CHARACTERISTICS OF VIOLENCE AND AGGRESSION IN PATIENTS WITH SCHIZOPHRENIA IN HOSPITAL KOTA BHARU

BY

DR. OMAR BIN ALI

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CERTIFICATION

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, THIS STUDY IS ENTIRELY THE WORK OF THE CANDIDATE DR. OMAR BIN ALI.

Dr. Muhammad Najib b. Mohamad Alwi
Pensyarah dan Pakar Psikiatri
Hospital Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan

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DR. MUHAMMAD NAJIB BIN MOHAMAD ALWI

MD (USM), Dip. IC (UK), MSc (UK), MRC Psych.

LECTURER & PSYCHIATRIST,

DEPARTMENT OF PSYCHIATRY,

SCHOOL OF MEDICAL SCIENCES,

UNIVERSITI SAINS MALAYSIA.

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TABLE OF CONTENTS

LISTS OF TABLES

LIST OF FIGURES

ABSTRACT

CHARACTERISTICS OF VIOLENCE AND AGGRESSION IN PATIENTS WITH SCHIZOPHRENIA IN KOTA BHARU

Introduction: Violent behaviour among individuals with severe mental illness has become an important focus in community-based psychiatry. In recent years more findings have found an association between mental illness and violent behaviour especially in patients with schizophrenia. There are a few risk factors to violence behaviour that are important towards risk management and effective rehabilitation management of such patients.

Aim: To compare the violent and the nonviolent patients of schizophrenia on the demography, clinical variables and psychopathology.

Methodology: This is a cross sectional study of inpatients admitted to the psychiatric wards at Hospital Kota Bharu. There were 43 subjects in the violent group and 22 subjects in the nonviolent group. Complementary data were also gathered from the medical records and from the relatives.

Results: The violent schizophrenia patients have significant association with being male, residing in rural areas, having a shorter duration of illness, noncompliance to medications, having substance abuse problem, and with previous records of criminality.

Conclusions: The above factors may signal a higher risk of violent behaviour among schizophrenia. An effective management strategy at reducing of such risk factors may require an integration of community service, substance abuse management and optimal antipsychotic treatment.

ABSTRAK

Pengenalan: Perlakuan ganas dan aggressif individu-individu yang mengidap sakit mental yang serius telah menjadi fokus yang penting dalam rawatan psikiatri berteraskan komuniti. Kebelakangan ini penemuan telah mendapati adanya kaitan antara penyakit mental dan perlakuan ganas terutamanya bagi pesakit yang menghidapi schizophrenia. Terdapat beberapa faktor perlakuan ganas yang penting untuk tujuan "risk management" dan usaha pemulihan yang efektif pesakit-pesakit berkenaan.

Matlamat: Untuk membandingkan dua kumpulan pesakit schizophrenia yang ganas dan tidak ganas berdasarkan demografi, keputusan klinikal dan psikopathologi.

Kaedah: Ini adalah kajian irisan lintang pesakit-pesakit yang dimasukkan ke wad Hospital Kota Bharu. Terdapat 43 subjek dalam kumpulan ganas dan 22 subjek dalam kumpulan tidak ganas. Data juga diperolehi dari rekod perubatan dan dari saudara mara.

Keputusan: Pesakit-pesakit schizophrenia yang ganas menunjukkan beberapa kaitan yang jelas yakni terdiri daripada golongan lelaki, tinggal di kawasan pedalaman, mempunyai tempoh sakit yang singkat, enggan mengambil ubat, menghadapi masalah ketagihan dadah dan mempunyai rekod lampau jenayah.

CHAPTER ONE

INTRODUCTION

Historical background

In psychiatric practice, the term 'mental illness' is used with little precision and a good definition of mental illness is difficult to achieve. Mental illnesses are biological, arising in part from disturbances in the brain or other body system chemistry, they are psychological, manifesting in disturbances in thought and / or emotion, and they are social in part arising from patients' social and cultural environment of how they are raised, the norms in their community and what sort of stress they face in their everyday lives.

To the extent that the two current classifications in psychiatry, the DSM-IV and ICD-10 are accepted as a working clinical model, mental illness can be defined. The three intertwined areas of biological, psychological and social are taken into account in making diagnosis and designing an effective treatment plan (Mulvey, 1994).

However they are not always helpful in predicting behaviours especially violent and aggressive behaviours. It is obvious, that there is no generally accepted model of violence that addresses different forms of violence as a clinical disorder or symptoms (Barratt, 1996).

It is the relationship of mental disorder to violence that has been the subject of much debate for many years and of particular interest to the forensic psychiatrist.

The most pertinent question is ' Does mental illness make somebody more or less likely to be violent? '

The lay public always has the perception that people with a mental disorder are necessarily dangerous. This mythical popular delusion is unfortunately always being fed by highly selected information in the mass media about their very rare contribution to one type of tragedy – homicide, the public and the politicians believe, or are being encouraged to believe, that unless people with a mental disorder are once more segregated, the streets will not be safe (Taylor, 1999).

In a period of two years between the year 1999 and 2000, thirteen cases of serious crimes were committed by patients with mental illness in Malaysia, resulting with eleven people killed and 29 wounded (The New Sunday Times, 8/10/2000). In Kelantan, an ex-university student suffering from schizophrenia killed his own mother and three others in October 2000 (Berita Harian, 28/06/2001), while an ex-army schizophrenia killed his own father in Machang in March 2001 (Utusan Malaysia, 30/3/2001). They were both found to be of unsound mind at the time of the incidents and ordered to be kept at the mental institutions at the pleasure of the Rulers.

It is unfortunate that such crimes committed by mentally disordered persons made sensational headlines in the mass media whether internationally or on local Malaysian scenes. The description of the crimes together with detail analysis and the proceeding court procedures more often that not further strengthen such erroneous belief as well as increasing the stigma of the mentally ill.

In the past, infamous crimes committed by mentally disordered persons had far reaching consequences, changing the legislatures as well as the medico-legal practice. The most famous perpetrator was perhaps MacNaugthen, as well as some victims such as Tarasoff, Reagan and Zito. Furthermore, the public inquiries that are decreed by Law in England and Wales in the cases of homicide committed by "those who have been in contact with the specialist mental health services" serve specifically and generally heap stigma on those with a mental disorder and, by association, their families. It is rare for any person without a mental disorder to be exposed in this way.

The answer to the question of relationship of mental disorder to violence has varied over the years according to the population that has been studied.

Up to the 1960s it had been asserted that the rate of offending, including violent offences, was less amongst discharged psychiatric patients than amongst general population, with the patients having offending rates 14 times lower than in general population. In 1966, Johnnie Baxstrom was released from a state hospital in New York along with 966 other patients following a ruling by the United State Supreme Court. All of these patients had been detained because it was believed that there would be a risk of violence if they were

released. Steadman & Cocozza (1978) followed up these 967 patients for 4 years and found that only 3% were in prison or secure hospital. The conclusion of the study was that the risk of violence was lower in the mentally ill than in the general population.

In attempting to quantify the ultimate risk posed by person with a psychotic illness, Hafner & Boker (1973) studied all crimes of serious violence during a ten-year period and found that the mentally ill represented 3% of all violent offenders. They calculated that the risk of a homicidal attack was 0.05% among people with schizophrenia, and ten times less among those with affective psychosis.

Monahan & Steadman published a literature review in 1983, which has remained one of the most influential among those supporting the notion that there is no relationship between mental illness and criminality. These authors concluded that there was no consistent evidence that the true prevalence rate of criminal behavior among former mental patients exceeded the true rate of criminality in the general population.

To cite the oft-quoted passage, "The conclusion to which our review is drawn is that the relations between...crime and mental disorder can be accounted for largely by demographic that the two groups share. When appropriate statistical controls are applied for factors such as age, gender, race, social class, and previous institutionalization, whatever relations between crime and mental disorder are reported tend to disappear"(Monahan & Steadman, 1983).

However, more recent studies conducted after a period of deinstitutionalization challenge this believe. The various well-designed studies show an increased rate of physical violence among mentally ill patients after controlling for possible confounding variables and the findings will be discussed further in the next section of the Literature Review.

By 1993, Monahan had questioned and indeed reversed his earlier (1983) conclusion. 'I now believe that this conclusion is at least premature and may well be wrong for two reasons. First, to control statistically for factors, such as social class and previous institutionalization that are highly related to mental disorder is problematic. For example, in some cases mental disorder causes people to decline in social class (perhaps because they became psychotic at work) and also to become violent, then to control for low social class is, to some unknown extent, to attenuate the relationship that will be found between mental disorder and violence.... If, in other cases, mental disorder causes people to be repeatedly violent and therefore institutionalized, then to control for previous institutionalization also masks, to some unknown degree, the relationship that will be found between mental disorder and violence' (Monahan, 1993).

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

Objective and systematic study of the relationship between mental illness and dangerousness is crucial to the formation of appropriate and effective policies for the provision of mental health services (Davis, 1991). This is true regardless of whether the service is required in the community, within the mental health system, or within correctional settings.

Evidence supporting a relationship between mental illness and violence is also pivotal in the debate concerning the appropriate use of the involuntary hospitalization, the design of community-based controls for violence among persons with mental illness (Mulvey, 1994), and the utilitarian need to understand the social consequences of deinstitutionalization policies (Mulvey *et al.*, 1986).

2.2 Definition of Terms

Serious Mental Illness

The literature review consists of assessment of studies dealing with a variety of mental disorder including conditions such as schizophrenia, major depressive illness, substance abuse disorders, and personality disorders. While most of the reviewed studies relied on Diagnostic and Statistical Manual of Mental Disorders, Third Edition, revised (DSM- III-R) (American Psychiatric Association, 1987) and fourth edition (DSM-IV-1994) for the more recent studies as the standard diagnostic nosology, some of the earlier studies used the earlier version of this nosology or another nosology.

A number of key words were used interchangeably in various articles studying violence among the seriously mentally ill. These key words are mental disorder, mental illness, mentally ill offenders and psychiatric patients.

However as for the main purpose of this study, articles dealing with relationship of violence with schizophrenia as well as relationship to Clinical Symptoms are of particular importance and given considerable attentions.

Violence

The term 'violence' was used quite loosely throughout the literature to refer to wide range of behaviours including acts involving physical assault, physical threats, verbal threats, psychological or emotional abuse, damage to property, suicide, and self-harm. Violence toward others was broadly conceptualized to reflect behaviours of persons against others that were meant to intentionally threaten or actually inflict physical harm. Many researchers measured violence with reference to criminal acts involving arrests or convictions for violent crime.

Synonyms for violence used in conducting the research strategy included aggression, dangerous, violent behaviours, assault, crime, criminality and battery.

2.3 Birth Cohort Studies

More recent studies suggest that rates of violence are higher in the mentally ill. These include a number of birth cohort studies from Scandinavia, in which criminal records, born in a particular year, were studied over 20 years later. The studies consistently showed that there was an increased rate of violent offending in those who also suffered a mental illness. Findings of another Swedish study (Lindquist & Allebeck, 1990) comparing the criminal careers and arrests over 17 years of patients with schizophrenia discharged from hospital to the community with those of the general population were similar. The crime rate varied with gender, being the same as for the general population

among men, but twice as high among the women. The rate of violent offences was four times as high among the people with schizophrenia.

Brennan *et al.* (2000) found an association between psychiatric hospitalization and criminal convictions in the Danish birth cohort epidemiological investigation. They found men with organic psychoses and both men and women with schizophrenia were significantly more likely to be arrested for criminal violence than were persons who had never been hospitalized, even when controlling for demographic factors, substance abuse, and personality disorders.

2.4 COMMUNITY-BASED STUDIES

2.4.1 General Population Samples

Monahan & Steadman (1983) criticised many of the earlier studies into the relationship between violence and mental disorders for a number of reasons. First, the studies relied too heavily on a narrow range of markers of violent behaviours (particularly those studies which used arrest rates only), second, they had used population that were not representative of the general population and last, they were often based on small samples. The Epidemiological Catchment Area study from the U.S.A (Swanson *et al.*, 1990) avoided some of the pitfalls.

Currently considered to be state–of–the–art psychiatric epidemiological surveys, the ECA approach is a true community survey, employs large and representative samples, a structured diagnostic interview administered by lay interviewers (The Diagnostic Interview Schedule or DIS), and computer scoring of the results to arrive at standardized DSM-III-R diagnostic categories. However, this study was still not nationally representative as only suburban populations were sampled.

The ECA study (Swanson *et al.*, 1990) used a community sample of over 10,000 people from three large cities in the USA (Baltimore, Raleigh-Durham and Los-Angeles), and measures non-fatal violence (physical violence) such as hitting or throwing things at a spouse or partner, spanking or hitting a child, fist fighting since age 18 with someone other than a spouse, using a weapon since age 18, and getting into a physical fight while drinking. The subject's history of violence in the preceding year was obtained.

The study found that base rates for violence amongst those who did not have psychiatric diagnosis or a prior history of arrest or hospitalization was nearly 2%. The presence of schizophrenia or a major affective disorder increased this risk by four times to nearly 8%. The addition of substance misuse to a diagnosis of schizophrenia or major affective disorder increased the risk of violence by 16 times to approximately 30%. In all these diagnostic groups, a past history of arrest or hospitalization increased the risk of violence by between three and five times. The effect of comorbidity of substance abuse with mental illness in increasing violence confirmed the earlier quoted studies from Scandinavia.

Using the same ECA data, Swanson (1993) further tested the hypotheses of the relationship between alcohol abuse and violence. Mental illnesses that were uncomplicated by alcohol abuse were associated with some increased risk of violence. However, the apparent large increase in violence among younger, lower socio-economic males was found to be largely due to the increased prevalence of alcohol abuse and comorbidity in this group. A history of arrest and psychiatric hospitalization was found to be associated with an increased probability that a person would be violent.

2.4.2 Police-citizen encounters

Police have considerable discretionary powers in responding to persons with mental illness who may be acting in a disordered or disorderly fashion while in the community. The police may convey an individual to a psychiatric facility for assessment and treatment, or they may proceed with an arrest.

Deinstitutionalization and legislative changes have increased the central role of the police in responding to persons with mental illness who come into contact with the criminal justice system.

Bonovitz & Bonovitz (1981) showed that the number of mental illness-related incidents handled by police increased over 200% between 1975 and 1979 after legislative changes permitted officers to expedite the removal of individuals with mental illness from the community. Teplin (1985) observed a random selection of 283 police officers in their

day-to-day interactions with the public. Those with a mental disorder did not commit serious crimes at a rate that was disproportionate to their numbers. The pattern of crime among mentally ill suspects was substantially similar to non-mentally suspects.

Similar findings are reported by Arboleda-Flrez & Holley (1988) who studied police-citizen encounters in Calgary, Canada. Those persons identified by police as having mental illness did not record a greater number of crimes against persons, property, or other crimes compared to those identified as non-mentally ill.

2.4.3 Studies Of Psychiatric Patients

Physical violence in hospital has been reported in approximately 20% of samples studied (Binder *et al.*, 1988). Typically, a small number of patients (e.g. 5%) are found to be responsible for just over half of all violent incidents and more than half of the serious injuries (Convit *et al.*, 1990). Fortrell (1980) also reported similar findings among patients in a British Hospital, where although incidents of petty violence occur in psychiatric hospitals, serious assaults are rare. Patients with psychotic symptoms, particularly paranoia, have been found to be at higher risk of physical aggression towards others (Nobel & Rodger, 1989). McNeil & Binder (1994) in studying relationship between acute psychopathology and short-term risk of violence in newly hospitalized acute patients found that 23% of the patients engaged in physical aggression against other people during their hospitalization. Compared to non-assaultive patients, they had

significantly higher levels of thinking disturbance, hostile suspiciousness, agitation, and excitement.

Violence and fear-inducing behaviour have been found to be characteristic of the acute exacerbations of chronic conditions such as schizophrenia or mania, which lead to a hospitalization. Binder *et al.* (1988) found that 21% of randomly selected inpatients in a university psychiatric unit had attacked persons and 25% had engaged in fear-inducing behaviour in the two weeks just prior to their admission. There is some evidence to suggest that the rate of violence among inpatients may be increasing (Noble & Rodger, 1989), and similarly, Volavka *et al.* (1995) reported an increasing trend in the prevalence of arrests of psychiatric patients for incidents committed while in hospitals.

2.5 Studies Of Incarcerated Offenders

2.5.1 Prevalence studies

A number of studies have assessed the prevalence of mental illness among samples of incarcerated offenders. In the 1970s, USA and British surveys were remarkably consistent in finding that no more than 1 % of sentenced prisoners had a schizophrenia illness. Over the entire prison system, these still represented substantial numbers of people. Over the entire prison system, these still represented substantial numbers of people (Taylor, 1993). A case note review from the largest remand prison in Europe (Taylor & Gunn, 1984) showed higher rates of psychosis (9 %) than the average sentenced prisoners.

2.5.2 Follow-up Studies of Offenders Released into the Community

The relationship of mental illness to subsequent community adjustment among released offenders has received scrutiny in two large studies (Teplin *et al.*, 1994; Feder, 1991). Neither demonstrates a strong relationship between mental illness and post-release adjustment or recidivism.

In a landmark study by Steadman *et al.* (1998), the authors reported data from the MacArthur Violence Risk Assessment Study, a project that addressed 4 methodological problems in previous studies attempting to estimate the prevalence of violence committed by people discharged from psychiatric facilities in the USA. They enrolled 1136 patients with mental disorder and monitored violence to others every 10 weeks during their first year after discharge from the hospital.

There was no significant difference between the prevalence of violence by patients without symptoms of substance abuse and the prevalence of violence by others living in the neighbourhoods who were also without symptoms of substance abuse. Substance abuse symptoms significantly raised the rate of violence in both the patients and the comparison groups. Violence in both patient and comparison groups was most frequently targeted at family members and friends, and most often took place at home.

2.6 VIOLENCE in patients with SCHIZOPHRENIA

In the only true community survey of the relative prevalence of mental disorder and violence (ECA study in U.S.A), Swanson *et al.* (1990) showed that 8 – 10% of people with schizophrenia had reported to had been violent (not necessarily serious) in the 12 month period prior to interview, compared with about 2% of the general population.

Noble & Roger (1989) in studying the psychiatric inpatients who committed assault found that the highest frequency of violent incidents was found in schizophrenia among all psychiatric inpatients.

Taylor & Gunn (1984) in the prevalence study of the largest prison in Europe found that a high proportion of violent offenders were schizophrenia (11% committed homicide and 30% committed arson) compared to those in the general population.

2.6.1 Relationship between violence in schizophrenia and clinical symptoms

McGlashan (1986), in a 15–year (average) follow-up of people with schizophrenia, found psychotic assaultiveness to be an important characteristic and one of only three consistent predictors of poor outcome. The percentage of inpatients with schizophrenia that are involved in aggressive episodes varies widely, from 9% to 45% (Tanke & Yesavage, 1985). A positive relationship between violence and various psychotic symptoms, such as delusions, hallucinations, and thought disorder, has been repeatedly demonstrated in patients with schizophrenia and in those with other psychiatric conditions (Tardiff &

Sweillam, 1980; Yesavage, 1983; McNiel & Binder, 1994). However, these symptoms are not invariant; they change over time as a function of the underlying illness. Thus, to better understand their relationship to violence, we must consider when in the course of mental illness the violent behavior occurs, as well as the progression or resolution of the underlying symptoms (Krakowski *et al.*, 1986).

Various studies recognize different factors associated with violence, depending on the setting.

Family environment factors

The conditions likely to increase the risk of violence are the same, whether a person has a mental illness or not. Studies have shown that people with mental illness who came from violent backgrounds are often violent themselves, a finding that echoes the evidence among the general population. One survey (Estroff, 1994) held that "chaotic, violent family environments in which alcohol or substance use is common, ongoing conflict among family members, and a controlling atmosphere ..... associated with violence by persons with mental illness". This survey also found that " this tradition is also predictive of violence in the general population".

Verbal aggression

In assessing the 'dangerousness', in some patients verbal aggression is difficult to assess; some patients threaten verbally but are not aggressive in person, while in the others who may store their rages but ultimately explode in anger. The frequency of verbal aggression may be as high as three times that of physical aggression (Cheung, 1996).

Sociodemographic Factors

Demographic factors have been extensively researched with difficult-to-interpret and, at times, conflicting findings. In many studies the violent patient is typically male, under 45 years of age and has a diagnosis of schizophrenia (Sheridan *et al.*, 1990). Conversely, other researchers have found women consistently displayed more aggressive behaviour than men (Kho *et al.*, 1998). However, most important studies find that sociodemographic variables are less predictive of violence than clinical pictures (Miller, 1993).

Symptomatology

The incidence of violence among inpatients with schizophrenia has been related to level of aggression and anxiety at referral (Blomnoff *et al.*, 1990).

Many studies were conducted around the time of the hospital admission, which often represents a phase of acute decompensation. Violence that precedes admission is related to violence that occurs during early hospitalization (Beck & Bonnor, 1988; McNeil *et al.*,

1988), and both are related to positive psychotic symptoms (McNeil *et al.*, 1988; Beck *et al.*, 1991).

Patients who became assaultive early in their hospital stay had more positive psychotic symptoms at the time of admission (Lowenstein *et al.*, 1990).

Although some studies point to a relationship between positive symptomatology and aggression (Tardiff & Sweillam, 1982; Yesavage *et al.*, 1981), others have found an association with affective symptoms, but not positive symptoms (Kay *et al.*, 1988). In partial reconciliation of these discrepant findings, a detailed analysis by Cheung *et al.* (1997) of the relationship between aggression and hallucinations and delusions detected intervening variables. Specifically, the likelihood that a patient would be aggressive was a function of the tone and contents of the hallucinations and delusions, the patient's emotional reaction of these symptoms, and his or her ability to cope with these symptoms.

When studies are not limited to the period of acute decompensation, violence appears to be associated with a more restricted set of symptoms, including hostility, suspiciousness, and more specific and organized delusions, often focused on specific people and having persecutory themes (Junginger, 1996).

The Hafner & Boker (1973) study demonstrated that the types of delusions that a patient describes could predict whether they would be more likely to act on them. Those mentally ill patients who committed acts of violence were more likely to have delusions which were first systematised, second had themes of morbid jealousy or persecution and finally, they experienced an emotional response to these delusions which was often one of anger or fear.

In a study that followed psychiatric patients in the community (Link & Stueve, 1994), three specific symptoms; namely, feeling that others wished one harm, believing that one's mind was dominated by forces beyond one's control, and believing that others' thoughts were being put into one's head – were strongly associated with violence. Violence is thus more likely when psychotic symptoms cause the patients to feel personally threatened or when they involve the intrusion of thoughts that can override self-controls ('Threat / control override symptoms'). Swanson *et al.* (1993) using data from the ECA survey, replicated the study of Link & Stueve (1994).

Extrinsic Factors

Factors extrinsic to the schizophrenia patient may also contribute to aggressiveness. Such conditions may include overcrowding (Dietz, 1982), limit-setting and communication problems involving staff (Bjorkly 1999), and dissatisfaction with ward environment (Bouras, 1982).

Noncompliance To Medications

Smith (1989), in a study of severely mentally ill patients in a state forensic hospital found a highly significant correlation ($p < 0.001$) between failure to take medication and a history of violent acts in the community.

A study of inpatients diagnosed with schizophrenia (Yesavage, 1982) reported an inverse correlation between their propensity to violence and their blood level of antipsychotic medication. Kasper *et al.* (1997) reported in their study of 348 inpatients in a Virginia state psychiatric hospital that patients who refused to take medications "were more likely to be assaultive, were more likely to require seclusion and restraint, and had longer hospitalizations".

Substance Abuse

Two principal concerns arise in relation to a person with an established mental illness. One is that substance abuse may trigger a rapid deterioration in psychotic state, which in turn leads to offending, and the other is that some substances may be disinhibiting for people with psychosis, as for relatively healthy people.

In the ECA study, Swanson *et al.* (1990), found that alcohol and drug abuse and the presence of more than one diagnosis increase the risk of violence substantially. The apparent increase in violence among younger, lower socio-economic males was found to be largely due to increased prevalence of alcohol abuse and comorbidity in this group (Swanson *et al.*, 1993).

The finding of substance abuse being a comorbidity of violence behaviour with a major mental disorder, especially schizophrenia has also been confirmed by more recent studies (Steadman *et al.*, 1998; Scott *et al.*, 1998; Swanson *et al.*, 2000).

Therapeutic Alliance

The concept of the therapeutic alliance focuses on the quality of the relationship between the therapist and patient (Beauford *et al.*, 1997). It was found that patients who had a poorer therapeutic alliance at the time of admission were significantly more likely to display violent behaviour during hospitalization.

Insight

Subjective factors are usually omitted from studies of violence. In the study by Hoge *et al.* (1990), degree of insight was a good predictor of refusal of treatment in psychiatric inpatients. Refusers had a significantly high rate of assault and threats of assault. Lack of insight has also been related to involuntary admission (McEvoy *et al.*, 1989; David *et al.*, 1992). In a recent study of 70 inpatients with schizophrenia in Spain, Arango *et al.* (1999) were able to demonstrate that insight into psychotic symptoms is a predictor of violence.

Neurological Impairment

Other important clinical symptoms associated with violence include neurological abnormalities. Such abnormalities have been reported in various violent populations, especially with more persistent or recidivistic forms of violence (Yeudall *et al.*, 1982; Volkow & Tancredi, 1987). In patients with schizophrenia, violence is also related to various measures of neurological dysfunction (Krakowski *et al.*, 1989), and neuropsychological impairment (Adams *et al.*, 1990).

In general, patients with schizophrenia have significantly more hard and soft neurological signs than nonpsychiatric control subjects or patients with mixed psychiatric disorders and affective disorders (Rubin *et al.*, 1994; Ismail *et al.*, 1998). Neurological abnormalities are also correlated with negative symptoms (Wong *et al.*, 1997), thought disorder (Manschrek *et al.*, 1981) and with poor social functioning (Wood *et al.*, 1997).

CHAPTER THREE

METHODOLOGY

3.1 OBJECTIVES OF THE STUDY

General Objectives

To compare the characteristics, sociodemographic, psychopathology and insight variables of violent and aggressive patients with schizophrenia and the nonviolent schizophrenia patients.

1.) To identify the violent and aggressive patients with schizophrenia, the type of violent behaviour and the extent or severity of the violent acts as measured by The Overt Aggression Scale (OAS; Yudofsky *et al.*, 1986).

2.) To compare the violent and aggressive patients with schizophrenia and nonviolent schizophrenia patients on demographic and clinical variables.

Specific Objectives

1.) To determine the role of the psychopathology of schizophrenia symptoms in relation to violent and aggressive behaviours in schizophrenia patients as measured by The Positive and Negative Syndrome Scale (PANSS; Kay *et al.*, 1987).

2.) To describe the role of insight in relation to violent and aggressive behaviours in schizophrenia patients as measured by The Insight and Treatment Attitude Questionnaire (ITAQ; McEvoy *et al.*, 1989).

3.) To determine the risk factors (predictor variables) for violence and aggression in patients with schizophrenia in a multivariable analysis.

3.2 Research Hypotheses

The hypotheses of this study are:

1.) The violent and aggressive patients with schizophrenia are

(i) male

(ii) young in age

(iii) no formal education or up to primary level only

(iv) unemployed

(v) long duration of illness

(vi) longer hospital stay

(vii) having comorbid substance abuse problem

(viii) non-compliance to medications

(ix) previous history of criminal record