental Disorders", "Psychotic Disorder" and "Neurotic Disorder" by involuntary admission. As can be seen, a significantly higher percentage of inpatients who had involuntary admissions were "Psychotic" and "Organic Mental Disorder" patients. On the other hand, a significantly lower percentage of inpatients who had involuntary admission were "Neurotic Disorder" patients.

TABLE 4.12

ADMISSION STATUS BY DIAGNOSTIC CATEGORIES AND ADMISSION STATUS

Diagnosis	Admission status		Total
	Involuntary admission n = 56	Voluntary admission n = 230	
Organic mental and psychoactive substance use disorder	9 (4.9) 16.1%	16 (20.1) 6.96%	25 8.7%
Psychotic disorders	14 (8.1) 25%	27 (32.97) 11.7	41 14.3%
Mood disorders	23 (22.3) 41.1%	91 (91.7) 39.6	114 39.9%
Neurotic and Eating disorders	4 (12.1) 7.14%	58 (49.9) 25.22	62 21.7%
Personality disorders	6 (8.6) 10.7%	38 (35.4) 16.52	44 15.4%
Total	56 100% 19.6%	230 100% 80.4%	286 100%

Expected frequencies in parentheses.
$x^2 = 17.377$, df = 4, $p < .01$.

13. Number of previous psychiatric admissions

Table 4.13 presents the distribution of cases by "number of previous psychiatric admissions". As can be seen, 35.6% of inpatients had a history of previous psychiatric admissions. Of these, the largest group had one previous admission (16.8%).

TABLE 4.13

DISTRIBUTION OF CASES BY NUMBER OF PREVIOUS ADMISSIONS

Number of previous admission	Number	Percentage
None	183	64.4
One	49	16.8
Two	27	9.2
Three	11	3.8
Four	4	1.4
Five or more	13	4.5
Total	292	100.0%

14. Previous psychiatric hospitalization (same hospital or other)

Table 4.14 demonstrates the distribution of cases by "previous psychiatric hospitalization" (same hospital or other). As can be seen, 16.2% inpatients had been previously admitted to the same hospital, while 15.1% inpatients had been admitted to other hospitals.

TABLE 4.14

DISTRIBUTION OF CASES BY HOSPITAL OF PREVIOUS ADMISSION

Previous psychiatric hospitalization	Number	Percentage
None	185	63.6
Same hospital	47	16.2
Other hospital	44	15.1
Both	15	5.2
Not known	1	
Total	292	100.0%

ii. Family and personal history

15. Family history of drug and alcohol abuse

Table 4.15 shows the distribution of cases by "family history of drug and alcohol abuse". It can be seen that 28 (27.2%) inpatients had a family history of drug and alcohol abuse, while in 189 (64.7%) cases there was no record of a family history of drug and alcohol abuse in the case notes.

TABLE 4.15

DISTRIBUTION OF CASES BY FAMILY HISTORY OF DRUG AND ALCOHOL ABUSE

Family history of drug and alcohol abuse	Number	Percentage
Present	28	27.2
Absent	75	72.8
Not known	189	
Total	292	100.0

16. Family history of mental disorders

Table 4.16 presents the distribution of cases by "family history of mental disorders". As can be seen, 49 (29%) cases had a family history of "Affective Disorders"; 13 (7.7%) cases had a family history of "Substance Use Disorder"; and 8 (4.7%) cases had a family history of "Schizophrenia". In 123 (42.1%) cases, no record was present in the case notes.

TABLE 4.16

DISTRIBUTION OF CASES BY FAMILY HISTORY OF MENTAL DISORDERS

Diagnosis	Number	Percentage
Absent	89	52.7
Organic mental disorders	2	1.2
Schizophrenia	8	4.7
Affective disorders	49	29.0
Other psychoses	1	0.6
Neuroses	5	3.0
Personality disorders	1	0.6
Substance use disorder	13	7.7
Other conditions	1	0.6
Not known	123	
Total	292	100.0%

18. Marital discord

Table 4.18 presents the distribution of cases by "marital discord". As can be seen, 61 (27.9%) inpatients had a history of marital discord. However, in 74 (25.3%) inpatients, no record was made in the case notes.

TABLE 4.18

DISTRIBUTION OF CASES BY MARITAL DISCORD

Marital discord	Number	Percentage
Present	61	27.9
Absent	33	15.1
Not applicable	124	56.9
Not known	74	
Total	292	100%

19. Past history of illness, operation or accident

Table 4.19 shows the distribution of cases by "past history of physical illness, operation or accident". As can be seen, 225 (77.3%) inpatients had a past history of physical illness, operation or accident.

TABLE 4.19

DISTRIBUTION OF CASES BY HISTORY OF ILLNESS, OPERATION OR ACCIDENT

History of illness, operation or accident	Number	Percentage
None	66	22.7
Physical illness	96	33.0
Operation	20	6.9
Accident	8	2.7
Physical illness and operation	93	32.0
Physicall illness and accident	8	2.7
Operation and accident) All) Not known)	1	
Total	292	100%

20. History of past mental illness

Table 4.20 shows the distribution of cases by "history of past mental illness". Ninety-three (34.2%) inpatients had a past history of "Affective Disorder"; 26 (8.9%) inpatients had a past history of "other conditions" which included "Adjustment Disorder", psychological factors affecting a physical condition, "Somatoform Disorders", etc. Thirteen (4.8%) inpatients had a history of "Schizophrenia"; twelve inpatients had a history of "Substance Use Disorder". In 20 (6.8%) cases, no record was made in the case notes.

TABLE 4.20

DISTRIBUTION OF CASES BY HISTORY OF PAST MENTAL ILLNESS

Diagnosis	Number	Percentage
Absent	83	30.5
Organic mental disorders	4	1.5
Schizophrenia	13	4.8
Affective disorders	93	34.2
Other psychoses	6	2.2
Neuroses	20	7.4
Personality disorder	15	5.5
Substance use disorder	12	4.4
Other conditions	26	9.6
Not known	20	
Total	292	100%

21. History of drug and alcohol abuse

Table 4.21 shows the distribution of cases by "history of drug and alcohol abuse". Sixty-two (21.2%) inpatients had a history of drug and alcohol abuse. In 87 (29.8%) inpatients no relevant record was made in the case notes.

TABLE 4.21

DISTRIBUTION OF CASES BY HISTORY OF DRUG AND ALCOHOL ABUSE

History of drug and alcohol abuse	Number	Percentage
Present	62	30.2
Absent	143	69.8
Not known	87	
Total	292	100%

22. Presenting complaints

Table 4.22 shows the distribution of cases by "nature of presenting complaints". In 30 (10.3%) cases the presenting complaints were entirely physical, while in 85 (29.2%) cases the picture was mixed. In one case only was no record made in the case notes. In 176 (60.5%) cases, the presentation was exclusively psychiatric.

TABLE 4.22

DISTRIBUTION OF CASES BY NATURE OF PRESENTING COMPLAINTS

Presenting complaints	Number	Percentage
Physical	30	10.3
Psychiatric	176	60.5
Mixed	85	29.2
Not known	1	
Total	292	100%

23. Suicidal tendencies related to admission (ideation and behaviour)

Table 4.23 shows the distribution of cases by "suicidal tendencies". This shows that in 147 (50.3%) inpatients there was no evidence of suicidal tendencies. In 70 inpatients (24%) there was suicidal ideation, while in 63 (21.6%) inpatients the possibility of suicidal behaviour was recorded. Death wishes were recorded only in 12 (4.1%) cases. The overall picture indicates that half of the inpatients manifested some evidence of suicidal tendencies.

TABLE 4.23

DISTRIBUTION OF CASES BY SUICIDAL TENDENCIES

Suicidal tendencies	Number	%
None	147	50.3
Death wish	12	4.1
Suicidal ideation	70	24.0
Suicidal attempt	63	21.6
Total	292	100%

24. Suicide attempt related to admission (methods)

Table 4.24 shows the distribution of cases by method of "suicide attempt". In 224 (76.7%) inpatients there was no evidence of suicidal attempt. In 68 (23.3%) inpatients there was definite evidence of suicidal attempt. There were 47 (16.1%) attempts by overdose of drugs; eight (2.7%) cases attempted suicide by self-inflicted injury; six (2.1%) cases attempted suicide by a combination of methods; three cases attempted suicide by hanging; two cases attempted suicide with gas or carbon monoxide; and two cases by jumping.

TABLE 4.24

DISTRIBUTION OF CASES BY METHOD OF SUICIDE ATTEMPT

Methods of suicide	Number	Percentage
None	224	76.7
Shooting/Firearms	-	-
Jumping	2	0.7
Hanging	3	1.0
Drowning	-	-
Overdose of drugs	47	16.1
Self-injury	8	2.7
Gas or carbon monoxide poison	2	0.7
Combination of methods	6	2.1
Total	292	100%

25. Medical lethality of suicide attempt

Table 4.25 shows the distribution of cases by medical lethality of the suicide attempt. There were 24 (8.2%) attempts of high lethality; 23 (7.9%) cases of low lethality; and 17 (5.8%) of intermediate lethality. Thus more than half of the attempted suicide cases were of high or intermediate medical lethality.

TABLE 4.25

DISTRIBUTION OF CASES BY MEDICAL LETHALITY OF SUICIDE ATTEMPT

Lethality of suicide attempt	Number	Percentage
None	228	78.1
High lethality	24	8.2
Intermediate lethality	17	5.8
Low lethality	23	7.9
Total	292	100%

26. Medical lethality of suicide attempt and diagnoses

Table 4.26 shows the distribution of cases by "medical lethality of suicide attempt and diagnosis". As can be seen, the highest percentages of high lethality and intermediate lethality attempts occurred in the "Mood Disorder" category while high lethality and low lethality attempts were found in the "Personality Disorder" category. Percentages for high, intermediate and low lethality cases were more or less equal for "Neurotic Disorder" cases.

TABLE 4.26

DISTRIBUTION OF CASES BY MEDICAL LETHALITY OF SUICIDE ATTEMPT AND DIAGNOSES

	Lethality of Suicide Attempt				Total
Diagnosis	None	High L.	Int. L.	Low L.	
Organic mental disorders	22 95.7% (9.9%)	1 4.3% (4.3%)	0 .0% (.0%)	0 .0% (.0%)	23 100% (8.0%)
Psychotic disorders	35 85.4% (15.7%)	1 2.4% (4.3%)	1 2.4% (5.9%)	4 9.8% (17.4%)	41 100% (14.3%)
Mood disorders	92 80.7% (41.3%)	10 8.8% (43.5%)	9 7.9% (52.9%)	3 2.6% (13.0%)	114 100% (39.9%)
Neurotic disorders	42 73.7% (18.8%)	5 8.8% (21.7%)	5 8.8% (29.4%)	5 8.8% (21.7%)	57 100% (19.9%)
Psychoactive substance use disorder	1 50.0% (.4%)	0 .0% (.0%)	0 .0% (.0%)	1 50.0% (4.3%)	2 100% (0.7%)
Eating disorders	3 60.0%	0 .0% (1.3%)	1 20% (.0%)	1 20% (5.9%) (4.3%)	5 100% (1.7%)
Personality disorders	28 63.6% (12.6%)	6 13.6% (26.1%)	1 2.3% (5.9%)	9 20.5% (39.1%)	44 100% (15.4%)
Total	222 (100%) 78.0%	23 (100%) 8.0%	17 (100%) 5.9%	23 (100%) 8%	286 100%

iii. Investigations

27. Diagnosis and Computerised Axial Tomography (CAT) Scan

Table 4.27 shows the distribution of cases by "diagnostic categories and CAT scan". As can be seen, 4.3% of the "Organic Mental Disorders", 3.5% of the "Mood Disorders" and 1.8% of the "Neurotic Disorder" cases had a positive CAT scan.

TABLE 4.27

DISTRIBUTION OF CASES BY DIAGNOSTIC CATEGORIES AND CAT SCAN

Diagnosis	Cat Scan				Total
	Positive	Negative	Not Done	Doubt-ful	
Organic mental disorders	1 4.3% (16.7%)	6 26.1% (12.0%)	11 52.2% (5.1%)	4 18.2% (44.4%)	23 100% (8.2%)
Psychotic disorders	0 .0% (.0%)	14 35.9% (28.0%)	25 64.1% (11.5%)	0 .0% (.0%)	39 100% (13.8%)
Mood disorders	4 3.5% (66.7%)	18 15.9% (36.0%)	88 77.9% (40.6%)	3 2.7% (33.3%)	113 100% (40.1%)
Neurotic disorders	1 1.8% (16.7%)	9 16.1% (18.0%)	45 80.4% (20.7%)	1 1.8% (11.1%)	56 100% (19.9%)
Psychoactive substance use disorder	0 .0% 100% (.0%) (.7%)	0	2 .0% (.0%)	0 100% (0.9%)	2 .0% (.0%)
Eating	0 .0% (.0%)	0 .0% (.0%)	5 100% (2.3%)	0 .0% (.0%)	5 100% (1.8%)
Personality disorders	0	3 6.8% (6.0%)	40 90.9% (18.4%)	1 2.3% (11.1%)	44 100% (15.6%)
Total	6 (100%) 2.1%	50 (100%) 17.7%	216 (100% 77.0%	9 (100%) 3.2%	281 100%

28. Diagnosis and Electroencephalography (EEG)

Table 4.28 shows the distribution of cases by diagnostic categories and EEG. As can be seen, 9.1% of the "Organic Mental Disorders", 2.6% of the "Psychotic Disorders", 1.8% of the "Mood Disorders", and 4.5% of the "Personality Disorder" cases had a positive EEG.

TABLE 4.28

DISTRIBUTION OF CASES BY DIAGNOSTIC CATEGORIES AND EEG

Diagnosis	EEG				Total
	Positive	Negative	Not done	Doubtful	
Organic mental disorder	2 8.7% (25.0%)	6 26.1% (14.0%)	14 65.2% (6.2%)	0 .0% (.0%)	23 100% 8.1%
Psychotic disorders	1 2.6% (12.5%)	12 30.8% (27.9%)	25 64.1% (11.0%)	1 2.6% (20.0%)	39 100% 13.7%
Mood disorders	2 1.8% (25.0%)	13 11.4% (30.2%)	98 86.0% (43.0%)	1 0.9% (20.5%)	114 100% 40.1%
Neurotic disorders	1 1.8% (12.5%)	10 17.5% (23.3%)	45 78.9% (19.7%)	1 1.8% (20.0%)	57 100% 20.1%
Psychoactive substance use disorder	0 .0% (.0%)	0 .0% (.0%)	2 100% (0.9%)	0 .0% (.0%)	2 100% .7%
Eating disorder	0 .0% (.0%)	0 .0% (.0%)	5 100% (2.2%)	0 .0% (.0%)	5 100% 1.8%
Personality disorder	2 4.5% (25%)	2 4.5% (4.7%)	38 86.4% (16.7%)	2 4.5% (40.0%)	44 100% 15.5%
Total	8 (199/5) 2.8%	43 (100%) 15.1%	227 (100%) 80.3%	5 (100%) 1.8%	283 100%

iv. Treatment

29. Prescription of antipsychotics

Table 4.29 shows the distribution of cases by "prescription of different types of antipsychotics". In general, higher percentages of antipsychotics were prescribed at admission than at discharge except for chlorpromazine, trifluperazine and pimozide. The most frequently prescribed antipsychotic at admission and at discharge was haloperidol. Combinations of antipsychotics such as chlorpromazine and haloperidol, thioridazine and haloperidol and trifluperazine and haloperidol were prescribed at admission and at discharge but the percentages were very low, especially at discharge.

TABLE 4.29

DISTRIBUTION OF CASES BY PRESCRIPTION OF ANTIPSYCHOTICS AT ADMISSION AND AT DISCHARGE

Antipsychotics prescribed	Number of patients		Percentage	
	Admission	Discharge	Admission	Discharge
None	160	192	56.1%	65.2%
Chlorpromazine	11	12	3.9%	4.1%
Thioridazine	26	15	9.1%	5.2%
Trifluperazine	12	13	4.2%	4.5%
Prochlorperazine	1	1	0.4%	0.3%
Pimozide	14	16	4.9%	5.5%
Haloperidol	41	33	14.4%	11.4%
Chlorpromazine) + Haloperidol)	8	3	2.8%	1%
Thioridazine) + Haloperidol)	10	3	3.5%	1%
Trifluperazine) + Haloperidol)	2	2	0.7%	0.7%
Not known	7	2		
Total	292	292	100%	100%

30. Prescription of antipsychotic parental preparation

Table 4.30 demonstrates the distribution of cases by "prescription of antipsychotic parental preparation". Only nine cases (3.1%) were prescribed injection with fluphenazine decanoate both at admission and at discharge.

TABLE 4.30

DISTRIBUTION OF CASES BY PRESCRIPTION OF ANTIPSYCHOTIC PARENTAL PREPARATION

Parental Preparation	Number of patients		Percentage	
	Admission	Discharge	Admission	Discharge
None	283	283	96.9%	96.9%
Injection Fluphenazine decanoate	9	9	3.1%	3.1%
Total	292	292	100%	100%

31. Prescription of antidepressants

Table 4.31 shows the distribution of cases by "prescription of different types of antidepressants" at admission and at discharge. The tricyclic group of antidepressants were the most frequently prescribed both at admission and discharge. However, a slightly lower percentage of inpatients were prescribed tricyclic antidepressants (TCA) at discharge than at admission. Similarly, a slightly lower percentage (4.1%) of inpatients were prescribed tetracyclic antidepressants at discharge than at admission. A slightly higher percentage (4.1%) of inpatients were prescribed monoaminooxidase inhibitors (MAOI) at discharge than at admission.

TABLE 4.31

DISTRIBUTION OF CASES BY PRESCRIPTION OF ANTIDEPRESSANTS AT ADMISSION AND AT DISCHARGE

Antidepressants	Number of patients		Percentage	
	Admission	Discharge	Admission	Discharge
None	138	147	47.3%	50.7%
MAOI	9	12	3.1%	4.1%
TCA	131	119	44.9%	41.0%
Tetracyclic	14	12	4.8%	4.1%
Not known	0	2	-	
Total	292	292	100%	100%

32. Prescription of anxiolytics and hypnotics

Table 4.32 shows the distribution of cases by "prescription of anxiolytics and hypnotics" at admission and at discharge. As can be seen, the most frequently used hypnotic at admission and discharge was temazepam while the most frequently used anxiolytic at admission and discharge was diazepam. A combination of anxiolytics and hypnotics were prescribed to 14.1% of the inpatients at admission, and to 8.4% at discharge. Furthermore, Table 4.32 demonstrates that there were marked reductions in the prescriptions of anxiolytics and hypnotics especially for temazepam, diazepam and combinations of anxiolytics and hypnotics at discharge.

TABLE 4.32

DISTRIBUTION OF CASES BY PRESCRIPTIONS OF ANXIOLYTICS AND HYPNOTICS AT ADMISSION AND AT DISCHARGE

Anxiolytics and Hypnotics	Number of patients		Percentage	
	Admission	Discharge	Admission	Discharge
None	68	179	23.9%	62.4%
Chlordiazepoxide	1	0	0.4%	-
Diazepam	21	10	7.4%	3.5%
Oxazepam	9	5	3.2%	1.7%
Alprazolam	1	3	0.4%	1.0%
Chloralhydrate	2	3	0.7%	1.0%
Nitrazepam	9	5	3.2%	1.7%
Temazepam	133	58	45.5%	20.2%
Inj. Diazepam	0	0	-	-
Combination of anxiolytics and hypnotics	40	24	14.1%	8.4%
Not known	8	5		
Total	292	292	100%	100%

33. Prescription of Lithium, Carbamazepine and antiparkinsonia drugs

Table 4.33 shows the distribution of cases by the "prescription of lithium, carbamazepine and antiparkinsonian drugs". There was an increase in the frequency of the prescription of lithium carbonate at discharge compared to prescription at admission. On the other hand, there was a decrease in the frequency of the prescription of antiparkinsonian drugs at discharge compared to the prescription at admission. Prescription of carbamazepine and lithium + carbamazepine were the same at admission and at discharge. Prescription of lithium carbonate along with an antiparkinsonian drug (for antipsychotic prescription) were reduced at discharge.

TABLE 4.33

DISTRIBUTION OF CASES BY PRESCRIPTION OF LITHIUM, CARBAMAZEPINE, ANTIPARKINSONIAN AND MEDICAL DRUGS

Drugs	Number of patients		Percentage	
	Admission	Discharge	Admission	Discharge
None	105	133	36.2%	46.2%
Lithium carbonate	8	14	2.8%	4.9%
Carbamazepine	7	8	2.4%	2.8%
Lithium + Carbamazepine	2	2	0.7%	0.7%
Antiparkinsonian drug	58	32	20%	11.1%
Antiparkinsonian drug + Lithium	14	8	4.8%	2.8%
Medical drugs	96	91	33.1%	31.6%
Not known	2	4		
Total	292	292	100%	100%

34. Electroconvulsive therapy (ECT) and Psychosocial approaches of treatment

Table 4.34 shows the distribution of cases by the "prescription of ECT and psychosocial approaches of treatment". Only 14 cases (5.5%) were prescribed ECT. A psychosocial approach, including psychotherapy, family therapy, occupational therapy and milieu therapy except pharmacotherapy, was used in 94.5% of cases. In 39 (13.4%) inpatients no record of ECT or psychosocial approaches of treatment was made in the case notes.

TABLE 4.34

DISTRIBUTION OF CASES BY ECT AND OTHER METHODS OF TREATMENT

Method of Treatment	Number of patients	Percentage
ECT	14	5.5%
Other	239	94.5%
Not known	39	
Total	292	100%

35. Distribution of cases by length of stay and diagnostic categories.

Table 4.35 shows the distribution of cases by "length of stay and diagnostic categories". More than 75% of the inpatients were discharged home within three weeks. The rest of the inpatients, which included 10 (45.5%) cases of "Organic Mental Disorders", 13 (31.8%) cases of "Psychotic Disorders" and 41 (36%) cases of "Mood Disorders", stayed in the hospital for a period more than three weeks.

TABLE 4.35

DISTRIBUTION OF CASES BY LENGTH OF STAY AND DIAGNOSTIC CATEGORIES

Diagnosis	Length of stay				Total
	0-12 days	13-21 days	22-45 days	45-above	
Organic mental disorders	6 27.3% (4.2%)	6 27.3% (8.1%)	10 45.5% (18.2%)	0	22 100% 7.7%
Psychotic disorders	19 46.3% (13.4%)	9 22.0% (12.2%)	9 22.0% (16.4%)	4 9.8% (28.6%)	41 100 14.4%
Mood disorders	36 31.6% (25.4%)	37 32.5% (50.0%)	31 27.2% (56.4%)	10 8.8% (71.4%)	114 100% 40%
Neurotic disorders	44 77.2% (31.0%)	12 21.1% (16.2%)	1 1.8% (1.8%)	0 20%	57 100%
Psychoactive substance use disorders	2 100% (1.4%)	0	0	0	2 100% .7%
Eating disorders	3 60.0% (2.1%)	1 20.0% (1.4%)	1 20.0% (1.8%)	0	5 100% 1.75%
Personality disorders	32 72.7% (22.5%)	9 20.5% (12.2%)	3 6.8% (5.5%)	0	44 100% 15.4%
Total	142 (100%) 49.8%	74 (100%) 26.0%	55 (100%) 19.3%	14 (100%) 4.9%	285 100%

36. DSM-III-R AXIS I[1] diagnoses at discharge

Tables 4.36a and 4.36b and Figure 2 (page 82) present the "AXIS I discharge psychiatric diagnoses". An AXIS I diagnosis was deferred or not specified in 13 (4.5%) patients and no record was made in 3 (1%) cases. As shown in Table 3.36a, there were 114 "Mood Disorder" diagnoses (39%) with a majority being in the "Major Depression" group. There were 34 "Adjustment Disorder" diagnoses (11.6%), with a majority having depressed mood. There were 27 "Somatoform Disorder" diagnoses (9.2%) with a majority being "Somatoform Pain Disorders". There were 24 "Schizophrenia" diagnoses (8.2%) with a majority being "Paranoid" and "Undifferentiated" types. There were 23 "Organic Mental Disorder" diagnoses (7.9%) with a majority being Organic Mental Disorders associated with AXIS III physical disorders or conditions whose ætiology was unknown. "Psychoactive Substance Use Disorders" were diagnosed in 14 (4.8%) cases with a diagnosis of "Alcohol Dependence" in more than half of these cases. "Anxiety Disorders" were diagnosed in 9 (3%) cases with the highest frequency in "Panic Disorder with Agoraphobia". "Eating Disorders" were diagnosed in 5 (1.7%) cases with the diagnosis of "Bulimia Nervosa" in 4 cases. The other diagnoses seen in small numbers were psychological factors affecting physical condition (1.4%), "Delusional Disorder" (1%), "Dissociative Disorder" (0.7%), "Sexual Disorder" (0.3%), "Factitious Disorder with physical symptoms" (0.3%), and "Impulse Control Disorders" not elsewhere classified (0.3%).

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[1] A short description of AXIS I is provided in Appendix III.

TABLE 4.36a

AXIS I DIAGNOSES (PSYCHIATRIC) AT DISCHARGE (n = 292)

		Number	%
MOOD DISORDERS		**114**	39%
Major Depression			
Single episode with psychotic features	8		
Single episode without psychotic features	33		
Single episode in partial remission	2		
Single episode unspecified	1		
Recurrent with psychotic features	15		
Recurrent without psychotic features	29		
Recurrent unspecified	2		
	90		
Bipolar Depression			
Manic	10		
Depressed	2		
Mixed	3		
	15		
Other Mood Disorders			
Dysthymia	8		
Depressive Disorder NOS	1		
	9		

Continued on page 77

		Number	%
ADJUSTMENT DISORDER		34	11.6%
With depressed mood	19		
With anxious mood	4		
With mixed emotional features	8		
NOS	3		
	34		
SOMATOFORM DISORDERS		27	9.3%
Somatoform pain disorder	23		
Conversion disorder	4		
	27		
SCHIZOPHRENIA		24	8.2%
Paranoid	12		
Undifferentiated	8		
Disorganized	2		
Residual	2		
	24		

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		Number	%
ORGANIC MENTAL DISORDERS		23	7.9%
Dementia			
Primary regen. senile	2		
Multi-infarct	1		
	3		
Psychoactive Substance Induced			
Alcohol intoxication	1		
Alcohol hallucinosis	1		
Substance induced delirium	1		
	3		
Organic Mental Disorders associated with AXIS III physical disorders or conditions or whose etiology is unknown			
Organic mental disorders NOS	6		
Delirium	4		
Organic delusional disorder	2		
Organic mood disorder	2		
Dementia	1		
Organic personality disorder	1		
Amnestic disorder	1		
	17		

Continued on page 79

		Number	%
PSYCHOACTIVE SUBSTANCE USE DISORDERS		**14**	4.8%
Alcohol dependence	8		
Alcohol abuse	2		
Polysubstance dependence	2		
Sedative, hypnotic or anxiolytic abuse	2		
	14		
PSYCHOTIC DISORDERS NOT ELSEWHERE CLASSIFIED		**14**	4.8%
Psychotic disorder NOS	5		
Schizophreniform disorder	4		
Schizoaffective disorder	3		
Brief reactive psychosis	2		
	14		
ANXIETY DISORDERS		**9**	3.1%
Panic disorder with agoraphobia	3		
Panic disorder without agoraphobia	1		
Generalized anxiety disorder	1		
Simple phobia	1		
Obsessive compulsive disorder	1		
Post traumatic stress disorder	2		
	9		

Continued on page 80

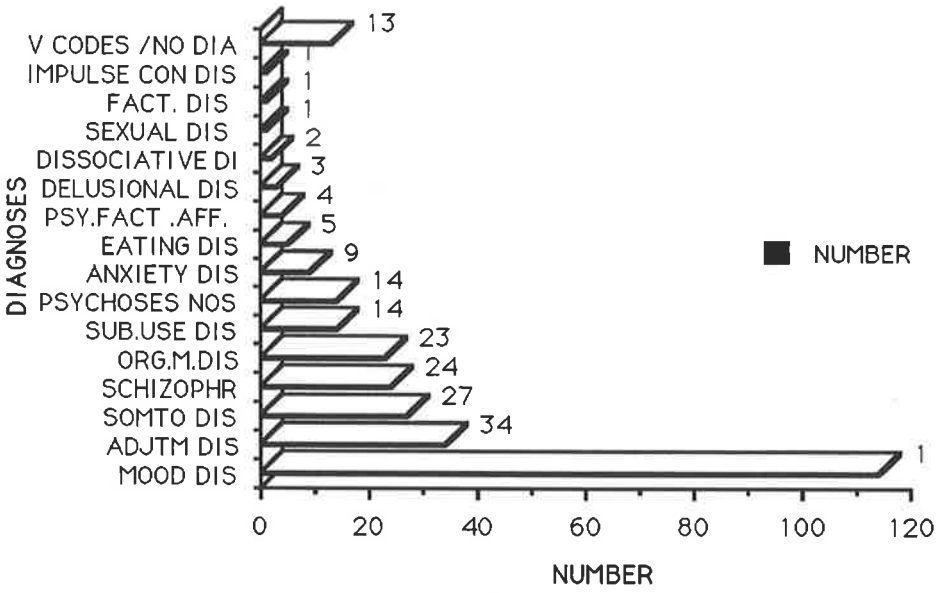
		Number	%
EATING DISORDERS		5	1.7%
Bulimia Nervosa	4		
Anorexia Nervosa	1		
	5		
PSYCHOLOGICAL FACTORS AFFECTING PHYSICAL CONDITION		4	1.4%
DELUSIONAL DISORDER		3	1%
DISSOCIATIVE DISORDER		2	0.7%
Dissociative disorder NOS	2		
SEXUAL DISORDER		1	0.3%
FACTITIOUS DISORDER WITH PHYSICAL SYMPTOMS		1	0.3%
IMPULSE CONTROL DISORDERS NOT ELSEWHERE CLASSIFIED		1	0.3%
V CODES/NO DIAGNOSIS/DIAGNOSIS DEFERRED		13	4.5%
NOT KNOWN		3	1%
		292	100%

TABLE 4.36b

AXIS I DIAGNOSES (PSYCHIATRIC) AT DISCHARGE (n = 292)

	Number	%
MOOD DISORDERS	114	39%
ADJUSTMENT DISORDER	34	11.6%
SOMATOFORM DISORDERS	27	9.3%
SCHIZOPHRENIA	24	8.2%
ORGANIC MENTAL DISORDERS	23	7.9%
PSYCHOACTIVE SUBSTANCE USE DISORDERS	14	4.8%
PSYCHOTIC DISORDERS NOT ELSEWHERE CLASSIFIED	14	4.8%
ANXIETY DISORDERS	9	3.1%
EATING DISORDERS	5	1.7%
PSYCHOLOGICAL FACTORS AFFECTING PHYSICAL CONDITION	4	1.4%
DELUSIONAL DISORDER	3	1%
DISSOCIATIVE DISORDER	2	0.7%
SEXUAL DISORDER	1	0.3%
FACTITIOUS DISORDER WITH PHYSICAL SYMPTOMS	1	0.3%
IMPULSE CONTROL DISORDERS NOT ELSEWHERE CLASSIFIED	1	0.3%
V CODES/NO DIAGNOSIS/DIAGNOSIS DEFERRED	13	4.5%
NOT KNOWN	3	1%
	292	100%

FIGURE 2: AXIS I DIAGNOSES AT DISCHARGE (n = 292)



37. DSM-III-R Axis II[2] first diagnoses (Personality disorder) at discharge

Table 4.37 shows the distribution of "AXIS II first diagnoses at discharge". As can be seen, of 292 inpatients, "Personality Disorders" were noted in 74 (25.3%) cases. No diagnosis or diagnosis was deferred in 214 (74.3%) cases and in 4 (1.4%) cases no record was made.

TABLE 4.37

AXIS II DIAGNOSES AT DISCHARGE (n = 292)

Personality Disorder	Number of patients	Percentage
Schizoid	1	0.3%
Schizotypal	1	0.3%
Antisocial	1	0.3%
Paranoid	2	0.7%
Narcissistic	3	1.0%
Histrionic	10	3.5%
Dependent	16	5.6%
Borderline	19	6.6%
Personality disorder NOS	20	6.9%
No diagnosis of P.D. (including diagnosis deferred)	214	74.3%
Not known	4	
	292	100%

[2]A short description of AXIS II is provided in Appendix III.

38. DSM-III-R AXIS II principal diagnoses (Personality disorder) at discharge

Table 4.38 and Figure 3 (page 85) demonstrate the distribution of cases by "AXIS II principal diagnoses" only. The most frequently occurring "Personality Disorder" cases were "Borderline Personality Disorder" and "Personality Disorder NOS".

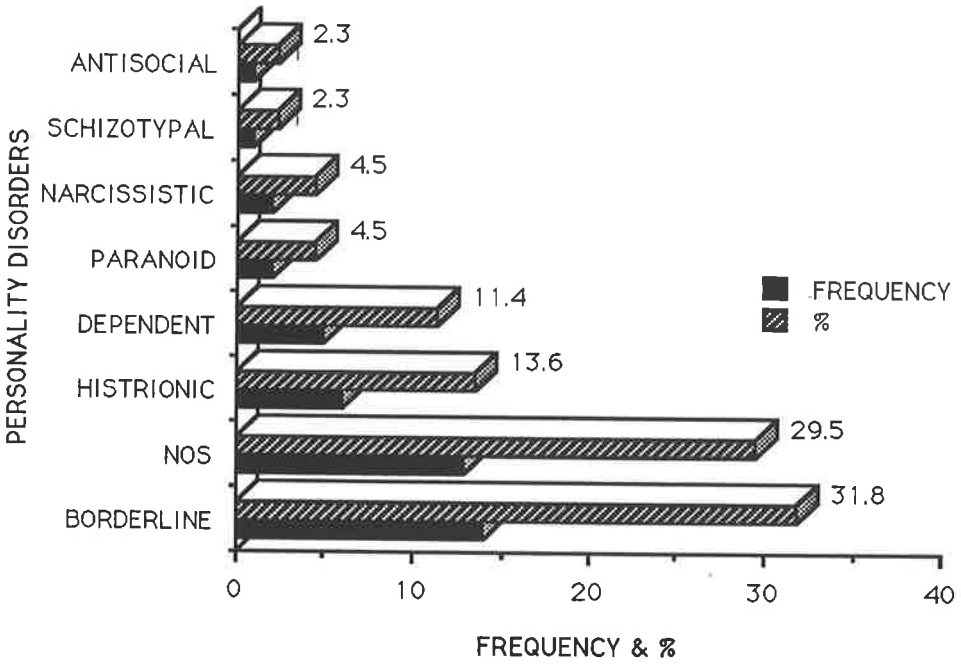
TABLE 4.38

AXIS II PRINCIPAL DIAGNOSES AT DISCHARGE
(n = 44)

(Principal diagnoses only)

Personality disorder	Number of patients	Percentage
Borderline personality disorder	14	31.8%
Personality disorder NOS	13	29.5%
Histrionic personality disorder	6	13.6%
Dependent personality disorder	5	11.4%
Paranoid personality disorder	2	4.5%
Narcissistic personality disorder	2	4.5%
Schizotypal personality disorder	1	2.3%
Antisocial personality disorder	1	2.3%
	44	100%

FIGURE 3: PRINCIPAL DIAGNOSES AT DISCHARGE (n = 44)



39. DSM-III-R AXIS III[3] diagnoses (Physical disorder) at discharge

Table 4.39 and Figure 4 (page 87) demonstrate the distribution of cases by "AXIS III diagnoses at discharge". In 198 (67.8%) inpatients an AXIS III diagnosis was made. In approximately 34 inpatients, more than one AXIS III diagnosis was entered. The most frequently occurring AXIS III diagnoses were medical diseases which included cases due to overdose of drugs and surgical disease which included self-inflicted injury, perhaps reflecting the source of referral from medical and surgical departments of the hospital. In 90 (31.3%) inpatients, no physical disorder was specified and no record was made in 4 (1.3%) cases.

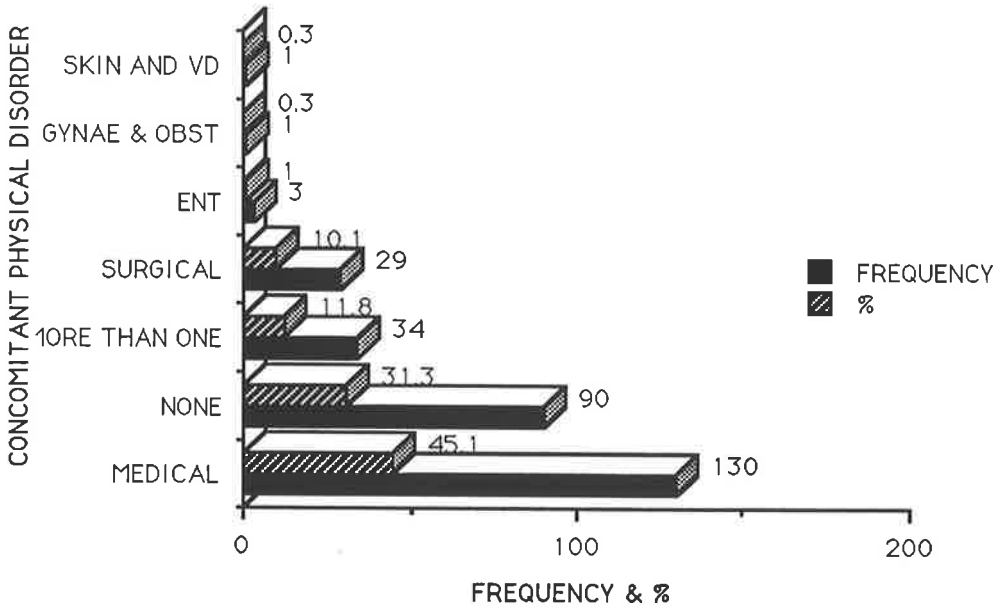
TABLE 4.39

AXIS III DIAGNOSES AT DISCHARGE (n = 292)

Diagnosis	Number of patients	Percentage
None	90	31.3%
Medical diseases (includes overdose of drugs)	130	45.1%
Surgical diseases	29	10.1%
Ear, nose and throat diseases	3	1.0%
Gynaecological diseases	1	0.3%
Skin and V. diseases	1	0.3%
Eye diseases	0	-
More than one disease	34	11.8%
Not known	4	Missing
Total	292	100%

[3]A short description of AXIS III is provided in Appendix III.

FIGURE 4: AXIS III DIAGNOSES AT DISCHARGE (n = 292)



40. DSM-III-R Axis III diagnoses (medical disorders only) at discharge

Table 4.40 shows the distribution of cases by "medical disorders" only at discharge. In 69 (23.9%) cases more than one medical diagnosis was made. The most frequently occurring medical disorders were diseases of the cardiovascular system, diseases of the nervous system, diseases of the connective tissue, joints and bones and diseases related to the endocrine and cardiology, neurology, orthopaedics and endocrine-metabolic units of the hospital. In 129 (44.6%) cases no medical disorder was specified and no record was made in 3 (1%) cases.

TABLE 4.40

AXIS III DIAGNOSES AT DISCHARGE (Medical disorders only), n = 292

Diagnosis	Number of patients	Percentage
None	129	44.6%
Diseases of the C.V.S.	29	10.0%
Diseases of the R. system	5	1.7%
Diseases of the GIT and pancreas	4	1.4%
Diseases of the kidney and G.U. system	6	2.1%
Endocrine and metabolic diseases	10	3.5%
Diseases of blood	2	0.7%
Diseases of connective tissue	10	3.5%
Diseases of nervous system	20	6.9%
More than one disease	69	23.9%
Not known	3	
	292	100%

41. DSM-III-R AXIS IV[4]. Distribution of cases by severity of psychosocial stressors

Table 4.41 and Figure 5 (page 90) demonstrate the distribution of cases by "severity of psychosocial stressors". As can be seen, acute psychosocial stressors were described as "moderate" in 45 (21.6%) cases and as "severe" in 30 (14.4%) cases, while enduring psychosocial stressors were described as "moderate" in 45 (25.6%) cases and as "severe" in 39 (22.2%) cases. In 27 (13.0%) cases no actual psychosocial stressors and in 24 (13.6%) cases no enduring psychosocial stressors were identified. In 50 (24%) cases acute psychosocial stressors and in 50 (28.4%) cases enduring psychosocial stressors were unspecified in the DSM-III-R cards or discharge summaries. In 84 (28.8%) cases acute psychosocial stressors and in 116 (39.7%) cases enduring psychosocial stressors were not recorded in the DSM-III-R cards or in discharge summaries.

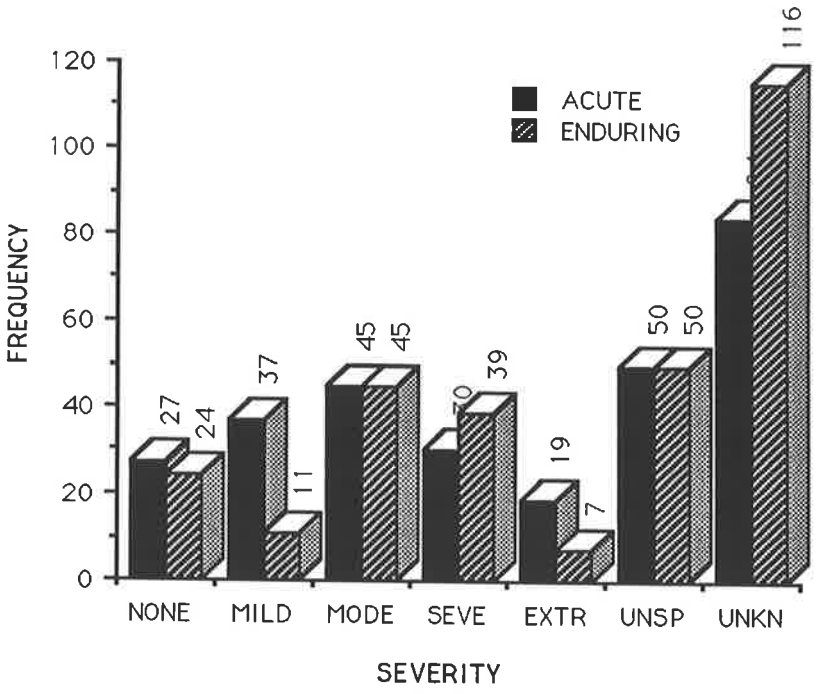
TABLE 4.41

DISTRIBUTION OF CASES BY SEVERITY OF PSYCHOSOCIAL STRESSORS (n = 292)

	Acute	Percentage	Enduring	Percentage
None	27	13.0	24	13.6
Mild	37	17.8	11	6.3
Moderate	45	21.6	45	25.6
Severe	30	14.4	39	22.2
Extreme	19	9.1	7	4.0
Catastrophic	0	-	0	-
Inadequate information or unspecified	50	24.0	50	28.4
Not known	84 (28.8%)		116 (39.7%)	
Total	292	100%	292	100%

[4]A description of AXIS IV is provided in Appendices III and IV.

FIGURE 5: AXIS IV SEVERITY OF PSYCHOSOCIAL STRESSORS (n = 292)



42. DSM-III-R AXIS V[5]. Distribution of cases by highest level of adaptive functioning.

Table 4.42 and Figure 6 (page 92) demonstrate the distribution of cases by "past and current level of adaptive functioning". The highest level of adaptive functioning in the past year for more than half of the inpatients (n = 157) with an AXIS V entry was described as being in a GAF (Global Assessment of Functioning) score of 61-70 or above. On the contrary, only in 10 (3.5%) inpatients was the highest level of adaptive functioning at the time of evaluation (current) of a GAF score of 61-70. No record was made of the past and current GAF scores in 7 (2.4%) and 5 (1.7%) cases respectively. The most frequently occurring level of adaptive functioning at the time of evaluation (current) was a GAF score of 21-30.

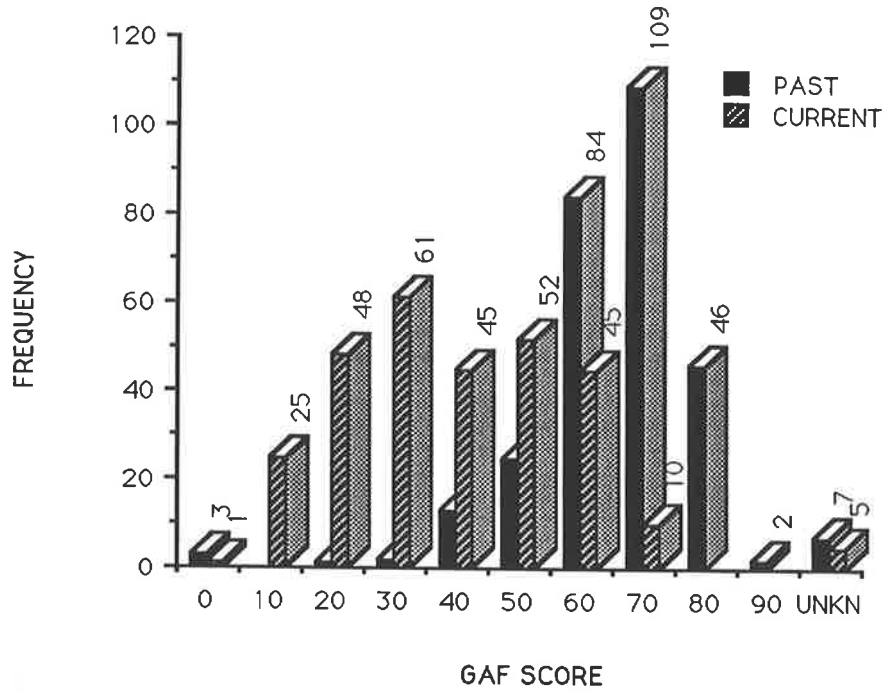
TABLE 4.42

DISTRIBUTION OF CASES BY HIGHEST LEVEL OF ADAPTIVE FUNCTIONING (n = 292)

GAF Score	Past	Percentage	Current	Percentage
0	3	1.1	1	0.3
1-10	0	-	25	8.7
11-20	1	0.4	48	16.7
21-30	2	0.7	61	21.3
31-40	13	4.6	45	15.7
41-50	25	8.8	52	18.1
51-60	84	29.5	45	15.7
61-7	109	38.2	10	3.5
71-80	46	16.1	0	-
81-90	2	0.7	0	-
Not known	7		5	
	292	100%	292	100%

[5]A description of AXIS V is provided in Appendices III and IV.

FIGURE 6: AXIS V LEVEL OF ADAPTIVE FUNCTIONING (n = 292)



COMMENTS

Sociodemographic and clinical data for the inpatient population served during the year 1989 in a general teaching hospital psychiatric unit have been presented. The patient population served was described in terms of its demographic, clinical and diagnostic groupings as per the DSM-III-R. Information was missing on a number of variables due to the absence of a standard proforma for history taking. The findings on the wide range of variables examined in this study may be helpful in planning further research, for example, risk factors associated with attempted suicide, correlates of personality disorder, incidence of physical disorders in psychiatric patients, the role of hospital stay in psychotropic drug prescription, and factors associated with involuntarily detained patients in the general hospital setting.

CHAPTER V.

RESULTS (PART II)

I. DESCRIPTIVE DATA ON LENGTH OF STAY

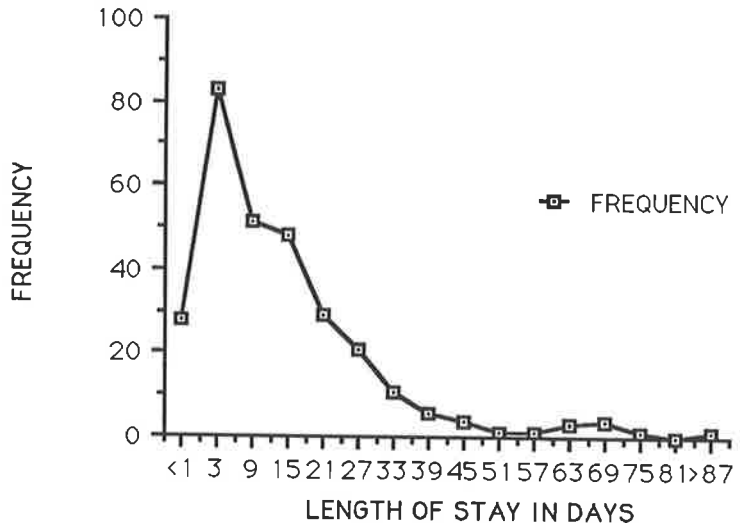
a. Mean, Median and Standard deviation

The average length of stay for the 292 inpatients in the sample was 16.4 days (SD=15.3). The minimum length of stay was less than one day for 5 patients and the maximum length of stay was 107 days for 1 patient. The median length of stay was 12 days.

b. Distribution of length of stay in days

Figure 1 shows that the distribution of length of stay was asymmetrical or skewed to the right. The most frequently occuring range in length of stay was three to nine days.

FIGURE 1: DISTRIBUTION OF LENGTH OF STAY IN DAYS



II. COMPARISON BETWEEN LONG AND SHORT STAY GROUP OF INPATIENTS

a. Sociodemographic variables

1. Age

There were 147 cases in the "short stay" group (0-12 days) and 145 cases in the "long stay" group (more than 12 days). The mean age of the patients differed between the two groups, with the "short stay" group being significantly younger than the "long stay" group of patients ($U = 7512.5$, $p < 0.0001$).

TABLE 5.1

LENGTH OF STAY BY AGE

	Mean age	S.D.
Short stay group (n = 147)	38.9184	1.189
Long stay group (n = 145)	48.634	1.610

2. Sex

Table 5.2 shows that the inpatients who had a longer stay in hospital were more likely to be female. However, this apparent difference was not statistically significant.

TABLE 5.2

LENGTH OF STAY BY SEX

Sex	INPATIENTS		
	Long stay	Short stay	Total
Male	56 (63.07) 38.62%	71 (63.93) 48.29%	127 43.5%
Female	89 (81.93) 61.37%	76 (83.07) 51.70%	165 56.5%
Total	145 100%	147 100%	292 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 2.782$, df = 1, $p > 0.05$, n.s.

3. Marital status

Table 5.3 shows that there was a significant relationship between "length of stay" and "marital status". The largest contribution (8.201) to the total chi-square is made by the "widowed" category, with these patients staying longer in hospital.

TABLE 5.3

LENGTH OF STAY BY MARITAL STATUS

Marital Status	INPATIENTS		
	Long stay n = 142	Short stay n = 144	Total
Single	38 (45.7) 26.76%	54 (46.3) 37.5%	92 32.16%
Married/ Defacto	53 (50.1) 37.32%	48 (50.9) 35.3%	101 35.31%
Widowed	24 (15.9) 16.90%	8 (16.1) 5.6%	32 11.88%
Divorced/ Separated	27 (30.3) 19.01%	34 (30.7) 23.6%	61 21.32%
Total	142 100%	144 100%	286 100%

Expected frequencies in parentheses.

$x^2 = 11.820$, df = 3, $p < 0.01$.

4. Occupation

Table 5.4 shows that there was a significant relationship between "length of stay" and occupational status. The greater contribution (3.867) to the total chi-square value comes from the figures for the category "unemployed". There are insignificant contributions from the category "employed" which included "managerial", "professional", "skilled", "unskilled", "pensioner", "housewife" and "student" groups. Thus there was a trend for unemployed people to be over-represented in the "short stay" group.

TABLE 5.4

LENGTH OF STAY BY OCCUPATIONAL STATUS

Occupational Status	INPATIENTS		
	Long stay n = 134	Short stay n = 125	Total
Unemployed	12 (18.63) 8.96%	24 (17.37) 19.2%	36 13.9%
Employed	122 (115.37) 91.04%	101 (107.63) 80.8%	223 86.1%
Total	134 100%	125 100%	259 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 4.847$, $df = 1$, $p < 0.05$

5. Insurance status

Table 5.5 shows that there was a significant relationship between the length of psychiatric hospital stay and "insurance status". Splitting of the chi-square value shows that the largest contribution (9.343) to the total chi-square value comes from the figures for the category "aged pensioner". Contribution to the total chi-square value from the categories "Medicare", "private insurance", "sickness benefits, and "unemployed" was not statistically significant. It can be concluded from Table 5.5 that the figures for the category "aged pensioner" are responsible for the highly significant result of the total chi-square of 16.062. A higher percentage of "aged pensioners" had a longer stay in hospital compared to other patients.

TABLE 5.5

LENGTH OF STAY BY INSURANCE STATUS

Insurance Status	INPATIENTS		
	Long stay	Short stay	Total
Medicare only	65 (73.3) 51.2%	70 (61.7) 65.4%	135 57.7%
Private Insurance	12 (10.9) 9.4%	8 (9.1) 7.5%	20 8.5%
Aged Pensioner	34 (23.9) 26.8%	10 (20.1) 9.4%	44 18.8%
Sickness Benefit	6 (10.3) 4.7%	13 (8.7) 12.1%	19 8.1%
Unemployed	10 (8.7) 7.9%	6 (7.3) 5.6%	16 6.8%
Total	127 100%	107 100%	234 100%

Expected frequencies in parentheses.

$x^2 = 16.062$, df = 4, p = 0.002 (i.e. $p < 0.01$)

6. Source of referral

Table 5.6 (page 101) shows that there was a significant relationship between length of psychiatric hospital stay and "source of referral". Splitting of the chi-square value indicates that the largest contribution (9.477) to the total chi-square value comes from the category "private practice" which includes both psychiatric and non-psychiatric practice. The second largest contribution comes from the category "medical unit" but it is not responsible for the significant contribution to the total chi-square value as is the category "private practice". A higher percentage of inpatients who had longer stay were referred from private practice compared to those who had a short stay. A similar association was found in the case of referral from a "medical unit".

TABLE 5.6

LENGTH OF STAY BY SOURCE OF REFERRAL

Source of Referral	INPATIENTS		
	Long stay n = 143	Short stay n = 144	Total
Private practice	37 (25.9) 25.9%	15 (26.1) 10.4%	52 18.1%
Inter hospital transfer	16 (19.4) 11.2%	23 (19.6) 16.0%	39 13.5%
Outpatient department	20 (24.4) 14.0%	29 (24.6) 20.1%	49 17.1%
Casualty	6 (8.0) 4.2%	10 (8.0) 6.9%	16 5.6%
Medical Unit	39 (31.9) 27.3%	25 (32.1) 17.4%	64 22.3%
Surigcal Unit	5 (6.0) 3.5%	7 (6.0) 4.9%	12 4.2%
Self	11 (14.4) 7.7%	18 (14.6) 12.5%	29 10.1%
Other	9 (13.0) 6.3%	17 (13.0) 11.8%	26 9.1%
Total	143 100%	144 100%	287 100%

Expected frequencies in parentheses.

$x^2 = 20.760$, df = 7, p = 0.004 (i.e. $p < 0.01$)

7. Referral to further care

Table 5.7 shows that there was no significant relationship between "length of stay" and the psychiatric setting to which the patient was referred. Three such settings were compared. These were; private psychiatric practice, the psychiatric outpatient department of the study hospital, and a third group referred to as "others". This latter group includes state psychiatric hospitals, general practitioners and other settings such as community health services and voluntary agencies. For the purpose of this analysis patients who were not referred at all were included in this group, hence giving a 2 x 3 contingency table design.

TABLE 5.7

LENGTH OF STAY BY REFERRAL TO FURTHER CARE

Referral to further care	INPATIENTS		
	Long stay n = 141	Short stay n = 140	Total
Private psychiatric practice	17 (21.1) 12.1%	25 (29.9) 17.9%	42 14.9%
Outpatient departments	101 (95.3) 71.6%	89 (94.7) 63.6%	190 67.6%
Others	23 (24.6) 16.3%	26 (24.4) 18.6%	49 17.4%
Total	141 100%	140 100%	281 100%

Expected frequencies in parentheses.

$x^2 = 2.461$, df = 2, p = 0.292, n.s.

b. Clinical variables

i. Admissions

8. Admission status

Table 5.8 shows that there was a significant relationship between the length of hospital stay and "admission status". Splitting of the chi-square value indicates that the greater contribution (6.602) to the total chi-square value comes from the figures for the category "involuntary", with a higher percentage of involuntary inpatients staying longer in the hospital.

TABLE 5.8

LENGTH OF STAY BY ADMISSION STATUS

Admission Status	INPATIENTS		
	Long stay n = 145	Short stay n = 147	Total
Involuntary	38 (28.3) 26.2%	19 (28.7) 12.9%	57 19.5%
Voluntary	107 (116.7) 73.8%	128 (118.3)	235 87.1%
80.5%			
Total	145 100%	147 100%	292 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 8.196$, df = 1, p = 0.004

9. Number of previous psychiatric admissions

Table 5.9 demonstates that there was no significant relationship between length of hospital stay and "number of previous psychiatric admissions".

TABLE 5.9

LENGTH OF STAY BY NUMBER OF PREVIOUS ADMISSIONS

Number of Previous Admissions	INPATIENTS		
	Long stay n = 145	Short stay n = 147	Total
None	89 (93.4) 61.4%	99 (94.6) 67.3%	188 64.4%
1-5 or more	56 (51.6) 38.6%	48 (52.4) 32.7%	104 35.6%
Total	145 100%	147 100%	292 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 1.133$, df = 1, p = 0.287, n.s.

10. Previous psychiatric hospitalization (same hospital or other)

Table 5.10 shows that there was no significant relationship between "length of stay" and the identity of the hospital to which the patient had been admitted. That is, whether the patient had previously been admitted to the hospital of this study or to another psychiatric hospital, had no bearing on "length of stay".

TABLE 5.10

LENGTH OF STAY BY HOSPITAL OF PREVIOUS ADMISSIONS

Previous Admission	INPATIENTS		
	Long stay n = 49	Short stay n = 42	Total
Same hospital	28 (25.31) 57.14%	19 (21.69) 45.24%	47 51.6%
Other hospital	21 (23.69) 42.86%	23 (20.30) 54.76%	91 48.4%
Total	49 100%	42 100%	91 100%

Expected frequencies in parentheses.

Corrected $x^2 = 1.283$, df = 1, p = 0.257, n.s.

ii. Personal history

11. History of past mental illness

Table 5.11 shows that there was no significant relationship between the "length of stay" and "history of past mental illness". However, inspection of Table 5.11 indicates that there was a trend for a higher frequency of inpatients to be represented in the "long stay" group compared to the "short stay" group with a past history of Affective Disorders.

TABLE 5.11

LENGTH OF STAY BY HISTORY OF PAST MENTAL ILLNESS

Past Mental Illness	INPATIENTS		
	Long stay	Short stay	Total
Organic mental disorders/substance use disorder	5 (8.0) 5.3%	11 (8.0) 11.5%	16 8.5%
Psychotic disorders	7 (9.4) 7.4%	12 (9.6) 12.6%	19 10.1%
Affective disorders	56 (46.2) 59.6%	37 (46.7) 38.9%	93 49.2%
Neurotic disorders/ Other conditions	19 (22.9) 20.2%	27 (23.1) 28.4%	46 24.3%
Personality disorders	7 (7.5) 7.4%	8 (7.5) 8.4%	15 7.9%
Total	94 100%	95 100%	189 100%

Expected frequencies in parentheses.

$x^2 = 8.942$, df = 4, $p > 0.05$, n.s.

12. Nature of presenting complaint(s)

Table 5.12 demonstrates that there was a significant relationship between the "length of stay" and the "nature of the presenting complaint(s)". Splitting of the chi-square value shows that the largest contribution (6.166) to the total chi-square comes from the figures for the category "physical". There was a difference between inpatients who had a "short stay" compared to those who had a "long stay" in terms of the "physical" category but not in terms of "psychiatric" or "mixed" category. The "short stay" group was overrepresented in the "physical" category.

TABLE 5.12

LENGTH OF STAY BY NATURE OF PRESENTING COMPLAINTS

Presenting Complaints	INPATIENTS		
	Long stay n = 144	Short stay n = 147	Total
Physical	8 (14.8) 5.6%	22 (15.2) 14.97%	30 10.3%
Psychiatric	87 (87.1) 60.4%	89 (88.9) 60.54%	176 60.5%
Mixed	49 (42.1) 34.02%	36 (42.9) 24.49%	85 29.2%
Total	144 100%	147 100%	291 100%

Expected frequencies in parentheses.

$x^2 = 8.514$, df = 2, $p < 0.05$

13. Attempted suicide

Table 5.13 shows that there was no significant relationship between the length of hospital stay and a history of "attempted suicide". However, inspection of Table 5.13 indicates that a higher percentage of inpatients who had attempted suicide belonged to the "short stay" rather than the "long stay" group.

TABLE 5.13

LENGTH OF STAY BY ATTEMPTED SUICIDE

History of Attempted Suicide	INPATIENTS		
	Long stay n = 145	Short stay n = 147	Total
Yes	27 (33.8) 18.6%	41 (34.2) 27.9%	68 23.3%
No	118 (111.2) 81.4%	106 (112.8) 72.1%	224 76.7%
Total	145 100%	147 100%	292 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 3.511$, df = 1, p = 0.060, n.s.

iii. Treatment

14. Use of antipsychotics at admission

Table 5.14 shows that there was a significant relationship between "length of stay" and "use of antipsychotics at admission". Splitting of the chi-square value shows that a slightly greater contribution (12.735) to the total chi-square value comes from the figures for the category "yes" which denotes use of all antipsychotics. As can be seen from the Table, a higher percentage of inpatients who had a "long stay" in hospital were prescribed antipsychotics compared to those who had a "short stay" in hospital.

TABLE 5.14

LENGTH OF STAY BY USE OF ANTIPSYCHOTIC

Use of anti-psychotics	INPATIENTS		
	Long stay n = 145	Short stay n = 147	Total
No	59 (79.5) 40.7%	101 (80.5) 68.7%	160 54.8%
Yes	86 (65.5) 59.3%	46 (66.5) 31.3%	132 45.2%
Total	145 100%	147 100%	292 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 23.133$, df = 1, $p < 0.001$

15. Use of antipsychotics at discharge

Table 5.15 shows that there was a significant relationship between "length of stay" and "use of antipsychotics". Splitting of the chi-square value shows that the greater contribution (9.803) to the total chi-square value comes from the figures for the category "Yes". A significantly higher percentage of inpatients who had a "long stay" in hospital were prescribed antipsychotics compared to the "short stay" group.

TABLE 5.15

LENGTH OF STAY BY USE OF ANTIPSYCHOTICS

Use of Antipsychotics	INPATIENTS		
	Long stay n = 145	Short stay n = 147	Total
No	80 (95.3) 55.17%	112 (96.7) 76.19%	192 65.8%
Yes	65 (49.7) 44.83%	35 (50.3) 23.81%	100 34.2%
Total	145 100%	147 100%	292 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 14.320$, df = 1, $p < 0.001$

16. Use of antidepressants at admission

There was a significant relationship between the "length of stay" and the "use of antidepressants at admission". Splitting of the chi-square value shows that the contributions to the total chi-square come more or less equally from all the figures for the categories "No" and "Yes" under the variable "use of antidepressants". The Table indicates that a higher percentage of inpatients who had a "long stay" were prescribed antidepressants at admission.

TABLE 5.16

LENGTH OF STAY BY USE OF ANTIDEPRESSANTS

Use of Antidepressants	INPATIENTS		
	Long stay n = 145	Short stay n = 147	Total
No	55 (68.5) 37.9%	83 (69.5) 56.5%	138 47.3%
Yes	90 (76.5) 62.1%	64 (77.5) 43.5%	154 52.7%
Total	145 100%	147 100%	292 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 10.057$, df = 1, p = 0.001

17. Use of antidepressants at discharge

There was a significant relationship between the "length of stay and the use of antidepressants at discharge". Splitting of the chi-square value shows that the contribution to the total chi-square comes more or less equally from all the figures for the categories "No" and "Yes" under "use of antidepressants". However, Table 5.17 shows that a higher percentage of inpatients who had a "long stay" were prescribed antidepressants.

TABLE 5.17

LENGTH OF STAY BY USE OF ANTIDEPRESSANTS

Use of antidepressants	INPATIENTS		
	Long stay n = 145	Short stay n = 145	Total
No	60 (73.5) 41.4%	87 (73.5) 60.0%	147 50.6%
Yes	85 (71.5) 58.6%	58 (71.5) 40.0%	143 49.3%
Total	145 100%	145 100%	290 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 10.057$, df = 1, p = 0.001

18. Use of anxiolytics and hypnotics at admission

Table 5.18 shows that there was a significant relationship between length of hospital stay and "use of anxiolytics and hypnotics at admission". Splitting of the chi-square value shows that the greater contribution (6.86) to the total chi-square value comes from the figures for the category "no use of anxiolytics and hypnotics". A higher percentage of "short stay" inpatients had no use or prescription of anxiolytics and hypnotics at admission.

TABLE 5.18

LENGTH OF STAY BY USE OF ANXIOLYTICS AND HYPNOTICS

Use of Anxiolytics and Hypnotics	INPATIENTS		
	Long stay n = 138	Short stay n = 146	Total
No	23 (33.0) 16.7%	45 (35.0) 30.8%	68 23.9%
Yes	115 (105.0) 83.3%	101 (111.0) 69.2%	216 76.1%
Total	138 100%	146 100%	284 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 7.805$, df = 1, p = 0.005 (P <.01)

19. Use of anxiolytics and hypnotics at discharge

Table 5.19 shows that there was a significant relationship between the length of hospital stay and the "use of anxiolytics and hypnotics at discharge". Splitting of the chi-square value shows that approximately equal contribution to the total chi-square value comes from the figures for both the categories "No" and "Yes". Inspection of the Table shows that a higher percentage of inpatients who had a "short stay" in hospital had no use or prescription of anxiolytics and hypnotics at discharge compared to the "long stay" group.

TABLE 5.19

LENGTH OF STAY BY USE ANXIOLYTICS AND HYPNOTICS

Use of anxiolytics and hypnotics	INPATIENTS		
	Long stay n = 141	Short stay n = 146	Total
No	78 (87.9) 55.3%	101 (91.1) 69.2%	179 62.4%
Yes	63 (53.1) 44.7%	45 (54.9) 30.8%	108 37.6%
Total	141 100%	146 100%	287 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 5.869$, df = 1, p = 0.015

20. ECT and psychological approaches of treatment

Table 5.20 demonstrates that there was a significant relationship between "length of stay" and "methods of treatment", which included ECT and psychological approaches. Splitting of the chi-square value shows that the greater contribution to the total chi-square value comes from the figures for the category "ECT", indicating that there is a difference in the frequencies of ECT between "short stay" and "long stay" groups of inpatients. A significantly higher percentage of inpatients who had a "long stay" in hospital were prescribed ECT compared to the "short stay" group.

TABLE 5.20

LENGTH OF STAY BY ECT AND PSYCHOLOGICAL APPROACHES

Method of treatment	INPATIENTS		
	Long stay n = 100	Short stay n = 103	Total
ECT	14 (6.9) 14%	0 (7.1) 0%	14 6.9%
Psychological approaches	86 (93.1) 86%	103 (95.9) 100%	189 93.1%
Total	100 100%	103 100%	203 100%

Expected frequencies in parentheses.

Yates's corrected $x^2 = 15.488$, $df = 1$, $p < 0.001$

iv. Diagnosis

21. Diagnoses (DSM-III-R AXIS I and II diagnoses at discharge)

Table 5.21 (page 117) shows that there was a significant relationship between "length of stay" and "diagnoses". Splitting of the chi-square value shows that the major contributions (40.987) to the total chi-square value come from the figures for the categories "Mood Disorders", "Neurotic Disorders", and "Personality Disorders". This indicates that the significant relationship between "length of stay" and "diagnoses" was due to these diagnostic categories only. The higher percentages of inpatients who had a "long stay" in hospital were in the categories of "Mood Disorders", "Organic Mental Disorders" and "Psychotic Disorders" respectively. On the other hand, higher percentages of inpatients who had a "short stay" in hospital were in the categories of "Neurotic Disorders" and "Personality Disorders".

TABLE 5.21

LENGTH OF STAY BY DIAGNOSTIC CATEGORIES

Diagnostic Categories	INPATIENTS		
	Long stay n = 143	Short stay n = 143	Total
Organic mental and psycho-active substance use disorders	16 (12.5) 11.2%	9 (12.5) 6.3%	25 8.7%
Psychotic disorders[1]	22 (20.5) 15.4%	19 (20.5) 13.3%	41 14.3%
Mood disorders	78 (57.0) 54.5%	36 (57.0) 25.2%	114 39.9%
Neurotic and Eating disorders[2]	15 (31.0) 10.5%	47 (31.0) 32.9%	62 21.7%
Personality disorders	12 (22.0) 8.4%	32 (22.0) 22.4%	44 15.4%
Total	143 100%	143 100%	286 100%

Expected frequencies in parentheses.

$x^2 = 43.260$, df = 4, $p < 0.001$

[1]Psychotic disorders include schizophrenia, psychotic disorders not elsewhere classified, Delusional disorders.

[2]Here Neurotic disorders include Adjustment disorder, Somatoform disorders, Anxiety disorders, psychological factors, physical condition, Dissociative disorder, Sexual disorder, Factitious disorder, Impulse control disorder.

22. Broad diagnostic groupings (DSM-III-R AXIS I and II diagnoses at discharge)

Table 5.22 shows that there was a significant relationship between "length of stay" and "broad diagnostic groupings". Splitting of the chi-square value shows that significant contributions (16.382 and 27) to the total chi-square come from the figures for both the diagnostic categories "Major" and "Minor". As can be seen from Table 5.22, a higher percentage of inpatients who had a "long stay" were diagnosed under the category of "Major" mental illnesses which included "Organic Mental Disorder", "Mood Disorders" and "Psychotic Disorders". Similarly, a higher percentage of inpatients who had a "short stay" compared to those who had a "long stay" in hospital were diagnosed under "Minor" mental illnesses which included "Neurotic Disorders", "Psychoactive Substance Use Disorders", "Eating Disorders" and "Personality Disorders".

TABLE 5.22

LENGTH OF STAY BY MAJOR DIAGNOSTIC GROUPINGS

Diagnostic Groupings	INPATIENTS		
	Long stay n = 143	Short stay n = 143	Total
Major mental illnesses[1]	116 (89.0) 81.1%	62 (89.0) 43.4%	178 62.2%
Minor mental illnesses[2]	27 (54.0) 18.9%	81 (54.0) 56.6%	108 37.8%
Total	143 100%	143 100%	286 100%

Expected frequencies in parentheses.
Corrected $x^2 = 43.382$, df = 1, $p < 0.001$

[1]Here "major mental illnesses" include organic mental disorders, psychotic disorders and mood disorders.

[2]Minor mental illnesses include neurotic disorders, psychoactive substance use disorders, personality disorders and eating disorders.

23. DSM-III-R AXIS III diagnosis (concomitant physical disorder)

Table 5.23 shows that there was no significant relationship between the "short stay" and "long stay" groups of inpatients for "concomitant physical disorder".

TABLE 5.23

LENGTH OF STAY BY CONCOMITANT PHYSICAL DISORDER

Concomitant physical disorder	INPATIENTS		
	Long stay n = 147	Short stay n = 145	Total
Present	105 (99.0) 72.9%	93 (99.0) 64.6%	198 68.8%
Absent	39 (45.0) 27.1%	51 (45.0) 35.4%	90 31.3%
Total	144 100%	144 100%	288 100%

Expected frequencies in parentheses.

Corrected $x^2 = 2.327$, df = 1, p = 0.127, n.s.

24. DSM-III-R AXIS V - Past GAF Score

Table 5.24 presents the "DSM-III-R AXIS V - past GAF scores" for the "short stay" and "long stay" groups of inpatients. There was a significant difference between the past GAF scores of the "short stay" and "long stay" groups of inpatients (U = 8518.0, p = 0.035). Inpatients in the "long stay" group scored less than those of the "short stay" group. This indicates that the "long stay" group had a significantly lower level of past global functioning, compared to those patients in the "short stay" group.

TABLE 5.24

	Mean Score	S.D.
Long stay group	57.8310	19.300
Short stay group	61.6071	16.307

25. DSM-III-R - AXIS V - Current GAF Scores

Table 5.25 shows no significant differences between the mean of 'current GAF scores" of "short stay" and "long stay" groups of inpatients.

TABLE 5.25

DSM-III-R - AXIS V - CURRENT GAF SCORES

	Mean rank	Mann-Whitney U test	Significance (p) Two tailed
Long stay group	138.49		
		9508.0	0.2600
Short stay group	149.47		

III. STEPWISE MULTIPLE REGRESSION ANALYSIS

Table 5.26 (page 122) presents the regression statistics obtained when demographic and clinical variables were used to predict length of psychiatric hospital stay. "ECT" was selected by the computer program as the first predictor to be entered into the regression equation because it had the highest percentage of variance (R2) accounting for "length of hospital stay". In the analysis variables were added one by one to the model until no remaining variables produced a significant F statistic. The variables except "ECT" presented in Table 5.26 resulted in an increase in R2 from 20% to 40%. Inspection of Table 5.26 shows that the stepwise multiple regression procedure identified nine variables as the most efficient statistically significant set of predictors for "length of hospital stay". Findings indicate that "ECT", "use of antipsychotics at admission", "use of antidepressants at admission", "admission status", "use of anxiolytics and hypnotics at admission", "DSM-III-R AXIS III diagnosis at admission", "level of DSM-III-R AXIS V functioning in the past year", "diagnosis of Mood Disorders at discharge" and "sex" tended to predict length of psychiatric hospital stay. These nine variables produced a multiple R of 0.633 which accounted for 40% of the variance in "length of stay".

TABLE 5.26

STEPWISE REGRESSION ANALYSIS USING LENGTH OF STAY AS THE DEPENDENT VARIABLE

Independent Variable	Coefficient in Final Model	Partial R^2	Model R^2	Significance of t-test (p-values)
ECT	26.275	.20233	.20233	<0.001
Use of antipsychotics at admission	1.395	.08188	.28421	<0.001
Use of antidepressants at admission	2.059	.03322	.31743	<0.001
Admission status	5.072	.01886	.33629	<0.005
Use of anxiolytics and hypnotics at admission.	.500	.01919	.35548	<0.005
DSM-III-R AXIS III diagnosis at admission.	.737	.01632	.37180	<0.01
Level of DSM-III-R AXIS V functioning in the past year.	.100	.01186	.38366	<0.05
Diagnosis of mood disorders at discharge	3.401	.00886	.39252	<0.05
Sex	2.852	.00832	.40084	=.05

Multiple correlation squared = 0.400 ($F = 20.961$, $df = 9, 282$, $p<0.001$)

These nine variables account for the maximum variance by this procedure (i.e. 40%).

IV. COMMENT

This study was designed to test the hypothesis that in terms of demographic and clinical variables, there will be no significant differences between inpatients who had a "long stay" (more than twelve days) compared to those who had a "short stay" (twelve days or less) in a general hospital setting.

However, findings of the study showed that out of 25 demographic and clinical variables, the hypothesis was not supported by seventeen variables: "age"; "marital status"; "occupational status"; "insurance status"; "source of referral"; "admission status"; "nature of presenting complaints"; "use of antipsychotics at admission and discharge"; "use of antidepressants at admission and discharge"; "use of anxiolytics and hypnotics at admission and discharge"; "use of ECT and psychological approaches of treatment"; "diagnoses (AXIS I and AXIS II first diagnosis of DSM-III-R)"; "broad diagnostic groupings"; "DSM-III-R AXIS V - Past GAF scale score". Stepwise multiple regression analysis identified nine clinical variables as the optimal set of predictors, accounting for 40% of the variance in length of hospital stay. Treatment variables dominated as predictors.

CHAPTER VI.

DISCUSSION (PARTS I AND II)

I. GENERAL COMMENTS

Before discussing the findings of this study with reference to previous studies in this area, it is pertinent to discuss the limitations of this study. The disadvantages of any retrospective study, such as less accurate information and the question of bias, may be present in this study (Abramson, 1984). Any retrospective study has methodological problems relating to the biases of the study setting and the question of the representative nature of the cases (Sainsbury and Krietman,1975).

a. Research design

This research has not employed experimental methods in which manipulation of events and the use of exact controls allows the establishment of the precise sequence of cause and effect relationships. Rather, this study has been designed to collect data from the case notes of inpatients in a general hospital psychiatric unit on independent variables in retrospect for their possible relations to, and effects on, the dependent variable or variables. Million and Diesenhaus (1972) have noted that;

> "although the data gathered in naturalistic studies may be suggestive of causal relationships, they lack the controls requisite for ruling out rival hypothesis. Nevertheless, where complex interactions exist, and where crucial variables can not feasibly or ethically be manipulated, naturalistic designs may provide the only systematic data for that for causal hypothesis." (pp 37)

Mantel and Haenszel (1959) have commented that;

> " the findings of a retrospective study are necessarily in the form of statements about associations between diseases and factors, rather than about cause and effects relationships."

These comments are particularly applicable to this retrospective study.

b. Patient selection

Patients for this study are not necessarily representative of the general population, nor may they be typical of psychiatric patients in the community or patients receiving treatment in other general hospital psychiatric units.

c. Comparison population/group

It is obvious that whatever "control or comparison" group is chosen, limitations are unavoidable. Maxwell (1975) has noted that;

> "a control group, if it is to provide an unbiased standard of comparison for the experimental group must not be external to the experiment ; on the contrary, it must be part and parcel of it." (pp 60)

Thus, for the purpose of the present study, 292 inpatients from the same setting were divided by the median into long and short stay groups. They were, in fact, all experiencing hospitalisation in the same setting and in this respect the use of an internal control group has advantages, which compensates to a degree for the lack of an external control group.

d. Statistical analysis

Of the statistical comparisons made in Part II of this study, it is possible that some significant results may have arisen by chance alone. This is more likely to be the case when there is a statistically significant finding which is unanticipated. The level of significance at which one may reject the null hypothesis is worthy of comment. In this study it has been taken to be the conventional 5% (.05) level. However, Siegel (1956) commented that;

> " a researcher may work at the .05 level, but a reader may refuse to accept any finding not significant at .01, .005 or.001 levels, while another reader may be interested in any finding which reaches say the .08 or .10 levels." (pp 9)

However, by general consensus and usage the .05 level has been accepted as the level of significance at which one may reject the null hypothesis in this study.

It is important to realize that no statistical procedure can, in itself, insure against mistakes, inaccuracies, faulty reasoning or incorrect conclusions (Adler and Roessler, 1972). Statistics may reveal only a part of the truth. The results of one survey alone should not be accepted without seeking corroboration from subsequent surveys or from independent sources (Reichmann, 1964).

II. DISCUSSION (PART I)

In this part of the study the demographic and clinical characteristics of the sample are discussed. Comparisons are made with other such samples reported in the literature. No comments are made on the possible ætiological significance of findings since the absence of a control group precludes such inferences.

DISCUSSION RELEVANT TO SPECIFIC RESULTS

i. Sociodemographic data

Age

In this study the most frequently occurring age group was "40-49", consistent with the finding of Mai (1966). The average age of the inpatients was 43.74 years, which is very close to that found in previous studies on psychiatric consultation and liaison services in the general hospital setting (Anstee, 1972; Hengeveld et al., 1984; Karasu, et al., 1977; Perez and Silverman, 1983; Schwab et al., 1965; Shevitz et al., 1976; Fleminger and Mallett, 1962; White and Bloch, 1970; Ries et al., 1980; and Sobel et al., 1988). The relationship between age and diagnosis was in keeping with the usual clinical impression of age distribution by diagnostic categories.

Sex

There were more women hospitalized than men. The male-female ratio of 1.3:1 was almost exactly the same as in Gold's Australian study of 1965 (1.2:1), and comparable to the findings of a number of other studies on psychiatric consultation and liaison services in the general hospital setting (Kligerman and McKegney, 1971; Lipowski and Wolston, 1981; Anstee, 1972; Kearny, 1966; Fleminger and Mallett,

1962; White and Blooch, 1970; Hengeveld et al., 1984; Perez and Silverman, 1983; Schwab et al., 1965; Eilenberg, 1965; Zuo et al., 1985; Craig, 1982; Bustamente and Ford, 1981; Edwards and Angus, 1968; Ries et al., 1980; Macleod and Walton, 1969; and Miles, 1983).

Marital status

The finding that male inpatients were significantly over-represented in the "never married" category is consistent with findings in a general hospital study by Gold (1965) and a general population study by Henderson et al. (1979) and Bebbington et al. (1981). This finding reflects the fact that the "never married" men usually had a much higher rate of mental disorders than "never married" women.

Country of birth

Migrants contributed relatively more to the numbers of psychiatric patients admitted to hospital than would be expected from their proportions in the general population. This finding is consistent with previous Australian studies (Krupinski and Stroller, 1965; Gold, 1965; and Mai, 1966), and supports the view that there is a positive association between migration and mental illnesses.

Religion

Inpatients belonging to the Catholic religion and those with an Asian background both contributed higher percentages to the number of psychiatric patients admitted into the hospital than would be expected from their percentage in general population. This may be due to the fact a high percentage of Vietnamese who are among the most recent migrants to Australia and therefore still confronted with the stress associated with arrival in a new country also happened to be Roman Catholic.

Occupational status

The "unskilled", "unemployed", "pensioners", "students" and "housewives" were found to be the most frequently occurring inpatients. These findings raise the possibility that inpatients in these categories may be more vulnerable to mental illnesses. These findings are consistent with previous studies by De Girolamo et al. (1988), and Bollini and Mollica (1989). The results of a study by Finlay-Jones and

Eckard (1981) strongly suggest a causal relationship between unemployment and psychiatric disorder. There have been a few reports of adverse effects of unemployment on male mental health (Kasl et al., 1975; Catalamo and Dooley, 1977). Brown and Harris (1978) found that non-employed women were more likely to be "cases" than those who were employed. A similar trend was found by Hare and Shaw (1965). Studies of inpatients also suggest greater impairment of social performance in non-employed women (Weissman and Paykel, 1974; Mostow and Newberry, 1975). Radloff (1975) and Pearlin (1975) failed to find that employment protected against depressive symptoms. Bebbington et al. (1981) predicted that employment is protective and found that in both sexes employment was associated with lower rates of mental disorders. A longitudinal study by Winefield et al. (1991) suggests a causal connection between employment status and psychological well-being.

Insurance status

The insurance status of inpatients demonstrated that while all were covered by Medicare, 8.5% inpatients were covered by private insurance. While it may be expected that private insurance companies will be particularly interested in data concerning length of stay for the purpose of prospective payment for cases treated in hospitals (for example using The Diagnosis Related Groups (DRG) system), it is clear that National Health Services, at least in Australia, are bound to be equally concerned, and will inevitably seek more data about the prediction of hospital stay in psychiatric wards, especially of general hospitals. For example, one U.S. study (English et al., 1986) found that the Diagnosis Related Group (DRG) system used for the majority of patients covered by Medicaid, had not been introduced in psychiatry, and advocated further research because psychiatry must anticipate prospective payment in future.

Source of referral

In this study, the highest percentage of inpatients were referred from medical units of the study hospital. This confirms the findings of previous studies (Fleminger and Mallett, 1962; Shepherd et al., 1960; White and Bloch, 1970; Eilenberg, 1965; Weimer and Fenn, 1982; Gold, 1965; and Mai, 1966) that psychiatric patients are

considerably more likely to be referred by physicians than other consultants. It may be that the physicians are particularly aware of the psychogenic basis of many somatic symptoms and therefore more likely to seek a psychiatric opinion than colleagues in other specialities.

Referral to further care

This study indicates that the highest percentage of inpatients were discharged to a psychiatric outpatient department for further care. This is in accord with the findings of previous Australian studies (Gold, 1965; and Mai, 1966). Only 10 (3.4%) inpatients were transferred to one of the two State mental hospitals, compared to 17 (8%) by Mai (1966) and 24 (8.5%) by Gold (1965). This reflects a possible decline in the number of patients transferred from an inpatient service of a general hospital to a state hospital during a 25 year period. Such a decline in the transfer from the inpatient service of a general hospital to a state hospital was reported by Cotton et al. (1980). This finding suggests that it is possible to manage a wider spectrum of categories of psychiatric patients in a general hospital setting, than was previously the case. Indeed, the possibility of detaining patients in the Royal Adelaide Hospital has been a relatively recent development, under the Mental Health Act of South Australia (1976-1979) (Appendix VII).

ii. Clinical data

Admission Status

The finding that the percentage of involuntary inpatients was higher in females was inconsistent with the findings of previous studies (Flaherty and Hall, 1980; Snowdon, 1981). Statistical analyses of the present study indicate that there was no significant association between sex and admission status. However, there was a significant association between admission status and diagnostic categories. As would be expected, "Organic Mental Disorders" and "Psychotic Disorders" were significantly over-represented, while "Neurotic Disorders" were significantly under-represented in involuntary inpatients. Diagnostic categories of detained patients in an earlier

Australian study (Snowdon, 1981) showed that Schizophrenia was most common (42%), followed by Hypomania and others.

Number of previous psychiatric admissions

This variable was found to be associated with length of hospital stay (Kirschner and Johnston,1985). Kirschner and Johnston found that patients with first admissions stayed longer in the hospital compared to readmitted ones.

Previous psychiatric hospitalization (same hospital or other)

This variable had also been found associated with length of stay. Patients with a prior admission elsewhere stayed longer whereas patients readmitted to the same unit had significantly shorter stays (Kirschner and Johnston, 1985).

Family history of drug and alcohol abuse, Family history of mental disorders, Family discord and Marital discord

It was felt that the information concerning these variables was not complete enough or sufficiently reliable to be discussed. In the literature information on these variables as an aid to the description of the general hospital inpatient psychiatric unit appears lacking. Therefore, as mentioned in Chapter Three, these variables were not appropriate for inclusion on the predictive part of this study.

Past history of physical illness, operation or accident

A past history of physical illness, operation or accident was observed in 77.3% of inpatients. This finding is not surprising in a general hospital setting in which the majority of inpatients of the psychiatric ward were referred from medical units and the second highest referrals were from private practice, which also included general practitioners.

History of past mental illness

Approximately 70% inpatients had a past history of mental illness. This is in keeping with the fact that the majority of inpatients had psychiatric problems long before their admission into the general hospital psychiatric inpatient unit. It was not always clear from the case notes why they had come to this particular unit on this occasion.

History of drug and alcohol abuse

Although 62 (21.2%) inpatients had a history of drug and alcohol abuse, an Axis I diagnoses of "Psychoactive Substance Use Disorder" was made in only 14 cases. This could be explained by the fact that the history of drug and alcohol abuse may have been associated with an Axis I diagnosis other than "Psychoactive Substance Use Disorder" such as "Major Depression".

Nature of presenting complaints

Findings indicate that there were some inpatients who presented themselves with physical symptoms only. Usually these cases were seen initially by the physicians but did not respond to management and were therefore referred to the inpatient unit for psychiatric opinion and care. It has been reported that a substantial proportion of patients who consult physicians and surgeons suffer from a psychiatric rather than a physical illness (Shepherd et al.,1960). The elderly, lower socioeconomic groups, and immigrants from developing countries are particularly likely to present with physical symptoms when psychiatrically ill (Hill et al.,1986). Psychiatric illnesses that frequently present with a physical complaints are: (a) Somatoform Disorder (b) Some cases of depressive illnesses (c) Anxiety and Phobic Neurosis and (d) Anorexia Nervosa.

Suicidal tendencies (ideation and behaviour)

Just over fifty percent of inpatients manifested evidence of suicidal tendencies. This is in keeping with the fact that 39% of inpatients had a diagnosis of "Mood Disorder", while 11.6% had a diagnosis of "Adjustment Disorder".

Attempted suicide (method)

In this group of inpatients the taking of an overdose of drugs was the commonest method of attempting suicide and violent methods were rarely used. Thus, 47 of 68 patients (69%) who had attempted suicide did so with an overdose of drugs. This finding is consistent with those reported in many studies on attempted suicide (Buckle et al., 1965; Bridge and Koller, 1966; Weisman, 1974; Morgan et al., 1975; Burvil, 1975; Adam, 1985).

Medical lethality of suicide attempt

The findings concerning the medical lethality of suicide attempts indicate a positive relationship between the lethality of the suicide attempt and diagnoses such as "Mood Disorder" and "Personality Disorder". High lethality attempts were most frequent both in the "Mood Disorder" and "Personality Disorder" categories; intermediate lethality attempts were most frequent in "Mood Disorder"; and low lethality attempts were most frequent in the "Personality Disorder" category. This study was not designed to examine the degree of depression associated with each type of lethality attempt. However, it is of interest that a previous study in the same hospital (Goldney and Pilowsky, 1980) found that there was no significant difference in the degree of depression between patients whose suicide attempt required intensive care unit resuscitation (high lethality), those who required some cautionary medical observation (intermediate lethality), and those whose attempt produced negligible physical effects (low lethality).

Computerised Axial Tomography (CAT) brain scan

This study found that in only 6 cases (2.1%) out of 281 were Computerised Axial Tomography brain scans (CAT) positive. Further analysis of the results indicate that as expected the highest percentage of positive CAT scans were in the "Organic Mental Disorder" category (4.3%). The next highest percentage was in the "Mood Disorder" category (3.5%). The rate of positive CAT scanning in 65 inpatients undergoing CAT scan examinations was 9.2% while 13.8% were doubtful and 76.9% revealed normal findings. Weisberg (1979) reported that the prevalence of abnormal CAT findings in all patients with only psychiatric symptoms is quite low but the prevalence of abnormality as defined by the CAT scan is 10%-15% when atypical history, clinical presentation, treatment course and response for a specific psychiatric diagnosis are used as inclusion criteria.

The few existing surveys of inpatient psychiatry CAT scanning reveal a 65-70% range of normal findings (Goodstein, 1985). Ordering a head CAT scan in a first episode of psychotic illness remains an option based on clinical judgement as opposed

to routine protocol (Battaglia and Spector, 1988). In the absence of focal neurologic deficits or other findings suggesting intracranial abnormality (e.g. papilloedema, seizures, persistent or increasing headaches), there is believed to be no justification for routine CAT scanning in patients admitted to hospital for psychiatric disorder (McLellan et al., 1988).

Electroencelphalography (EEG)

Positive EEG findings occurred in only 8 cases (2.8%). The highest percentage of positive EEG was found in the "Organic Mental Disorder" category (8.7%). The next highest percentage was in the "Personality Disorder" category (4.5%). The rate of positive EEG in 56 inpatients undergoing EEG examinations was 14.3% while 8.9% were doubtful and 76.8% revealed normal findings. This is congruent with the recent report that the EEG is particularly useful for the detection of abnormalities in slow waves, which are a feature of delirium, dementia, intoxication and other syndromes involving gross CNS dysfunction (American Psychiatric Association Taskforce, 1991).

Use of antipsychotics

In this study, it was found that the most commonly prescribed neuroleptic was haloperidol followed by thioridazine, pimozide, trifluperazine and chlorpromazine. A number of combinations of antipsychotics were prescribed at admission and at discharge. The most common was "thioridazine plus haloperidol" followed by "chlorpromazine plus haloperidol". In general, higher percentages of antipsychotics were prescribed at admission than at discharge except for chlorpromazine, trifluperazine and pimozide. Braley et al. (1989) reported from another Adelaide general hospital unit that fewer neuroleptics and antiparkinsonian agents were used at discharge compared to admission in a general hospital psychiatry unit. The most common reason for increased neuroleptic treatment at admission was to symptomatically manage severe agitation. One study (Yosselson-Superstine, 1979) demonstrated that the most popular combinations of drugs used were antipsychotics plus antiparkinsonian drugs, and a combination of more than one antipsychotic agent . Edward and Kumar (1984) reported that the most commonly prescribed neuroleptic was chlorpromazine followed

by thioridazine and haloperidol. Michel and Kolakowaska (1981) found that chlorpromazine was the favourite oral neuroleptic followed by fluphenazine decanoate and flupenthixol decanoate in equal proportions, and then by thioridazine. It can be concluded that clear cut indications for medication use do not yet exist, and contextual variables are influential, including medical and nursing staff preferences.

Use of antipsychotics parental preparation

This study suggests that patients treated with injectable preparations of antipsychotics are less likely to be admitted to a general hospital unit. They are no doubt considered to be better managed in the community through injectable, long acting, antipsychotic preparations, since their illnesses are chronic and any prolonged inpatient stay in a small general hospital unit would not be appropriate.

Use of anti-depressants

The most frequently used antidepressant group were the tricyclic antidepressants, both at admission and at discharge. This finding is consistent with those of other studies (Braley et al., 1989; Edward and Kumar, 1984; Michel and Kolakowaska, 1981). A relatively lower percentage of inpatients were prescribed tricyclic antidepressants at discharge than at admission. This finding is in keeping with the change in percentage of "Mood Disorders" between admission and discharge. However, this finding contradicts that of Braley et al. (1989). In this study, the relatively lower percentage of antidepressant prescriptions at discharge may be explained by the fact that a number of different diagnostic categories other than "Mood Disorders" are prescribed tricyclic antidepressants at admission.

Use of anxiolytics and hypnotics

In this study the most frequently used hypnotic was temazepam while the most frequently used anxiolytic was diazepam. Edward and Kumar (1984) reported that the most commonly prescribed hypnotic was nitrazepam followed by temazepam while the most commonly prescribed minor tranquillizer was lorazepam followed by diazepam. Michel and Kolakowaska (1981) reported that the most commonly prescribed hypnotic was chloral hydrate or chlormethiazole while the most commonly prescribed minor

tranquillizer was diazepam. The conflicting findings in this area could be due to individual differences on the part of the treating doctors, or due to institutional variation in policy on the prescription of hypnotics and anxiolytics.

Use of lithium, carbamazpine and antiparkinsonian agents

The increased frequency of prescription of lithium carbonate at discharge could be explained by the fact that the decision to institute lithium therapy was usually taken after a trial with a course of appropriate psychotropic drugs, and might be commenced as a prophylactic measure after the patient had responded to other treatments.

It was found that there was a decrease in the frequency of prescription of antiparkinsonian drugs at discharge compared to the prescription at admission. This could be explained by the fact that initially a combination of neuroleptics is often used to manage severe agitation symptomatically. However, after stabilization with the antipsychotic preparations, the dose of antipsychotics is reduced to a maintenance level, and in some cases, reduced or ceased so that the prescription of an antiparkinsonian drug is not required. However, Rifkin et al. (1978) have concluded that their results support the use of the maintenance of antiparkinsonian drugs in patients treated with antipsychotic medication.

Use of Electroconvulsive Therapy (ECT).

The finding that 14 cases (5.5%) were prescribed ECT in this study, is consistent with the finding of another Australian study in a general hospital setting by Gassy and Rey (1990). The small number of cases prescribed ECT may reflect the special indications for electroconvulsive therapy. These include: Delusional Depressions; Depressions which are not responsive to antidepressants; Affective Illness in geriatric populations; Depression, Mania or Schizophrenia in patients who cannot tolerate medication side effects (Yudofsky, 1981).

Length of stay

The finding that 75% of the inpatients were discharged home within three weeks, is similar to that found by Gold (1965). The highest percentage of "Organic Mental Disorder" cases stayed in the hospital for a period more than three weeks

(45.5%), while the highest percentage of "Neurotic Disorder" cases were discharged within 12 days (77.2%). Furthermore, 50% of the inpatients were discharged home within 12 days.

DSM-III-R AXIS I (See Appendix III) diagnoses at discharge

Findings related to Axis I first discharge diagnoses reveal several interesting points. "Mood Disorder" diagnoses were made in more than one third (39%) of the inpatients and the majority were classified as "Major Depression". In contrast, Black and Winokur (1987) found 26% of cases as Affective Disorders, and Mai (1966) found that approximately one sixth of the cases were diagnosed as having Endogenous Depression. In this study, the high figure for the "Mood Disorder", with a majority specified as "Major Depression", may be due to the impact of DSM-III-R, the general hospital setting, and for the situation of the hospital in a central city area serving an aging population. As far as DSM-III-R is concerned, the term "Major Depression" covers syndromes which might previously have been labelled "Endogenous Depression", "Depressive Illness", and even "Neurotic Depression".

"Adjustment disorder with depressed mood" was the second most frequently made AXIS I discharge diagnosis, and appeared in 11.6% of the cases. This finding is not consistent with that reported by Black and Winokur (1987). The second highest frequency of "Adjustment Disorder" in this study reflects the study hospital's policy to admit patients with greater severity of stressors for short-term management to the inpatient unit. The impact of DSM-III-R on diagnostic practice may be an important factor for the relatively higher frequency of diagnosis of "Adjustment Disorder".

"Somatoform Disorders" were the third most frequent AXIS I discharge diagnoses. "Somatoform Pain Disorder" was the most frequently (85%) diagnosed "Somatoform Disorder". This finding reflects the long-standing psychiatric consultation and liaison service and close collaboration with the Pain Clinic situated on the campus of the study hospital and the existence of an outpatient "Somatoform Clinic". Snyder and Strain (1989) commented that the "Somatoform Disorders" present dilemmas on acute inpatient medical or surgical services because they may

closely mimic physical illness and result in misapplied medical treatment. They indicated that the question of a psychogenic component to the illness and problem with pain management were the most commonly stated reasons for consultation. However, they found "Conversion Disorder" to be the most frequently diagnosed "Somatoform Disorder".

"Schizophrenia" was diagnosed as the AXIS I discharge diagnosis in 24 (8.2%) cases. This finding is consistent with the findings of others (Gold, 1965; Mai, 1966 and Black and Winokur, 1987). This low figure for "Schizophrenia" could be explained by the relatively low percentage in the general population, the presence of Schizophrenia Units in the State Mental Hospitals, and the role of community mental health centres in the management of this condition.

"Organic Mental Disorders" were diagnosed as AXIS I discharge diagnoses in 23 (7.9%) cases with a majority being an "Organic Mental Disorder" associated with an AXIS III physical disorder, or conditions with an unknown aetiology. "Organic Mental Disorder NOS" and "Delirium" were the most frequently made "Organic Mental Disorder" diagnoses. "Delirium" was found to be the most common "Organic Brain Syndrome" diagnosis in other studies (Lee, 1981; Lipowski and Wolston, 1981). Trzepacz et al. (1985) highlighted the relatively high frequency of "Organic Brain Syndromes" among medical and surgical inpatients referred for psychiatric consultations.

Other AXIS I discharge diagnoses were "Psychoactive Substance Use Disorders" with the most frequent diagnosis of "Alcohol Dependence", "Anxiety Disorders", with the highest frequency in "Panic Disorder with Agoraphobia", "Eating Disorder" with the diagnosis of "Bulimia Nervosa", psychological factors affecting physical condition, "Delusional Disorder", "Dissociative Disorder", "Sexual Disorder", "Factitious Disorder with physical symptoms", and "Impulse Control Disorders not elsewhere classified".

AXIS II (See Appendix III) diagnoses (Personality disorders) at discharge

In this study, an AXIS II discharge diagnosis of "Personality Disorder" was made in approximately one quarter of the inpatients. It is to be noted that in AXIS II, no diagnosis was made or diagnosis was deferred in 214 (74.3%) cases. An AXIS II principal diagnosis of "Personality Disorder" was made in 44 (15.1%) cases. The most frequently occurring principal diagnoses of "Personality Disorder" were "Borderline Personality Disorder", "Personality Disorder NOS", "Histrionic Personality Disorder", and "Dependent Personality Disorder". Although clinical diagnoses of Personality Disorders were made with the DSM-III-R criteria, it is difficult to comment on the reliability of the diagnoses.

The literature indicates that the DSM-III-R has improved "Personality Disorder" diagnosis considerably but it still attains the lowest reliability of any major category in the classification (Spitzer et al., 1979). Frances (1980) attributed the continued low reliability of "Personality Disorder" diagnosis, compared with the other major sections of DSM-III-R, to two inherent obstacles: the lack of clear boundaries demarcating the Personality Disorders from normality and from one another, and secondly, the confounding influence of patients' current state and role factors.

AXIS III (See Appendix III) diagnoses (physical disorders) at discharge

Regarding AXIS III discharge diagnoses, findings indicate that in 198 (67.8%) inpatients there was both an AXIS III diagnosis and a diagnosis on AXIS I or AXIS II. This figure is similar to the 60-80% rates of concurrence between physical and psychiatric diagnoses reported in other studies of consultation and liaison populations (Shevitz et al., 1976, and Lipowski and Wolsten, 1981). However, in this study the figure (67.8%) for the AXIS III diagnoses in inpatients is relatively higher than previous studies. The percentages of Physical Disorders in psychiatric inpatients previously reported were 33.5% by Maguire and Granville-Grossman (1968), 43% by Koranyi (1979) and 30% by Creed (1987).

As seen in this study the most frequently occurring medical and surgical conditions associated with psychiatric illnesses were cardiovascular diseases, diseases

of the nervous system, diseases of the connective tissue, joints and bones and diseases related to endocrine and metabolic disorders. The highest frequency of cardiovascular diseases is in keeping with the finding of Maguire and Granville-Grossman (1968). The findings in this study confirm the close association between psychiatric illness and physical disorder found in various facilities (Culpan et al., 1960; Eastwood et al., 1970).

AXIS IV (See Appendix IV) - Severity of psychosocial stressors

Information was missing in 28.8% cases for acute psychosocial stressors and in 39.7% cases for enduring stressors. In addition, information was unspecified in 24% cases for acute stressors and in 28.4% cases for enduring stressors. These figures reflect the poor maintenance of information on AXIS IV of DSM-III-R in the case notes. Studies related to use of DSM-III-R AXIS IV in clinical practice (Spitzer and Forman, 1979; Mezzich et al., 1985; Russell et al., 1979; Rey et al., 1988; Zimmerman et al., 1987; Schrader et al., 1986) suggest that AXIS IV ratings have limited reliability and uncertain validity. However, Skodol and Shrout (1989) indicated AXIS IV functions as a shorthand method for identifying the more severe psychosocial stressors. In this study, severity of psychosocial stressors were described as moderate in majority of the cases.

AXIS V (See Appendix V) - Level of adaptive functioning

In DSM-III-R, AXIS V is a new scale that assesses psychological, social and occupational functioning on a hypothetical continuum of mental health-illness (American Psychiatric Association, 1987). This scale is a modification of the Global Assessment Scale (Endicott et al., 1976) and the Children's Global Assessment Scale (Shaffer et al., 1983). In order to increase the value of AXIS V for documenting the current need for treatment and assessing prognosis in DSM III R, ratings are made for both current functioning (at the time of evaluation) and the highest level of functioning (for at least a few months) during the past year (American Psychiatric Assocation, 1987), on a scale from 0 to 90.

In the present study, it was found that all patients were rated between 0-70 with the majority rated between 0-40 for the current level of functioning. On the other hand, the majority of patients were rated between 61-90 for the past level of adaptive functioning. Only two patients were rated between 81-90 for the past level of adaptive functioning, i.e. having "positive mental health" as indicated by Endicott et al. (1976).

SUMMARY

Sociodemographic and clinical data for the patient population admitted during 1989 to a general teaching hospital psychiatric unit has been presented. The patient population served was described in terms of demographics, and the clinical and diagnostic groupings of DSM-III-R. The mean age of the sample was 43.74 years (SD = 17.7) with the most frequently treated age group being 40-49 years. There were more females than males in the sample; 97.3% of patients were caucasian; 34.4% were Catholic; 28.9% were migrants; 13.9% were unemployed; 91.5% were covered by Medicare; 22.3% were referred from medical units; 3.6% were referred to a State Psychiatric Hospital.

Twenty-eight (27.2%) inpatients had a family history of drug and alcohol abuse. Forty-nine (29%) cases had a family history of "Affective Disorder"; 13 (7.7%) cases had a family history of "Schizophrenia"; 77.3% inpatients had a past history of physical illness, operation or accident; 70% had a past history of mental illness and 62 (30.2%) inpatients had a history of drug and alcohol abuse and 23.3% inpatients were admitted following an attempted suicide.

The most commonly prescribed neuroleptic was haloperidol while the most commonly prescribed antidepressants were the tricyclics. The most frequently used anxiolytic was diazepam. There was an increase in the frequency of the prescription of lithium carbonate at discharge while there was a decrease in the prescription of antiparkinsonian agents at discharge. Only 14 patients were prescribed with ECT in addition to pharmaceuticals.

As regards AXIS I discharge diagnoses, 39% were "Mood Disorders"; 11.6% were "Adjustment Disorders"; 9.2% were "Somatoform Disorders"; 8.2% were "Schizophrenia"; 7.9% were "Organic Mental Disorders"; 4.8% were "Psychiatric Disorders not elsewhere classified"; and 3% were "Anxiety Disorders". With regard to AXIS II discharge diagnoses, 15.4% were "Personality Disorder". As regards AXIS III discharge diagnoses, 67.8% had some concomitant physical disorder. In AXIS IV the highest percentages of psychosocial stressors were between moderate to severe. In AXIS V, the majority of inpatients were rated between 0-40 for the current level of functioning and 61-90 for the past level of adaptive functioning.

COMMENTS

The study provides descriptive data which may serve as a basis for assessing psychiatric units in general hospitals within Australia. Further studies may be compared to these data, and may help to clarify the structure and efficiency of units to be assessed and to establish which factors influence the efficiency of such units.

Establishing causal relationships was not an aim of this study, although of course, some findings may suggest the possibility of explorations in that direction. An analysis of the prescribing of psychotropic drugs could contribute to a more rational use of psychotropic drugs. It is hoped that this study will be of interest to those wishing to further investigate psychotropic drug prescribing habits in a general hospital psychiatric unit. It may also be suggested on the basis of the findings of this study regarding source of referral and AXIS III diagnosis of DSM-III-R, that each general hospital should have at least two psychiatric inpatient units. One of these units should be for the care of medical/surgical patients with psychiatric problems (a medical-psychiatric unit) and the other for patients with predominantly psychiatric problems. Reports from the U.S.A. indicate that a number of general hospitals have already moved in this direction with the creation of "mixed specialty" units (Hoffman, 1984; Fogel, 1985; Kathol et al., 1989).

III. DISCUSSION (PART II)

In this part of the study the statistical relationship between the "short" and "long stay" groups of inpatients for a number of demographic and clinical variables are discussed. The results of a stepwise multiple regression analysis of 38 demographic and clinical variables as independent variables against "length of stay" as the dependent variable will also be discussed. Although this study has been done in a general hospital psychiatry unit, the findings of the study will be discussed with reference to studies on the length of psychiatric hospital stay in different settings, in addition to all available studies done in general hospital settings, as only a few studies have been reported from general hospital settings, and the methodology and the patient characteristics between studies in general hospital settings were not homogenous.

DISCUSSION RELEVANT TO SPECIFIC RESULTS

i. Sociodemographic variables

Age

The finding related to the variable "age" was that the "long stay" group of inpatients were significantly older. This finding is consistent with those of some previous studies (Munley, 1977; Dunham and Meltzer, 1959) while inconsistent with the findings of others (Kirshner and Johnston, 1983; Heiman and Shanfield, 1981; Michalon and Richman, 1990). Boelhouwer and Rosenberg (1983) found "age" to be a predictor of length of hospital stay, but they did not report whether "age" was related to the short stay or the long stay group of inpatients. Mason et al. (1983) indicated contradictory findings for age. They found both elderly demented patients and young patients with Personality Disorder had an excessive length of hospital stay. Clearly, age is not influencial *per se*, but in interaction with particular diagnoses.

Sex

The male-female ratio in the present study was 1:1.3. Patient gender had no significant relationship with length of stay, male and female patients having similar lengths of hospital stay. This finding is inconsistent with some studies (Boelhouwer

and Rosenberg, 1983; Cyr and Haley, 1983) while consistent with others (Kirshner and Johnston, 1985; Mason et.al., 1985; Heiman and Shanfield, 1981; Michalon and Richman, 1990).

Marital status

The finding, that "widowed" patients stayed longer in hospital suggests a possible differentiating factor. The "others" categories included "single", "married", "defacto", "divorced" and "separated" patients. In this study 90% of the "widowed" patients were over 50 years of age. This figure suggests that the "widowed" category may be an important differentiating factor in predicting length of psychiatric hospital stay. This finding partially supports the findings of previous studies (Dunham and Meltzer, 1959; Boelhouwer and Rosenberg, 1983) while being inconsistent with others (Lindemann et al., 1959; Cyr and Haley, 1983; Kirshner and Johnston, 1985).

Occupational status

In contrast to the findings of the previous studies (Munly et al., 1977; Boelhouwer and Rosenberg, 1983; Cyr and Haley, 1983; Lindemann et.al., 1959), in this study unemployed patients were shown more likely to be over-represented in the "short stay" rather than the "long stay" group. This inconsistency may be due to the study hospital's short term treatment policy. Furthermore, the short stay of the unemployed patients may be explained by the fact that a higher percentage of unemployed patients had underlying diagnoses of "Reactive Depression", "Neurotic Disorders" and "Personality Disorders". These categories of patients were usually admitted for short stay management in the hospital. It should be noted that this study was conducted during a period of relatively high unemployment, especially among the young.

Insurance status

The main types of insurance coverage such as Medicare and private insurance were not significantly associated with length of hospital stay. However the "aged pensioner" category, was significantly associated with length of hospital stay. This finding could be due to the severity and complexity of diseases encountered in the

"aged pensioner" group. For example, conditions such as "Major Depression" and "Organic Mental Disorders" are commonly seen in this group of patients. Only one previous study (Kirshner and Johnston, 1985) examined the relationship between type of insurance coverage and length of hospital stay, with no significant relationship found.

Source of referral

The "private practice" category was shown to be significantly associated with length of hospital stay. A higher percentage of inpatients who had a longer stay in hospital were from the "private practice" category which included both psychiatric and non-psychiatric private practice. This finding could be explained by the fact that both psychiatric and non-psychiatric private practitioners tend to refer their more complicated cases for further evaluation and treatment in a hospital setting. Only two studies (Cyr and Haley, 1983; Kirshner and Johnston, 1983) investigated the relationship between source of referral and length of hospital stay; in these studies no significant relationship was found.

ii. Clinical variables

Admission status

In this study, the role of clinical variables proved salient in predicting length of hospital stay. Admission status was shown significantly associated with length of stay. More specifically, the "involuntary" category of the variable "admission status" was associated with a longer stay in hospital. This finding could be explained by the fact that the majority of the involuntary patients suffered from severe mental illnesses with a risk of danger to themselves and others. Severity and complexities of these diseases lead this group of patients to stay longer in hospital under order of detention. This was in keeping with the findings of previous studies (Munly et al., 1977; Cyr and Haley, 1983; Lindemann et al. 1959) which also demonstrated a significant relationship between length of stay and legal status of admission.

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Number of previous admissions and previous psychiatric hospital of admission

The number of previous admissions and previous psychiatric hospital admissions have been reported as significantly associated with length of stay (Kirshner and Johnston, 1985). However, this study failed to demonstrate such a relationship.

Past history of mental illness

This study failed to find any significant relationship between past history of mental illness and length of hospital stay.

Nature of presenting complaints

The "physical" category of the variable "nature of presenting complaint" was shown to be significantly associated with a "short stay" in hospital. This could be explained by the fact that many psychiatric patients grouped under "Neuroses" presented themselves predominantly with physical complaints. In general, patients with diagnoses of "Neuroses" are discharged earlier due to a perception of less severity and a concern that dependency problems might arise from the experience of a hospital mileu. No previous study has considered this variable as a possible predictor.

Attempted suicide

In this study there was a trend for attempted suicide to be over-represented in the "short stay" group. This trend could be explained by the fact the that majority of the attempted suicide cases had underlying diagnoses which included "Mood Disorders", "Neurotic Disorders" and "Personality Disorders". A review of the literature indicates that attempted suicide cases have a higher association with Symptomatic or Reactive Depressions. Attempted suicide cases with these diagnoses are usually admitted into the hospital for crisis intervention, and after a short hospitalization, are discharged for further care in a different setting e.g. the outpatient department.

Use of antipsychotics

Use of antipsychotics both at admission and at discharge was shown to be significantly associated with a longer stay in hospital. Usually patients prescribed

antipsychotics both at admission and at discharge suffered from "Psychoses", which included diagnoses such as "Schizophrenia", "Delusional Disorder", "Psychotic Disorders not elsewhere classified", and "Bipolar Disorders" (Manic type). In addition, low to moderate dose of antipsychotics were prescribed for some cases of "Major Depression" and "Organic Mental Disorders". Usually these categories of mental illnesses are severe with complexities in diagnosis and difficulties in management. Patients having antipsychotics for these diagnostic categories ("Major Depression" and "Organic Mental Disorder") would be expected to remain in hospital for longer periods of time. This finding is consistent with a previous study by Boelhouwer and Rosenberg (1983).

Use of antidepressants

The use of antidepressants both at admission and at discharge was also shown to be significantly associated with longer stay in hospital. Usually patients prescribed antidepressants both at admission and at discharge suffered from "Mood Disorders", which in the study setting tended to be severe and demanding from the diagnostic and management point of view. Furthermore, therapeutic schedules for "Mood Disorder" patients take longer to establish and stabilize. For example, the antidepressants are not expected to show their full effect in under three weeks. Hence patients having antidepressants for "Mood Disorders" stayed longer in hospital. This finding is also similar to that found by Boelhouwer and Rosenberg (1983).

Use of anxiolytics and hypnotics

Unlike antipsychotics and antidepressants, no prescription of anxiolytics and hypnotics both at admission and at discharge was significantly associated with the "short stay" group of inpatients. This finding reflects a number of diagnostic categories admitted in the hospital for a short period of treatment by methods other than pharmacotherapy and ECT. This finding also reflects a number of straightforward cases of "Psychoses", "Depression" and "Organic Mental Disorders" admitted for a short period of treatment by drugs other than anxiolytics and hypnotics. This finding is similar to that reported by Boelhouwer and Rosenberg (1983).

Use of Electroconvulsive Therapy (ECT)

Use of ECT was shown to be significantly associated with a longer stay in hospital. This is in keeping with the fact that patients with severe Endogenous Depression, (who are most likely to have ECT) stayed longer in the hospital. Furthermore, a course of eight to twelve ECT treatments can rarely be given in less than three weeks. This finding is consistent with previous studies by Boelhouwer and Rosenberg (1983), Malla (1988) and Herr et al. (1991).

Diagnoses (DSM-III-R AXIS I & II discharge diagnoses)

The results of this study demonstrate that discharge diagnostic categories were significantly related to length of stay. Major mental illnesses were significantly over-represented in the longer stay group while Minor mental illnesses were significantly over-represented in the "short stay" group. These findings could be explained by the fact that the use of antipsychotics, antidepressants, ECT and special investigations all take a much longer time in the management of Major mental illnesses. Furthermore, such patients are likely to have been admitted involuntarily and therefore greater caution tends to be exercised to ensure that dangers to self or others no longer exist before discharge. On the other hand, no medication, or anxiolytics and hypnotics only, were used with brief supportive psychotherapy for crisis intervention in acute cases, an active plan of early discharge with follow-up by outpatient clinicians, allowing short term hospitalisation for non-psychotic mental illnesses.

Further analysis of the diagnostic categories under Major and Minor mental illnesses indicate that "Mood Disorders" were significantly associated with the "long stay" group while "Neurotic" and "Personality Disorder" groups were significantly associated with the "short stay" group. This finding reflects the usefulness of diagnostic categories in predicting length of hospital stay, and is consistent with some previous studies (Lindemann et al, 1959; Heiman and Shanfield, 1980; Kirschner and Johnston, 1985; Michalon and Richman, 1990) while inconsistent with others (Dunham and Meltzer, 1959; Munely et al, 1977; Doherty, 1976). Cyr and Haley (1983) found a specific diagnosis of Schizophrenia significantly related to length of

stay. Mason et al. (1985) found excessive length of stay among demented geriatric patients and young patients with Personality Disorders. Boelhouwer and Rosenberg (1980) found a weak relationship between diagnosis and length of stay.

DSM-III-R AXIS III diagnosis (concomitant physical disorder)

It was found in this study that length of stay was not significantly associated with concomitant physical disorder. Kirshner and Johnston (1984) did not find a significant relationship between length of stay and concomitant physical disorder, although Boelhouwer and Rosenberg (1983) did find a significant relationship between length of stay and concomitant physical disorder.

DSM-III-R AXIS V (Level of adaptive functioning)

Both past and current level of adaptive functioning (psychological, social and occupational) along a hypothetical continuum of mental health-illness at admission were used to compare the "short stay" and "long stay" groups of inpatients. A past lower level of adaptive functioning was found significantly related to a longer stay in hospital. A similar association with past lower level of functioning was found by Kirschner and Johnston (1985). Such a finding may be expected.

iii. Stepwise multiple regression analysis

The results of the stepwise multiple regression analysis indicate that clinical variables dominated by treatment factors afford information in predicting length of hospital stay. The multiple R was significant ($R=0.633$, $P<.0001$) and accounted for 40% of the variance in length of psychiatric hospital stay. This represents an improvement over previous results. The percentages of variance in length of hospital stay explained by previous results were 23.94% by Johnston and McNeil (1964), 20.34% by Munley et al (1977), 30.72% by Cyr and Haley (1983), 20% by Boelhouwer & Rosenberg (1983), and 26% by Kirshner & Johnston (1985).

Although a substantial proportion of variance in length of hospital stay remained unaccounted for, this study identified nine variables that contributed significantly to the prediction of length of psychiatric hospital stay. In general, the findings of the multiple regression analysis indicate that the use of ECT, use of antipsychotics at admission,

use of antidepressants at admission, admission status, use of anxiolytics and hypnotics at admission, DSM-III-R AXIS III diagnosis at admission, level of DSM-III-R AXIS V functioning in the past year, diagnosis of Mood Disorders at discharge, and sex were the most efficient and statistically significant set of predictors for length of hospital stay.

The finding of an improvement of the multiple correlation co-efficient compared to previous results could be explained by both quantitative (or number) and qualitative (clinical typing) difference of the variables included for regression equations. In addition, it could also be explained by the variability in methods and patient characteristics in different studies.

COMMENTS

Of the 25 demographic and clinical variables, 17 served to differentiate between "long" and "short stay" groups beyond the .05 level of confidence. A composite picture of the "long stay" patient that emerged from this study was that of an older man or woman who was widowed, an aged pensioner, referred by private practitioners (both psychiatric and non psychiatric), an involuntary patient, prescribed either antipsychotics or antidepressants both at admission and at discharge, prescribed anxiolytics and hypnotics at discharge, received ECT, and who was diagnosed as a case of major mental illness and had a low level of past adaptive functioning. The reverse was true of the "short stay" patients.

This study was not designed to develop a predictive index. To develop such an index, cross-validation of another year's sample in the same setting with similar demographic and clinical variables will be needed. Generalization of results to other general hospital psychiatric units must, of course, await further cross-validation studies.

Although in the chi-square analyses, a number of diagnostic categories were found to be strongly significant, in multiple regression analysis only was Mood Disorder identified as a weak predictor of length of stay. It is interesting that in the

regression analysis demographic variables other than sex were not identified as predictors of length of stay. However, sex was identified as a very weak contributor to the regression equations.

a. Non-clinical and non-demographic variables

The large percentage of unexplained variance in length of hospital stay may be explained by investigations of non-clinical and non-demographic variables. Some suggestions of such variables have already been offered by different researchers. Johnston and McNeal (1964) suggested patient's expectations, his relative's tolerance for his pathology and the hospital milieu. Blackburn (1972) has suggested that it would be more productive to incorporate variables such as management philosophies and politically based information in predicting length of hospital stay. Cyr and Haley (1983) have suggested the consideration of variables such as the criteria set by ward teams for discharge, management pressures, selective admission and transfer policies and the availability of after care programs, in predicting length of hospital stay more accurately. Boelhouwer and Rosenberg (1983) have suggested that biopsychosocial factors be taken into account as well as fiscal and political realities which have an indirect, but major impact on length of stay. Kirshner and Johnston (1985) commented that psychiatric hospitalisation is a complex social system phenomenon with many interested parties. Economic pressures, belief systems of staff, legal concerns, professional demands and other non-medical factors all play a part.

b. Suggestions for future research

Due to the heterogeneity of subjects, settings, variables, definition of hospitalisation and statistical procedures, it is extremely difficult to compare directly the results of the previous studies. Therefore, to maintain homogeneity in all respects in studies on length of psychiatric hospital stay, some suggestions are put forward. These are: (1) settings between studies should be uniform i.e. either mental hospital or general hospital setting; (2) subjects between studies should be comparable; (3) there should be an internationally accepted uniform list of demographic and clinical variables to be included for statistical analysis; (4) there should be an international consistency in

the definition of hospitalisation; (5) there should be two fixed standard statistical procedures i.e. one to identify differential power of the variables between the group and the other is to establish predictors to explain maximum variance in length of stay; (6) apart from the use of standard fixed statistical procedures, the researchers would of course be at liberty to use statistical methods according to their choice, and (7) diagnostic systems between studies should be uniform. If these steps could be followed, the findings from various studies would be more comparable.

c. Conclusion

In conclusion, it can be said from the chi-square analyses of this study, that length of psychiatric hospital stay is significantly influenced by demographic and clinical variables. More specifically, the study identified significant demographic and clinical variables of both "long" and "short" stay inpatients of a general hospital psychiatry unit. Stepwise multiple regression analysis identified nine significant variables dominated by treatment factors to predict 40% of the variance in length of hospital stay. This indicates that the best predictors for maximum variance in length of hospital stay lie within the domain of clinical rather than demographic variables. However, a large proportion of the variance in length of hospital stay remains unexplained, and it draws attention to the need to examine non-clinical and non-demographic variables as possible predictors. Here it is instructive to recall the suggestions put forward by Cyr and Haley (1983), that variables such as criteria set by ward teams for discharge, management pressures, selective admission and transfer policies and the availability of after care programs to accurately predict length of hospital stay. However, on the basis of this study, it seems clear that in any further studies of this type, preferably prospective, the clinical and demographic variables should form a core group of predictors to be included, in addition to any of the non clinical concepts such as staff attitudes and ward milieu which are inevitably more difficult to define and measure (and were unfortunately beyond the time and resources available for this study).

IV. A FINAL COMMENT FROM A "THIRD WORLD" PERSPECTIVE

Given the scarcity of trained personnel in underdeveloped countries it would seem wise to concentrate resources in existing general hospitals where patients could benefit from a wide range of diagnostic and therapeutic possibilities. General hospital psychiatric services should be the core psychiatric service within the mental health delivery system, for a number of reasons. These are: (1) the social stigma of the mental hospital is not encountered in a general hospital setting; (2) families can be more directly involved in treatment; (3) mental health care can more easily be integrated within the existing general health delivery system, and (4) accessible for community based care can be provided as opposed to that available in the more remotely located mental hospital. In most countries, since few psychiatric hospitals exist, this will mean the development of general hospital psychiatric units. The findings of the present study have led the writer to the conclusion that this approach to psychiatry should be actively explored in underdeveloped "Third World" countries. Such a course would seem to have considerable advantages for standards of patient care, research and the undergraduate and postgraduate education and training of medical and other health professionals. In due course it will be interesting to compare the finding of the present study with that of studies carried out in third world countries.

SUMMARY OF THE STUDY

A retrospective study was carried out of 292 inpatients in a general hospital psychiatry unit to demonstrate demographic, clinical and diagnostic characteristics of inpatients (Part I) and to examine the relationship between length of hospital stay and a number of demographic and clinical variables (Part II).

PART I

Sociodemographic and clinical data for the 292 inpatients admitted during 1989 to a general teaching hospital psychiatric unit has been presented. The patient population served was described in terms of demographic, clinical and diagnostic groupings of DSM-III-R. The mean age of the sample was 43.74 years (SD = 17.72), the most frequently treated age group being 40-49 years. Females predominated in the sample. Male inpatients were significantly ($p < 0.05$) over-represented in the "never married" category. A slightly higher number of migrants were admitted than would be expected from their proportions in the general population. Inpatients belonging to the Catholic religion and inpatients with an Asian background were both over-represented when compared to their percentages in the general population. Unskilled, unemployed, pensioners, students and housewives were found most frequently occurring inpatient groups. The majority of the inpatients (91.5%) were covered by Medicare. The highest percentage (22.3%) of the inpatients were referred from medical units, and the second highest percentage (18.1%) were referred from both psychiatric and non-psychiatric private practice.

Just under a fifth (19.5%) of inpatients were admitted under order of detention. "Organic Mental Disorders" and "Psychotic Disorders" were significantly over-represented in involuntary inpatients ($p < 0.01$). Twenty-eight (27.2%) inpatients had a family history of drug and alcohol abuse. Forty-nine (29%) cases had a family history of "Affective Disorder"; 13 (7.7%) cases had a family history of "Substance Use Disorder"; 8 (4.7%) cases had a family history of "Schizophrenia"; 77.3% inpatients had a past history of physical illness, operation or accident; 70% had a past

history of mental illness; and 62 (30.2%) inpatients had a history of drug and alcohol abuse. Half of the inpatients manifested evidence of suicidal tendencies, both in terms of ideation and behaviour, while in 68 (23.3%) there was definite evidence of suicidal attempt.

The most commonly prescribed neuroleptic was haloperidol while the most frequently used antidepressant group were the tricyclic antidepressants. The most frequently used hypnotic was temazepam while the most frequently used anxiolytic was diazepam.

As regards AXIS I discharge diagnoses, 39% were "Mood Disorders"; 11.6% were "Adjustment Disorders"; 9.2% were "Somatoform Disorders"; 8.2% were "Schizophrenia"; 7.9% were "Organic Mental Disorders". A detailed diagnostic breakdown is presented; 15.4% were AXIS II discharge diagnoses of "Personality disorder"; 67.8% had concomitant physical disorder as the AXIS III discharge diagnoses. In AXIS IV the highest percentages of psychosocial stressors were between moderate to severe. In AXIS V, the majority of inpatients were rated between 0-40 for the current level of functioning with ratings between 61-90 for the past level of adaptive functioning.

Data from this study provide a baseline against which other epidemiological studies of inpatient populations of general hospital psychiatric units can be compared. Further implications of the findings are discussed.

PART II

Two hundred and ninety-two inpatients in the sample were divided into short stay (less than 12 days) and long stay (more than 12 days) groups and statistically compared. Sixteen significant demographic and clinical variables were identified utilizing chi-square analysis and the Mann-Whitney U test at a p value < 0.05. Stepwise multiple regression analysis identified nine variables (dominated by treatment factors) as the optimal set of predictors accounting for 40% of the variance in length of hospital stay. An improvement of the multiple correlation co-efficient ($R = 0.633$)

compared to previous studies was achieved. Implications of the findings for identifying potential short and long stay patients are discussed. Some suggestions are put forward to achieve comparability between studies. Despite non-clinical concepts such as staff attitudes and ward milieu which are inevitably more difficult to define and measure, clinical and demographic variables should form a core group of predictors in future studies.

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APPENDIX I

PATIENT CHARACTERISTICS AND PREDICTION OF LENGTH OF STAY IN A GENERAL HOSPITAL INPATIEN PSYCHIATRIC UNIT:

A RETROSPECTIVE STUDY

(DATA COLLECTION PROFORMA)

LINE I

DATE OF DATA COLLECTION: ☐☐☐☐☐☐

SUBJECT NUMBER: 1-3 ☐☐☐

PATIENT'S UNIT NUMBER: 4-9 ☐☐☐☐☐☐

DATE OF ADMISSION: 10-15 ☐☐☐☐☐☐

DATE OF DISCHARGE: 16-21 ☐☐☐☐☐☐

LENGTH OF STAY: (In days) 22-24 ☐☐☐

NAME:

ADDRESS:

POSTCODE: 25-28 ☐☐☐☐

AGE: 29-30 ☐☐

SEX: 31 ☐
1. Male
2. Female

MARITAL STATUS: 32 ☐
1. Never Married
2. Married
3. Widowed
4. Divorced
5. Separated
6. De-facto
9. Not known

COUNTRY OF BIRTH: 33 ☐
1. Australia
2. Other
9. Not known

PERIOD OF RESIDENCE: 34-35 ☐☐
(if born overseas) - in years

RACE: 36 ☐
1. Caucasian
2. Aboriginal
3. Asian
4. Other
9. Not known

RELIGION: 37 ☐
1. Catholic
2. Anglican
3. Uniting Church
4. Lutheran
5. Presbyterian
6. Baptist
7. No religion
8. Others
9. Not known

OCCUPATION: 38 ☐
1. Managerial
2. Professional
3. Skilled
4. Unskilled
5. Unemployed
6. Pensioner
7. Housewife
8. Student
9. Not known

EDUCATION: 39 ☐
1. Illiterate
2. Primary
3. Secondary
4. Higher Secondary
5. University
9. Not known

INSURANCE STATUS: 40 ☐
1. Medicare only
2. Private insurance
3. Aged Pensioners
4. Sickness benefits
5. Unemployed
6. Other
9. Not known

SOURCE OF REFERRAL: 41 ☐
1. Private medical practice
2. Inter-hospital transfer
3. Outpatient Department
4. Casualty
5. Medical Unit
6. Surgical Unit
7. Other Specialities
8. Self/Other
9. Not known

REFERRAL TO FURTHER CARE: 42 ☐
1. Private psychiatric practice
2. Outpatient Department
3. State Psychiatric Hospital
4. GP
5. Other
6. Not referred

9. Not known

ADMISSION STATUS: 43 ☐
1. Voluntary
2. Involuntary
3. Warrant

NUMBER OF PREVIOUS PSYCHIATRIC ADMISSIONS: 44 ☐
0. None
1. One
2. Two
3. Three
4. Four
5. Five or more
9. Not known

PREVIOUS PSYCHIATRIC HOSPITALISATION: 45 ☐
0. None
1. Same hospital _____
2. Other hospital _____
3. Both
9. Not known

FAMILY HISTORY OF DRUG AND ALCOHOL ABUSE: 46 ☐
1. Present
2. Absent
9. Uncertain

FAMILY HISTORY OF MENTAL DISORDERS: 47 ☐
0. Absent
1. Organic mental disorders
2. Schizophrenia
3. Affective disorders
4. Other psychoses
5. Neuroses
6. Personality disorders
7. Substance use disorder
8. Other conditions
9. Uncertain

FAMILY DISCORD: 48 ☐
1. Present
2. Absent
9. Uncertain

MARITAL DISCORD: 49 ☐
1. Present
2. Absent
3. Not applicable
9. Uncertain

DE-FACTO DISCORD: 50 ☐
1. Present
2. Absent
3. Not applicable
9. Uncertain

PAST HISTORY OF PHYSICAL ILLNESS, OPERATION OR ACCIDENT: 51 ☐

0. None
1. Physical illness
2. Operation
3. Accident
4. Physical illness and operation
5. Physical illness and accident
6. Operation and accident
7. All
9. Not known

HISTORY OF PAST MENTAL ILLNESS: 52 ☐

0. Absent
1. Organic mental disorders
2. Schizophrenia
3. Affective disorders
4. Other psychoses
5. Neuroses
6. Personality disorder
7. Substance use disorder
8. Other conditions
9. Uncertain

HISTORY OF DRUG AND ALCOHOL ABUSE: 53 ☐

1. Present
2. Absent
9. Uncertain

NATURE OF PRESENTING COMPLAINTS: 54 ☐

1. Physical
2. Psychiatric
3. Mixed

INQUIRY INTO SUICIDAL TENDENCIES: 55 ☐

0. None
1. Death wish
2. Suicidal ideation
3. Suicidal attempt_____

METHOD OF SUICIDAL ATTEMPT: 56 ☐

0. None
1. Shooting/Firearms) High risk agent
2. Jumping)
3. Hanging) Intermediate risk agent
4. Drowning)
5. Overdose of drug) Low risk agent
6. Self injury)
7. Gas or carbonmonoxide)
8. Poison)
10. Combination of methods)

MEDICAL LETHALITY OF SUICIDAL ATTEMPT: 57 ☐

0. None
1. High lethality
2. Intermediate lethality
3. Low lethality

CAT SCAN WITH RESULT: 58 ☐
1. Cat scan positive
2. Cat scan negative
3. Cat scan not done
4. Cat scan doubtful

EEG WITH RESULT: 59 ☐
1. EEG positive
2. EEG negative
3. EEG not done
4. EEG doubtful

ANTIPSYCHOTICS PRESCRIBED: On admission 60 ☐
0. None
1. Chlorpromazine — On discharge 61 ☐
2. Thioridazine
3. Trifluperazine
4. Prochlorperazine
5. Pimozide
6. Haloperidol
7. Chlorpromazine + Haloperidol
8. Thioridazine + Haloperidol
10. Trifluperazine + Haloperidol

ANTIPSYCHOTIC PERENTAL PREPARATION PRESCRIBED:
0. None — On admission 62 ☐
1. Inj. Chlorpromazine
2. Inj. Haloperidol — On discharge 63 ☐
3. Inj. Fluphenazine Decanoate

ANTIDEPRESSANTS PRESCRIBED: On admission 64 ☐
0. None
1. MAOI _____ — On discharge 65 ☐
2. TCA _____
3. Tetracyc. _____

ANXIOLYTIC AND HYPNOTICS PRESCRIBED:
0. None — On admission 66 ☐
1. Chlordiazepoxide
2. Diazepam — On discharge 67 ☐
3. Oxazepam
4. Alprazolam
5. Chloralhydrate
6. Nitrazepam
7. Temazepam
8. Inj. Diazepam
10. Combination of anxiolytic and hypnotics

OTHER DRUGS PRESCRIBED: On admission 68 ☐
0. None
1. Lithium carbonate — On discharge 69 ☐
2. Carbamazepine
3. Lithium + Carbamazepine
4. Antiparkinsonian drug
5. Antiparkinsonian drug + Lithium
6. Other

OTHER METHOD OF Rx PRESCRIBED: 70 ☐

0. None
1. ECT
2. Psychotherapy
3. Behaviour therapy
4. ECT + Psychotherapy
5. Psychotherapy + Behaviour therapy
6. Psychotherapy + Family therapy
9. Uncertain

LENGTH OF STAY IN HOSPITAL: 71 ☐

1. 01-21 days
2. 22-45 days
3. 46-above

LINE 2

DSMIIIR INITIAL DIAGNOSTIC GROUPINGS:

AXIS I

1. 1-5 ☐☐☐☐☐
2. 6-10 ☐☐☐☐☐
3. 11-15 ☐☐☐☐☐

AXIS II 16-20 ☐☐☐☐☐

21-25 ☐☐☐☐☐

AXIS III - Specify: 26 ☐

0. None
1. Skin and V. diseases
2. Eye diseases
3. Ear, nose, throat diseases
4. Surgical diseases
5. Medical diseases
6. Gynaecological diseases
7. More than one
9. Not known

Under medical diseases 27-28 ☐☐

0. None
1. Diseases of the C.V.S.
2. Diseases of the R. system
3. Diseases of the G.I.T. and pancreas
4. Diseases of the liver and Biliary tract
5. Diseases of the kidney and G.U. system
6. Endocrine and metabolic diseases
7. Dliseases of blood
8. Diseases of connective tissue, joints and bones
10. Diseases of nervous system
11. More than one
9. Not known

AXIS IV

29 ☐ Acute (0-6)

30 ☐ Enduring (0-6)

AXIS V

31-32 ☐☐ Past

33-34 ☐☐ Current

DSMIIIR FINAL DIAGNOSTIC GROUPINGS:

AXIS I

1. 35-39 ☐☐☐☐☐

2. 40-44 ☐☐☐☐☐

3. 45-49 ☐☐☐☐☐

AXIS II 50-54 ☐☐☐☐☐

55-59 ☐☐☐☐☐

AXIS III - Specify: 60 ☐

0. None
1. Skin and V. diseases
2. Eye diseases
3. Ear, nose, throat diseases
4. Surgical diseases
5. Medical diseases
6. Gynaecological diseases
7. More than one
9. Not known

Under medical diseases: 61-62 ☐☐

0. None
1. Diseases of the C.V.S.
2. Diseases of the R. system
3. Diseases of the G.I.T. and pancreas
4. Diseases of the liver and biliary tract
5. Diseases of the kidney and G.U. system
6. Endocrine and metabolic diseases
7. Diseases of blood
8. Diseases of connective tissue, joints and bones
10. Diseases of nervous system
11. More than one
9. Not known

AXIS IV

63 ☐ Acute (0-6)

64 ☐ Enduring (0-6)

AXIS V	65-66		Past
	67-68		Current

OUTCOME OF TREATMENT: 69

1. Improved (Mild)
2. Improved (Moderate)
3. Improved (Marked)
4. Unchanged
9. Uncertain

APPENDIX II

FACE SHEET OF THE CASE NOTE

ROYAL ADELAIDE HOSPITAL

PATIENTS DETAILS

Surname

First Names

Usual Address

SA

Postcode 5062

Phone No.

Religion RC

Usual Occupation (Including Industry) MAIL OFFICER

Fund Name and Table

Health Ins. No.

Contact Person

Relationship

Person financially responsible

Relationship

L.M.O. (name)

Discharged from hospital in past 7 days Yes/No N

IF YES NAME OF HOSPITAL

Age 57

SEX M Male F Female U Unknown M

Date of Birth 06 11 1931

Marital Status 1. Never Married 2. Married/De-facto 3. Widowed 4. Divorced 5. Separated 9. Not known

Country of Birth ITALY

If born overseas, period resident in Australia (years).

Race 1. Caucasian 2. Aboriginal 3. Asian 4. Other

(Pension Number)

Insurance Status 1 Medicare only 2 Private insurance 5 Aged Pensioners 6 Sickness Benefits & Invalid Pension 7 Unemployed 8 Other 9 Not known

Compensation Eligibility 1. Motor Vehicle 2. Workers 3. Shipping 4. Other 0. Not Compensable

Address

Phone No

Address

Election Form Signed Yes/No Y

Address 5000

5 LGA 4340

6 2

7 27

8 033

9 1

10 155

18 Medicare Number 5014618941

19

ADMISSION

Referring Doctor

Admission time 0905

Date of Admission 23 01 1989

Source of referral 1 Private medical practice 2 Nursing home 3 Community health service 4 Inter-hosp transfer 5 Outpatient dept 6 Casualty 9 Unknown EGLC1

14 4

Reason for Admission NERVOUS DISORDER

Type of Admission 1 Elective 2 Emergency 3 Other 4 Day Patient

15 1

Medical officer

Ward C3

Clinical Unit Number

16 092

Patient Class 1 Hospital 2 Private 3 Nursing Home Type

17 1

Separation time

Date of Separation 18 3 2 1989

Nature of Separation 1 Home 2 Other hospital 3 Nursing home 4 Other health care accommodation 5 Died – no autopsy 6 Died – autopsy 8 Absconded

19 1

Referral to further care 1 Private practice 2 OPD 3 Community health service 4 Other 8 Not referred 9 Not known

20 2

PRINCIPAL DIAGNOSIS Adjustment Reaction to depressed mood

21 309.0

Complications

22

Post-operative complications

23

Other conditions (if relevant)

24

PROCEDURES PRINCIPAL other – in order of importance

25

"NOT CHECKED/SIGNED BY MEDICAL OFFICER"

External cause of accident poisoning or violence (E/P)

26

0 Home 2 Mine/Quarry 4 Recreation/Sport facility 6 Public buildings 8 Other 27

DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS

(THIRD EDITION - REVISED)

DSM-III-R

Published by the
American Psychiatric Association
Washington, DC
1987

Use of This Manual

This chapter includes a discussion of the following:

MULTIAXIAL EVALUATION

A multiaxial evaluation requires that every case be assessed on several "axes," each of which refers to a different class of information. In order for the system to have maximal clinical usefulness, there must be a limited number of axes; there are five in the DSM-III-R multiaxial classification. The first three axes constitute the official diagnostic assessment.

Use of the DSM-III-R multiaxial system ensures that attention is give to certain types of disorders, aspects of the environment, and areas of functioning that might be overlooked if the focus were on assessing a single presenting problem.

Each person is evaluated on each of these axes:

Axis I Clinical Syndromes and V Codes

Axis II Developmental Disorders and Personality Disorders

Axis III Physical Disorders and Conditions

Axis IV Severity of Psychosocial Stressors

Axis V Global Assessment of Functioning

Axes IV and V are available for use in special clinical and research settings; they provide information that supplements the official DSM-III-R diagnoses (on Axes I, II, and III) and that may be useful for planning treatment and predicting outcome.

Axes I and II. Mental Disorders and V Codes

Axes I and II constitute the entire classification of mental disorders plus V Codes (Conditions Not Attributable to a Mental Disorder That Are a Focus of Attention or Treatment). The disorders listed on Axis II, Developmental Disorders and Personality Disorders, generally begin in childhood or adolescence and persist in a stable form (without periods of remission or exacerbation) into adult life. With only a few exceptions (e.g., the Gender Identity Disorders and Paraphilias), these features are not characteristic of the Axis I disorders. The separation between Axis I and Axis II ensures that in the evaluation of adults, consideration is given to the possible presence of Personality Disorders that may be overlooked when attention is directed to the usually more florid Axis I disorder. The Axis I–Axis II distinction in evaluating children emphasizes the need to consider disorders involving the development of cognitive, social, and motor skills.

In many instances there will be a disorder on both axes. For example, an adult may have Major Depression noted on Axis I and Obsessive Compulsive Personality Disorder on Axis II, or a child may have Conduct Disorder noted on Axis I and Developmental Language Disorder on Axis II. In other instances there may be no disorder on Axis I, the reason for seeking treatment being limited to a condition noted on Axis II. In this latter case, the clinician should write: *Axis I*: V71.09 No diagnosis or condition on Axis I, or one of the Conditions Not Attributable to a Mental Disorder should be recorded. On the other hand, if a disorder is noted on Axis I but there is no evidence of an Axis II disorder, the clinician should write: *Axis II*: V71.09 No diagnosis on Axis II.

Multiple diagnoses within Axes I and II

On both Axes I and II, multiple diagnoses should be made when necessary to describe the current condition. This applies particularly to Axis I, on which, for example, a person may have both a Psychoactive Substance Use Disorder and a Mood Disorder. It is also possible to have multiple diagnoses within the same class. For example, it is possible to have several Psychoactive Substance Use Disorders or, in the class of Mood Disorders, it is possible to have Major Depression superimposed on Dysthymia or Bipolar Disorder superimposed on Cyclothymia. In other classes, such as Schizophrenia, however, each of the types is mutually exclusive.

Within Axis II, the diagnosis of multiple Specific Developmental Disorders is common. For some adults the persistence of a Specific Developmental Disorder and the presence of a Personality Disorder may require that both be noted on Axis II. Usually, a single Personality Disorder will be noted; but when the person meets the criteria for more than one, all should be recorded.

Axis II and description of personality features

Axis II can be used to indicate specific personality traits or the habitual use of particular defense mechanisms (see Glossary for definitions). This can be done when no Person-

ality Disorder exists or to supplement a Personality Disorder diagnosis. (Code numbers are not used when personality traits are noted, since a code number indicates a Personality Disorder.)

Examples: Axis II: 301.40 Obsessive Compulsive Personality Disorder with paranoid traits

Axis II: V71.09 No diagnosis on Axis II but massive denial of Axis III disorder (juvenile diabetes)

Principal diagnosis

When a person receives more than one diagnosis, the *principal* diagnosis is the condition that was chiefly responsible for occasioning the evaluation or admission to clinical care. In most cases this condition will be the main focus of attention or treatment. The principal diagnosis may be an Axis I or an Axis II diagnosis; but when an Axis II diagnosis is the principal diagnosis, the Axis II entry should be followed by the phrase "(Principal diagnosis)."

Example: Axis I: 303.90 Alcohol Dependence
Axis II: 301.70 Antisocial Personality Disorder (Principal diagnosis)

When a person has both an Axis I and an Axis II diagnosis, the principal diagnosis will be assumed to be on Axis I unless the Axis II diagnosis is followed by the qualifying phrase "(Principal diagnosis)."

When multiple diagnoses are made on either Axis I or Axis II, they should be listed within each axis in the order of focus of attention or treatment. For example, if a person with Schizophrenia, Paranoid Type, Chronic, comes to an emergency room for treatment of Alcohol Intoxication, the diagnosis should be listed:

Axis I : 303.00 Alcohol Intoxication
295.32 Schizophrenia, Paranoid Type, Chronic

Provisional diagnosis

In some instances not enough information will be available to make a firm diagnosis. The clinician may wish to indicate a significant degree of diagnostic uncertainty by writing "(Provisional)" following the diagnosis—e.g., Schizophreniform Disorder (Provisional, rule out Organic Delusional Disorder).

Levels of diagnostic certainty

The following table indicates the various ways in which a clinician may indicate diagnostic uncertainty:

Term	Examples of clinical situations
V Codes (for Conditions Not Attributable to a Mental Disorder That Are a Focus of Attention or Treatment)	Insufficient information to know whether or not a presenting problem is attributable to a mental disorder, e.g., Academic Problem; Adult Antisocial Behavior.
799.90 Diagnosis or Condition Deferred on Axis I	Information inadequate to make any diagnostic judgment about an Axis I diagnosis or condition.

799.90 Diagnosis Deferred on Axis II	Same for an Axis II diagnosis.
300.90 Unspecified Mental Disorder (nonpsychotic)	Enough information available to rule out a psychotic disorder, but further specification is not possible.
298.90 Psychotic Disorder Not Otherwise Specified	Enough information available to determine the presence of a psychotic disorder, but further specification is not possible.
(Class of disorder) Not Otherwise Specified	Enough information available to indicate the class of disorder that is present, but further specification is not possible, because either there is not sufficient information to make a more specific diagnosis, or the clinical features of the disorder do not meet the criteria for any of the specific categories in that class, e.g., Depressive Disorder Not Otherwise Specified.
Specific diagnosis (Provisional)	Enough information available to make a "working" diagnosis, but the clinician wishes to indicate a significant degree of diagnostic uncertainty, e.g., Schizophreniform Disorder (Provisional).

Axis III. Physical Disorders or Conditions

Axis III permits the clinician to indicate any current physical disorder or condition that is potentially relevant to the understanding or management of the case. These are the conditions listed outside the mental disorders section of ICD-9-CM. In some instances the condition may be etiologically significant (e.g., a neurologic disorder associated with Dementia); in other instances the physical disorder may not be etiologic, but important in the overall management of the case (e.g., diabetes in a child with Conduct Disorder). In yet other instances, the clinician may wish to note significant associated physical findings, such as "soft neurologic signs." Multiple diagnoses are permitted.

Axis IV. Severity of Psychosocial Stressors

Axis IV provides a scale, the Severity of Psychosocial Stressors Scale (see p. 11) for coding the overall severity of a psychosocial stressor or multiple psychosocial stressors that have occurred in the year preceding the current evaluation and that may have contributed to any of the following:

(1) development of a new mental disorder
(2) recurrence of a prior mental disorder
(3) exacerbation of an already existing mental disorder (e.g., divorce occurring during a Major Depressive Episode, or during the course of chronic Schizophrenia)

(Note: Post-traumatic Stress Disorder is an exception to the requirement that the stressor has occurred within a year before the evaluation.) The current disorder that is related to the psychosocial stressor may be either a clinical syndrome, coded on Axis I, or an exacerbation of a Personality or Developmental Disorder, coded on Axis II. In some instances the stressor is anticipation of a future event, e.g., imminent retirement.

Although a stressor frequently plays a precipitating role in a disorder, it may also be a consequence of the person's psychopathology—e.g., Alcohol Dependence may lead to marital problems and divorce, which can then become stressors contributing to the development of a Major Depressive Episode.

Rating the severity of the stressor. The rating of the severity of the stressor should be based on the clinician's assessment of the stress an "average" person in similar circumstances and with similar sociocultural values would experience from the particular psychosocial stressor(s). This judgment involves consideration of the following: the amount of change in the person's life caused by the stressor, the degree to which the event is desired and under the person's control, and the number of stressors. For example, a planned pregnancy is usually less stressful than an unwanted pregnancy. Even though a specific stressor may have greater impact on a person who is especially vulnerable or has certain internal conflicts, the rating should be based on the severity of the stressor itself, not on the person's vulnerability to the particular stressor. If a vulnerability to stress exists, it will frequently be due to a mental disorder that is coded on Axis I or II.

The specific psychosocial stressor(s) should be noted and further specified as either:

predominantly acute events (duration less than six months)

predominantly enduring circumstances (duration greater than six months)

Examples of predominantly acute events are entering a new school or beginning a new job, having an accident, and death of a loved one. Examples of predominantly enduring circumstances are chronic marital or parental discord, and persistent and harsh parental discipline. The distinction between these two types of stressors may be important in formulating a treatment plan that includes attempts to remove the psychosocial stressor(s) or to help the person cope with it (them). Furthermore, there is evidence that predominantly enduring psychosocial stressors are more likely to predispose children to develop mental disorders than predominantly acute events.

In evaluating the stressors that may have contributed to the development of the current episode of illness, more than one may be judged to be relevant, but rarely should more than the four most severe be recorded. When more than one stressor is present, the severity rating will generally be that of the most severe stressor. However, in the case of multiple severe or extreme stressors, a higher rating should be considered. Each of the stressors should be noted and listed in the order of their importance.

Separate examples are given below for adults and for children and adolescents. These may be used as general guides for making the severity rating, the context in which the stressor(s) occurs being taken into account.

The code "0" should be used either when there is inadequate information about the presence or absence of psychosocial stressors to make a more definitive rating, or when the use of this axis is not appropriate because there has been no change in the person's condition (e.g., the person is being reevaluated after several months in the hospital because of a change of therapists).

Types of psychosocial stressors to be considered. To ascertain etiologically significant psychosocial stressors, the following areas may be considered:

Conjugal (marital and nonmarital): e.g., engagement, marriage, discord, separation, death of spouse.

Parenting: e.g., becoming a parent, friction with child, illness of child.

Other interpersonal: problems with one's friends, neighbors, associates, or nonconjugal family members, e.g., illness of best friend, discordant relationship with boss.

Occupational: includes work, school, homemaking, e.g., unemployment, retirement, school problems.

Living circumstances: e.g., change in residence, threat to personal safety, immigration.

Financial: e.g., inadequate finances, change in financial status.

Legal: e.g., arrest, imprisonment, lawsuit, or trial.

Developmental: phases of the life cycle, e.g., puberty, transition to adult status, menopause, "becoming 50."

Physical illness or injury: e.g., illness, accident, surgery, abortion. (Note: A physical disorder is listed on Axis III whenever it is related to the development or management of an Axis I or II disorder. A physical disorder can also be a psychosocial stressor if its impact is due to its meaning to the individual, in which case it would be listed on both Axis III and Axis IV.)

Other psychosocial stressors: e.g., natural or manmade disaster, persecution, unwanted pregnancy, out-of-wedlock birth, rape.

Family factors (children and adolescents): In addition to the above, for children and adolescents the following stressors may be considered: cold, hostile, intrusive, abusive, conflictual, or confusingly inconsistent relationship between parents or toward child; physical or mental illness in a family member; lack of parental guidance or excessively harsh or inconsistent parental control; insufficient, excessive, or confusing social or cognitive stimulation; anomalous family situation, e.g., complex or inconsistent parental custody and visitation arrangements; foster family; institutional rearing; loss of nuclear family members.

Axis V. Global Assessment of Functioning

Axis V permits the clinician to indicate his or her overall judgment of a person's psychological, social, and occupational functioning on a scale, the Global Assessment of Functioning Scale (GAF Scale)[1], that assesses mental health-illness. This scale appears on p. 12.

Ratings on the GAF Scale should be made for two time periods:

(1) Current—the level of functioning at the time of the evaluation.

(2) Past year—the highest level of functioning for at least a few months during the past year. For children and adolescents, this should include at least a month during the school year.

Ratings of current functioning will generally reflect the current need for treatment or care. Ratings of highest level of functioning during the past year frequently will have prognostic significance, because usually a person returns to his or her previous level of functioning after an episode of illness.

---

[1]The GAF Scale is a revision of the GAS (Endicott J, Spitzer RL, Fleiss J, et al: The Global Assessment Scale: A procedure for measuring overall severity of psychiatric disturbance. *Archives of General Psychiatry* 33:766-771, 1976) and the CGAS (Shaffer D, Gould MS, Brasic J, et al: Children's Global Assessment Scale [CGAS]. *Archives of General Psychiatry* 40:1228-1231, 1983), which are revisions of the Health-Sickness Rating Scale (Luborsky L: Clinicians' judgments of mental health. *Archives of General Psychiatry* 7:407-417, 1962).

APPENDIX IV

Severity of Psychosocial Stressors Scale: Adults

See p. 18 for instructions on how to use this scale.

Code	Term	Examples of stressors	
		Acute events	Enduring circumstances
1	None	No acute events that may be relevant to the disorder	No enduring circumstances that may be relevant to the disorder
2	Mild	Broke up with boyfriend or girlfriend; started or graduated from school; child left home	Family arguments; job dissatisfaction; residence in high-crime neighborhood
3	Moderate	Marriage; marital separation; loss of job; retirement; miscarriage	Marital discord; serious financial problems; trouble with boss; being a single parent
4	Severe	Divorce; birth of first child	Unemployment; poverty
5	Extreme	Death of spouse; serious physical illness diagnosed; victim of rape	Serious chronic illness in self or child; ongoing physical or sexual abuse
6	Catastrophic	Death of child; suicide of spouse; devastating natural disaster	Captivity as hostage; concentration camp experience
0	Inadequate information, or no change in condition		

Severity of Psychosocial Stressors Scale: Children and Adolescents

See p. 18 for instructions on how to use this scale.

Code	Term	Examples of stressors	
		Acute events	Enduring circumstances
1	None	No acute events that may be relevant to the disorder	No enduring circumstances that may be relevant to the disorder
2	Mild	Broke up with boyfriend or girlfriend; change of school	Overcrowded living quarters; family arguments
3	Moderate	Expelled from school; birth of sibling	Chronic disabling illness in parent; chronic parental discord
4	Severe	Divorce of parents; unwanted pregnancy; arrest	Harsh or rejecting parents; chronic life-threatening illness in parent; multiple foster home placements
5	Extreme	Sexual or physical abuse; death of a parent	Recurrent sexual or physical abuse
6	Catastrophic	Death of both parents	Chronic life-threatening illness
0	Inadequate information, or no change in condition		

APPENDIX V

Global Assessment of Functioning Scale (GAF Scale)

Consider psychological, social, and occupational functioning on a hypothetical continuum of mental health-illness. Do not include impairment in functioning due to physical (or environmental) limitations. See p. 20 for instructions on how to use this scale.

Note: Use intermediate codes when appropriate, e.g., 45, 68, 72.

Code	
90	Absent or minimal symptoms (e.g., mild anxiety before an exam), good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, no more than everyday problems or concerns (e.g., an occasional argument with family members).
81	
80	If symptoms are present, they are transient and expectable reactions to psychosocial stressors (e.g., difficulty concentrating after family argument); no more than slight impairment in social, occupational, or school functioning (e.g., temporarily falling behind in school work).
71	
70	Some mild symptoms (e.g., depressed mood and mild insomnia) OR some difficulty in social, occupational, or school functioning (e.g., occasional truancy, or theft within the household), but generally functioning pretty well, has some meaningful interpersonal relationships.
61	
60	Moderate symptoms (e.g., flat affect and circumstantial speech, occasional panic attacks) OR moderate difficulty in social, occupational, or school functioning (e.g., few friends, conflicts with co-workers).
51	
50	Serious symptoms (e.g., suicidal ideation, severe obsessional rituals, frequent shoplifting) OR any serious impairment in social, occupational, or school functioning (e.g., no friends, unable to keep a job).
41	
40	Some impairment in reality testing or communication (e.g., speech is at times illogical, obscure, or irrelevant) OR major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood (e.g., depressed man avoids friends, neglects family, and is unable to work; child frequently beats up younger children, is defiant at home, and is failing at school).
31	
30	Behavior is considerably influenced by delusions or hallucinations OR serious impairment in communication or judgment (e.g., sometimes incoherent, acts grossly inappropriately, suicidal preoccupation) OR inability to function in almost all areas (e.g., stays in bed all day; no job, home, or friends).
21	
20	Some danger of hurting self or others (e.g., suicide attempts without clear expectation of death, frequently violent, manic excitement) OR occasionally fails to maintain minimal personal hygiene (e.g., smears feces) OR gross impairment in communication (e.g., largely incoherent or mute).
11	
10	Persistent danger of severely hurting self or others (e.g., recurrent violence) OR persistent inability to maintain minimal personal hygiene OR serious suicidal act with clear expectation of death.
1	
0	Inadequate information.

APPENDIX VI

DSM-III-R MULTIAXIAL EVALUATION CARD

C4 092 HOSP
PR#00000999
SA 50A2 230189096CSTC

			AXIS III	AXIS IV	AXIS V
20/1/89	Adjustment disorder c̄ depressed mood ~~[illegible]~~ 309 . 24 R/O Major depression.	Dete.	Dysarthria dysphasia. and dysphagia (uncertain cause).	Severe predominantly chronic	Current 60 Best 70

APPENDIX VII

South Australia—Mental Health Act, 1976-1979

ORDER FOR IMMEDIATE ADMISSION AND DETENTION

The Superintendent,
Royal Adelaide Hospital.

I have this day personally examined ..... (name)
(Block Letters)

of ..... (address)

As a result of my examination I am satisfied:—

(*a*) that that person is suffering from a mental illness that requires immediate treatment;

(*b*) that such treatment can be obtained by admission to and detention in an approved hospital; and

(*c*) that that person should be admitted as a patient in an approved hospital in the interests of his/her own health and safety or for the protection of other persons;

and I hereby make an order for his/her immediate admission and detention under section 14 (1) of the Mental Health Act, 1976-1979.

The following are the grounds on which this order is made:

She has a recurrent dysphasic state with confusion, disorganization & disorientation displaying poor insight & judgement and attempting to abscond from ward. She requires supervised care for her own health & safety

Name .....

Address RAH

Date 3.10.89 Signature .....
(Qualified Medical Practitioner)

Section 14 (3):—

Having personally examined ..... (Block Letters)

..... (name), I *agree/do not agree that that person requires to be detained, and I therefore *confirm/discharge the order.

Name .....

Address RAH

Date 4/10/89 Signature ..... (Psychiatrist)

(See over)

*Cross out whichever is not applicable.

It is important to note that section 14 (2) of the Mental Health Act, 1976-1979, states that an orde for admission and detention of a person in an approved hospital made by a legally qualified medic practitioner "shall, unless discharged, be effective for a period of three days".

Section 14 (3) requires that the person shall be examined by a psychiatrist where possible withi twenty four hours of his/her admission or otherwise as soon as practicable after his/her admission.

The following particulars will be most valuable and may be provided by the referring doctor or b any relative, friend or other person with the knowledge at the time of the certification.

STATEMENT OF PARTICULARS

SURNAME..... .....(Block Letters

Christian Names:.....

Address:.....

Phone:..... Post Code:.....

Sex..... Date of Birth:..../..../.... Age.....

Marital Status: (Single, Married, Widowed, Divorced, Separated, De Facto).....

.....

Maiden Name:.....

Number of Children:..... Age of Youngest Child:.....

Birthplace:..... Year of Arrival in Australia:.....

Religion:..... Education Level:.....

Own Occupation:.....

Occupation of Main Income Earner in Household:..... (If differs from above)

Next of Kin:—

Name:..... Relationship:.....

Address:.....

Phone:..... Alternative Phone Contact:.....

Parents' Birthplaces:.....

When and Where Previously Treated:.....

Admissions in Other States (if any):.....

Referred By:.....

Name and Address of Family Doctor:.....

.....

Whether Ex-Service:.....

Medibank No.:.....or Private Hospital Fund.....

Private Hospital Fund No.....

(Section 14 (5))

Form No. V

South Australia—Mental Health Act, 1976-1979

ORDER FOR FURTHER DETENTION
FOR PERIOD NOT EXCEEDING TWENTY-ONE DAYS

The Superintendent,

Royal Adelaide ..... Hospital.

Having this day personally examined:

..... (name) of .....

(Block Letters)

..... (address) I am satisfied that that patient is suffering from a mental illness that requires continuing treatment in an approved hospital in the interests of his/her own health and safety or for the protection of other persons, and I hereby make this order for his/her further detention for a period not exceeding twenty-one days commencing on the expiration of the order by which the patient was detained pursuant to the provisions of the Mental Health Act, 1976-1979.

The following are the grounds on which this order is made:

She is agitated and severely depressed. She describes suicidal ideation and fears loss of control. She needs inpatient management and treatment.

Name .....

Address .....

Date 13/10/89 Signature ..... (Psychiatrist)

(See over)

PLEASE NOTE:—

Subsection (6) of Section 14 specifies that no psychiatrist who has made an initial order for the admission and detention of a patient under Subsection (1) of this section may make an order for the further detention of that patient under this Subsection (5).

Section 14 (10) requires that, where an order for further detention of a patient is made under this Subsection (5), a report shall be made setting out the grounds upon which the order is made.

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APPENDIX VIII

UR11

Date: 21/2/89

ROYAL ADELAIDE HOSPITAL
CLINICAL SUMMARY

SURNAME	FIRST NAMES	DATE OF BIRTH	UR NUMBER
		6/11/31	268641
ADDRESS OF PATIENT		S.A. 5062	
CONSULTANT	WARD C3	ADMISSION DATE 23/1/89	DISCHARGE DATE 3/2/89
REFERRING DOCTOR AND ADDRESS			
L.M.O. AND ADDRESS		S.A. 5072	

FINAL DIAGNOSIS

AXIS 1 - ADJUSTMENT DISORDER WITH DEPRESSED MOOD.
AXIS 3 - DYSPROSODY OF UNKNOWN ORIGIN.

PROFILE:
58 year old married man of Italian extraction. Works for Australia Post.

REFERRAL:- Via Skin Clinic.

PRESENTATION: 13 month history progressive difficulty with speech that had escalated over the past 2-3 months. Has difficulty with both articulating words and sentences. Denies any nominal or receptive problems. Problem is worse in English in which he is reasonably fluent. Over the last 2 months he has also had some problems swallowing fluids and often coughs even when he swallows his saliva. There were no other neurological symptoms. Over the last 3-4 months his mood has become increasingly depressed due to his difficulty with communication. There have been no changes in sleep, apetite or diurnal mood variation. He does however report decreased interest in activities. He has had symptoms of anxiety again, feeling anxious in crowds and tense due to his communication problems. A trial Lorazepam was unhelpful, in fact made his symptoms worse.

STRESSORS:

1. Financial concerns - wife has a current compensation claim.
2. Worried about having to give up his employment.

Non smoker, no alcohol.
No medications.

SURNAME	FIRST NAMES	DATE OF BIRTH	UR NUMBER
..		6/11/31	268641

PAST MEDICAL HISTORY: Recurrent prostitis, multiple hernia repairs and urethral stricture.

PAST PSYCHIATRIC HISTORY: Nil.

FAMILY PSYCHIATRIC HISTORY: Nil.

FAMILY HISTORY:
Of significance - both parents suffered from severe dementia. His mother recently being hospitalised for this. Patient emigrated to Australia 1956. Normal developmental history. Average schollar, left school at age 10 because of the War. Stable occupational functioning. Describes his marriage as average, denies any acute problems. 3 children all living at home.

PHYSICAL EXAMINATION:
There were no abnormal findings other than a groin rash consistent with a tinnia infection. Neurological examination was normal.

MENTAL STATE EXAMINATION:
Neatly groomed middle aged man, stockily built. Co-operative and anxious. Obviously distressed and frustrated by speech difficulties. Spoke with a foreign accent, but his speech showed evidence of severe expressive problem, marked dysarthia. There was no evidence of nominal failure and he had much more difficulty with phrases than single words. Affect was depressed and tearful but did show reactivity. He was fully oriented and performed limited cognitive testing well. Rapport was easily achieved.

PROGRESS:
It was felt that Mr. Iadarola was suffering from a primary neurological disorder, though the cause of this was not clear. It was felt that his depressive symptoms were reactive in nature and this was confirmed during his period in hospital where is affect improved and his symptoms of anxiety decreased with support psychotherapy. Neurological review confirmed our feeling that it was a primary organic disorder, but felt that at this stage there was limited benefit in doing any further investigations other than neuropsychological assessment and that the pathology would probably declare itself with time. Mr. Iadarola was assessed by the Speech Therapy department in English and Italian and they felt that he had a dysprosity that was consistent with a cortical lesion and possibly with the early onset of a dementia even though his cognitive functioning was reasonable. Towards the end of his admission his mood had improved considerably and he was having regular therapy for his speech which had provided a little improvement.

INVESTIGATIONS:
CT scan of head - normal.
M.R.I. - normal.
Left skin scraping showed fungal elements.
Chest XRay showed a normal chest other than mild elevation of the right hemidiaphragm.
MBA & CBP - both normal.
VDRL - normal.
Thyroid function tests - normal.

Neuropsychological Testing: Showed that his cognitive function was only fair but it was uncertain as to whether the performance level was his normal or showed evidence of decline. It was suggested that repeat testing in 6-12 months could help clarify this. The testing was hindered by his command of English.

DSM III R DIAGNOSIS:
Axis 1 - Adjustment disorder with depressed mood.
Axis 2 - No diagnosis.
Axis 3 - Dysprosity unknown origin and groin rash.
Axis 4 - Fair.
Axis 5 - GAF - best of 80, current of 65.

D/C TREATMENT:
Nil.

FOLLOW-UP:
1. Anne Loughlan in Psychiatric OPD.
2. Neurological follow-up with Dr. Kneebone will be arranged.

Yours sincerely,

PSYCHIATRY REGISTRAR

APPENDIX IX

SPLITTING OF THE CHI-SQUARE

An example of splitting of the chi-square technique has been described with reference to Table 5.3 presented in Chapter V.

TABLE 5.3

LENGTH OF STAY BY MARITAL STATUS

INPATIENTS

Marital status	Long stay n=142	Short stay n=144	Total
Single	38	54	92
Married/ Defacto	53	48	101
Widowed	24	8	32
Divorced/ Separated	27	34	61
Total	142	144	286

To calculate the expected number a constant multiplier for each group was obtained by dividing the total of the group by the grand total for both the groups. In Table 5.3 for the long stay group this is (142/286) =.496. The fraction is then successively multiplied by 92, 101, 32 and 61. For the short stay group the fraction is (144/286) =.503. This too is successively multiplied by 92, 101, 32 and 61.

TABLE 5.3a

CALCULATION OF THE CHI-SQUARE ON THE FIGURES IN TABLE 5.3

	Expected numbers		O-E		$(O-E)^2/E$	
Marital status	Long stay	Short stay	Long stay	Short stay	Long stay	Short stay
Single	45.7	46.3	-7.7	7.7	1.297	1.280
Married/ Defacto	56.1	50.9	2.9	-2.9	.167	.165
Widowed	15.9	16.1	8.1	-8.1	4.126	4.075
Divorced/ Separated	30.3	30.7	-3.3	3.3	.359	.354
Total	142	144	0	0	5.949	5.874

$X^2=11.823$, df=3, $p< 0.01$

The calculation in Table 5.3a shows that chi-square value is 11.823, with 3 degrees of freedom and a $p < 0.01$. This is a highly significant result, but to locate which category or categories is or are responsible for the highly significant result, the splitting of the chi-square is a helpful technique.

SPLITTING OF THE CHI-SQUARE

Inspection of Table 5.3a shows that much the largest contribution to the total chi-square comes from the figures for the "widowed" category. They are 4.126 and 4.075, which together equal 8.201. If this figure is subtracted from the total chi-square, an approximate figure 3.748 (11.823-8.075=3.748) for the chi-square is

arrived upon for the remainder of the table, with 2 degrees of freedom (by removing the widowed category) and a p value > 0.1 which is a non-significant result. However, this is only a rough approximation. For an exact answer the chi-square test is applied to the figures in Table 5.3 minus the row, giving those for the categories "single", "married/defacto" and "divorced/separated". On these figures chi-square=2.555, df=2, p > 0.1. Thus the probability falls within the same broad limits as found by the approximate short cut given above. Therefore, it can be concluded that the figures for the "widowed" category are responsible for the highly significant result of the total chi-square of 11.823.