Assessment of Violence and Aggression in Psychiatric Settings: Descriptive Approaches

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ÖZET:

Psikiyatri kliniklerinde şiddet ve agresyonun değerlendirilmesi: Tanısal yaklaşımlar

Klinik önemine rağmen saldırganlık az araştırılmış bir konudur. Bu çoğunlukla saldırgan psikiyatri hastasının bulunduğu koşullarla ile ilgilidir. Bu yaşamsal önemi olan ruhsal durum ve gerekli müdahale yöntemleri bir an önce tanımlanmalıdır. Bu nedenle bu makalede ruhsal durumlarda görülen saldırganlık ve şiddet ile ilgili var olan tanımlayıcı yayınlar gözden geçirilecektir. İki makaleden oluşacak bu gözden geçirmenin ilkinde şiddetin tanımlanması ve epidemiyolojisi üzerinde durulacaktır. Saldırganlık, ajitasyon, eksitasyon ve şiddet anahtar sözcükleri kullanılarak ayrıntılı bir Medline araştırması yapılmıştır. Bu geniş araştırma sonucu 5000 makaleye ulaşılmış, bu makaleler gözden geçirmenin amaçları göz önünde bulundurularak incelenmiştir. Araştırmaların çoğunda ruhsal hastalık ile şiddet arasında orta derecede bir ilişki bulunmuştur. Şiddet ile ruhsal hastalık arasındaki ilişkiye yakından bakıldığında ruhsal tanılara göre bu ilişkinin ciddi ölçüde değiştiği görülmektedir. En yüksek şiddet oranları madde kötüye kullanımı ve antisosyal kişilik bozukluğu olan bireylerde bildirilmektedir. Son çalışmalar hekimlerin kısıtlı olsa da ileriki şiddet olaylarını öngörebildiklerini göstermiştir. Günlük uygulamalarda her ne kadar sadece klinik değerlendirme ve yargılar kullanılsa da; güdümlü klinik değerlendirmeler, yordayıcı istatistikler ile desteklenmiş değerlendirme araçları ve bütünleştirici yaklaşımların kullanılmasının riskin öngörülebilirliğini ve güvenilirliğini artıracağı önerilmektedir. Önerilen risk etkenleri arasında en güçlü öngörücünün, geçmiş şiddet davranışı olduğu bulunmuştur. Bugün ileriki şiddet olaylarının, henüz kabaca olsa da öngörülmesine yardımcı olacak ve istenmeyen sonuçları önlemek için gerekli adımların atılmasını sağlayacak değerlendirme araçlarının bulunduğu söylenebilir.

Anahtar sözcükler: Ajitasyon, saldırganlık, ruhsal hastalık, öngörücü, değerlendirme

Klinik Psikofarmakoloji Bülteni 2006;16:179-194

ABSTRACT:

Assessment of violence and aggression in psychiatric settings: Descriptive approaches

Despite its clinical importance, aggression is a scarcely studied topic. This is mostly due to the innate nature of the conditions encircling the aggressive psychiatric patient. However, this vital psychiatric state should be described and intervention methods should be defined. Therefore, in this study aimed to present a systematic review of available data on description and management of aggression and violence in psychiatric settings. First part of this 2 part review deals with description and epidemiology of violence, while second part focuses on interventions for violent patients. A comprehensive Medline search was carried out using words; aggression, agitation, excitation, violence. More than 5000 papers retrieved in English were examined considering the objectives of this review. The majority of the studies have demonstrated a moderate association between mental illness and violence. The relationship between violence and mental illness vary considerably across different diagnoses. The highest rate of violence is reported in subjects with substance abuse disorder and antisocial personality disorder. Recent studies demonstrated that clinicians have some ability, albeit limited, to predict future violence. Although, unaided clinical assessment and judgment are used in everyday practice, methods such as actuarial assessment, guided clinical assessment and integrated approach have been proposed to increase the reliability and predictability of risk assessment. Among the risk factors proposed so far past violence behaviours reported to have the highest predictive value. To date we have some tools to estimate roughly probability of future violence and take appropriate measures in order to prevent unwanted consequences.

Key words: Agitation, violence, mental illness, predictor, assessment

Klinik Psikofarmakoloji Bülteni 2006;16:179-194

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Kabul tarihi / Date of acceptance: 25 Nisan 2006 / April 25, 2006

INTRODUCTION

Today aggression and violence pose a major problem for public health and criminal justice systems. Aggression usually cause harm and injuries to either self, others or environment. Despite its noteworthy prevalence and serious consequences, methodological problems and difficulties derived from the innate nature of the pathology hampers research on violence and aggression. However, much has been learned about the complex and controversial relationship between violence and mental disorders and the assessing violence risk over the last 30 year.

Methodological problems in this research field are mostly grown from the lack of consensus on the definitions of violence and aggression. It is not clear what is meant by violence and aggression. Aggression can be observed

in numerous different clinical conditions and has a fluctuating course. Definition of violence widely vary in the literature including: 1) physical aggression; 2) both physical and verbal aggression; and 3) physical aggression that results in significant injury (1). Similar to the challenge on defining these terms, the assessment and measurement of aggression and violence are challenges for mental health professionals, with no single instrument being the "gold standard" to assess violence across various conditions (2).

The purpose of this two-part review is to outline the relationship between violence and mental illnesses, as well as the assessment and management of violent psychiatric patients. The relationship between violence and mental illnesses will first be examined. Next, risk factors that have been identified to aid in the assessment for future violence will be discussed. Finally, suggestions for assessment, involving strategies for enquiring, will be offered. The second article of this two-part review will outline the pharmacological and non-pharmacological interventions for violent patients under emergency/crisis situations.

In order to present an inclusive review, a literature search was conducted through PubMed web site using keywords including aggression, agitation, excitation, violence and management were used for searching. References from the Medline database from 1966 up to March 2006 were retrieved. A total of 5000 papers in English were identified. Relevant papers were selected by reviewing their abstracts. Selected papers and key references in those selected papers were analysed. Books relevant to topic were also exploited to provide reader further references.

Epidemiology of Violence and Mental Illness

Historically, psychiatry practice emerged to protect public by confining people with mental illness who can pose a danger to the community (3). Privileged with considerable developments in the last century, most of the mentally ill are unconfined today and psychiatry has seized its respectable place amongst other medical disciplines. Psychiatrists are no longer regarded as guardians of society against individuals that are "dangerous, bizarre and immoral". In contrast to general public opinion, violence arises in individuals with no psychiatric condition, as well as those with psychiatric conditions. In fact violent crimes are predominantly committed by "mentally well people" and most mentally ill people never commit a violent act throughout their illness.

Regardless of the statistics, mentally ill people are usually associated with violence and aggression in public mind. This stigmatization is mostly due to the tragic, albeit uncommon, and well-publicized events highlighting individuals with psychiatric conditions committing violent acts. This was demonstrated in a recent public survey of 1444 citizens in the United States of America (USA) that reported 95% of the public thought even when a mentally ill patient was predicted to be violent to others; legal action was justified to prevent the anticipated harm (4). Moreover, this survey reported that the public generally has different responses on how likely a patient is to be violent based on diagnosis, with individuals with alcohol, drug problems or schizophrenia being reported, by the public, to be the most likely to be violent toward others.

It is difficult to compare the figures for trends in violence due to methodological differences in definitions of violence, sample populations, and methods used for collecting data. Furthermore, rates and types of violence differ from country to country and region to region. Reports from the USA have repetitively suggested that the rate of violence committed by psychiatric patients is increasing and is higher in the USA than in any other country (5-6). This increase in the USA may be well associated with the boost of violence within the USA. In a study that compared violence rates among mentally ill patients in the USA (Seattle) with Canada (British Columbia), Canada was found to have a lower rate of violence, even though the location of these cities is relatively close (7). The lower rate of violence in mental health patients in Canada was suggested to be due to Canada's superior mental health system with a single source funding, a stronger mandate to treat violent patients, and a more comprehensive approach to providing care (7). Moreover, despite the claims of a rise in violence rates by mentally ill over time due to the adverse effect of deinstitutionalisation, research

shows that these claims are far from reality. For example, a study covering the deinstitutionalisation era of 38 years has demonstrated that only a small fluctuation in homicides committed by psychiatric patients occurred during these years. Conversely, a 3% decline was found in the total number of violent acts (8).

Undeniably, a relationship exists between mental disorders and offending behaviours, but nature and extent of this association is controversial. Mental health disorders associated with violence include psychoses, substance use disorders, personality disorders, as well as neuropsychiatric conditions like delirium and dementia (9-12). While earlier reports claimed that the relationship was unclear and statistically insignificant (13), recent reports suggest that people with mental illnesses such as schizophrenia, bipolar disorder, substance use disorders and antisocial personality disorder are more likely to be violent than general population (14). However, because of the inherent difficulties of conducting epidemiological research, the findings should be appraised cautiously (15). In majority of these studies, the relation between violence and mental illness was examined by computing the relative risk, however, more appropriate method for measuring this risk is to calculate the population-attributable risk percentage (PAR%: the percentage of violence that can be ascribed to mentally ill people). Despite the attributed importance by general public to the issue of violence and mental health, the number of studies that have evaluated the PAR% is surprisingly limited. In order to assess studies that have evaluated violence in mental health, this review summarises those studies that examine the rates of violence by three general approaches.

1) Studies assessed violence amongst psychiatric patients:

One of the methodologies used to assess violence and mental health is examining violence or aggression in psychiatric patients. A comprehensive study investigating the rate of violence in patients with major mental illnesses (including schizophrenia, schizophreniform disorder, schizoaffective disorder, depression, dysthymia, mania, cyclothymia, delusional disorder, atypical psychosis, and brief reactive psychosis) estimated that only 8.9% of whole patient population without co-morbid substance misuse, and 22.6% of patients with co-morbid substance abuse commit violence (16). Between diagnostic categories, the violence rate in the personality and adjustment disorder subgroup was unsurprisingly the highest at 24.9%. A one-year follow-up of these three research groups demonstrated violence rates had increased in each of these groups to 17.9%, 31.1%, and 43% respectively. These findings confer support to the suggestion that major mental health disorders carry a relatively lower risk of violence when compared to substance misuse and personality disorders. This notion was also confirmed in a study by Steadman and colleagues that found no significant differences in the rates of violence in 1136 psychiatric patients and 519 people in the local community living in the same neighbourhood, (17), if they were free of symptoms of substance misuse. Important to note is that substance use raised the violence rate in both psychiatric patients and controls, supporting that substance use is independently associated with violence.

As could be anticipated, violence rates are reported to be relatively high in studies examining psychiatric inpatients either prior to or during admission (5,18-27). Prior to admission it is reported that 20% of schizophrenia patients commit a violent act (18-19). Within the acute psychiatric ward, James and colleagues reported a violence rate of 23% (5). When the violence rates across diagnoses was compared between inpatients, Karson and Bigelow found that 42% of schizophrenia patients committed a violent act during their hospitalization, in contrast to 9% of all other diagnoses. This finding suggests a higher tendency for schizophrenia patients to become violent (23). However, the severity of illness and contextual settings of psychiatric wards might have raised this figure in the schizophrenia sample.

The results of studies examining rates of violence in psychiatric patients after discharge are in line with studies suggesting increased rate of violence in patients with substance misuse and, or personality disorders (15,28). Monahan and colleagues interestingly examined violence rates 20 weeks following discharge and reported in the MacArthur

Violence Risk Assessment Study that 9% of schizophrenia patients had carried out a violent act, in comparison to 19% of depression, 15% of bipolar disorder, and 17.2% of other psychotic disorder patients. Involvement in violent acts was most frequent among personality disorders with and without co-morbid substance misuse, at rates of 29% and 25% respectively (29). The results of this study clash with the proposition of a higher propensity of violence in schizophrenia than non-psychotic mental illnesses within psychiatric wards. Nevertheless, it supports the relationship between violence and substance misuse in agreement with previous studies. Epidemiological studies have also reported that those patients diagnosed with bipolar disorders, as well as psychosis have more frequent involvement in violent acts, compared to those diagnosed with non-psychotic depression, anxiety disorders or without any psychiatric disorder (10, 30). The rates of aggression or violence in patients with bipolar disorder need to be assessed in light of the some of the specific aspects of this disorder. For example bipolar disorder type II, the most often seen type of bipolar disorder, has been underdiagnosed by clinicians (31-34). Secondly, bipolar spectrum disorders are often misdiagnosed as cluster B personality disorders especially in the adolescent period (35). Thus the misdiagnosed or underdiagnosed bipolar cases increase the hazard of administration of antidepressants. In this respect, the differentiation of bipolar from unipolar depression is vitally important because the use of antidepressants in a bipolar depression may lead to mania, which may contribute to aggression, homicide and suicide (36-37). When all these are taken into consideration, bipolar spectrum disorders, which are considered to affect approximately 10% of the society, should not remain unrecognised in clinics. It is also necessary to treat this illness properly and use antidepressant drugs carefully since they may be risky in terms of irritability, hostility, aggression, suicide and homicide.

2) Studies assessed mental disorders among individuals who committed violent crime:

Another methodology used to assess violence examines whether there is an increase in mental health disorders among those who are violent. Despite no standardized documentation of diagnoses and possible underestimated rates of mental health disorders, owing to the unnoticed cases in jails, the prevalence of mental disorders among criminals are studied repetitively without addressing these limitations. Within these studies the rate of mental illness among prisoners varies widely between 9% and 36% (12,38-40). However, as reviewed by Coid (38) prisoners are more likely to suffer from a psychiatric illness than the general population.

When violence rates across diagnoses are compared for inmates, disparate figures for both genders emerge. While alcoholism was found to be the most common mental disorder among male criminals who had committed homicide (39.2%), the most prevalent psychiatric disorders among female inmates was personality disorder (35.7%). Schizophrenia and related disorders for both genders was the fourth common disorder (6.4%-6%) and was preceded by antisocial personality disorder without any co-morbidity when it was separated from other personality disorders (11%-13%) (41). Eronen and colleagues additionally examined the risk of homicidal behaviour for each mental disorder using odds ratio (OR). Their results indicate that schizophrenia increases the OR of homicide by about 8-fold in men and 6.5-fold in women, while antisocial personality disorder was found to increase the OR over 10-fold in men and over 50-fold in women. Affective disorders, anxiety disorders, and mental retardation did not significantly elevate the OR (41). Based on these findings, it can be concluded that homicidal behaviour, even in a country like Finland (with a relatively low crime rate) appeared to have a statistical association with some mental disorders.

In a more recent study, which examined psychiatric history and prior contacts with psychiatric services, it was reported existence of prior psychiatric contact in 25% of offenders. In fact, most of those contacts were related to personality disorder and substance misuse. Although schizophrenia and affective disorders were over-represented within this sample, majority of these cases had also concomitant substance misuse (12). Wallace and colleagues argued that the relationship between violence and either schizophrenia or affective disorders was modest and

concurrent substance misuse might account for much of this relation (12). They contended that the risk of committing a serious crime by a psychiatric patient apart from substance misuse was lesser than estimated, which also supports the results of Lindqvist and Allebeck (42).

3) Community-based epidemiological studies (investigating violent individuals with or without mental illness regardless of involvement with mental health or criminal justice systems):

Most of the mentioned studies above are subject to discussion due to the bias involved. Community based epidemiological study is the preferred method. In one of the earliest examples of this kind of study, Swanson and colleagues carried out the mental assessment of approximately 10,000 respondents in the 1983 Epidemiological Catchment Area Study (10). They suggested that a major mental disorder was a statistically significant, but a modest risk factor for violence. The total amount of violence attributable to mental illnesses, excluding alcohol and substance misuse, was found to be little (2.7%) with only a mild increase in the odds during one year. This mild increase was significantly small compared to a 14-fold increase in the risk of violence associated with substance abuse. In this study, subjects with alcohol or drug use disorders were more than twice as likely as those with schizophrenia to report violent behaviours. Birth cohort studies have also suggested a higher risk of violence in patients with major mental illnesses both for males and females (43-46). Interestingly, risk was exclusively associated with alcohol and marijuana dependence, as well as schizophrenia spectrum disorders. All these results concurred with the findings of the studies conducted in inpatient populations (14,47-49). In a more recent epidemiological study, psychiatric patients in a London Borough were examined in a retrospective cohort of twenty years in order to investigate whether schizophrenia makes an independent contribution to the criminality (50). Subjects with schizophrenia were found to be more likely to acquire any criminal record than other mental disorders, however, schizophrenia made a small independent contribution to the risk of acquiring a criminal record with a hazard ratio of 1.4. The strongest association of conviction remained to be with non-schizophrenic cases. Furthermore, schizophrenia's contribution to crime was negligible compared to the substantial contributions of gender, substance abuse, age of on-set and ethnicity.

To summarise the studies that have been mentioned in the previous three sections, generally it appears that people with mental illness are more likely to act violently than the healthy members of the general public, but the proportion of societal violence attributable to this group is really small. Psychiatric patients also do not form a homogeneous group in relation to violence; people with some mental disorders are more likely to engage violent acts than others. People at highest risk are the ones with substance use disorders. In contrast to preconceptions, evidence indicates schizophrenia or psychosis in general carries a minor risk for violence (51). Although some authors reported a slight elevation of risk (10,43-46,52), documented PAR%'s for schizophrenia are significantly low. For instance, estimated PAR% for schizophrenia was 4% in a Finnish cohort (44). When substance co-morbidity excluded PAR%'s for schizophrenia were found to be 0.8% for males and 6% for females in a Danish birth cohort (45). Whilst evaluating all of the above studies, one is required to consider all the biases and problems that can occur in defining and measuring violence, selection of study population, data collection, and insufficiently identified outcome measures. Clearly, with these biases, the available evidence to date does not justify the stigmatization ascribed to mentally ill as a single group (12). Presenting a balanced picture without overshadowing the methodological limitations is the responsibility of psychiatrists. It is the only way to prevent further redundant stigmatization of mentally ill.

Assessment of the Risk and Identifying Predictors for Violence

Is it possible to predict violence in clinical practice? This question still poses ethical, political and clinical dilemmas, which should be addressed rapidly. However, by nature it is impossible to predict which patient will be violent with certainty. In particular,

politicians in the UK are pushing harder to form systematized protocols for assessing the risk and management of violence, and if it is possible, find measures to prevent the violence before it is occurs (53). In contrast to these demands, the American Psychiatric Association (APA) clearly stated in 1994 that 'psychiatrists have no special power or ability with which to predict dangerous behaviour` (54). APA's statement at that time was based on the findings of earlier studies that reported clinicians were often wrong than right in their risk predictions (13), yet clinicians are getting better in risk predictions in recent years (49,55-56). Clinicians have traditionally assessed the risk of violence of their patients individually based on an unaided clinical judgment. Studies in recent years have focused on the accuracy of risk prediction using either clinical or actuarial methods and identifying certain and reliable predictors of future violence. Five different approaches have evolved for risk assessment and as described below include: clinical assessment, anamnestic assessment, guided or structured clinical assessment, actuarial assessment, adjusted actuarial assessment (57).

The clinical assessment which gathering information through interview, history, laboratory tests and processing this information to offer a clinical judgment is the traditional and widely used method to assess violence risk in psychiatric patients. The value of this unstructured clinical approach were fiercely criticized on the grounds of relativity, low interrater reliability, and validity and vagueness of the decision making process (58). The debate expanded with the findings of studies claiming the inferior predictive validity of unaided clinical assessment compared to actuarial predictions (59-61), even though the predictions based on clinical assessments were found to be better than chance (60-61). Anamnestic assessment can be considered as a detailed clinical assessment. Information is collected from all available resources, in addition to the components of regular clinical risk assessment. In anamnestic assessment, third parties such as hospital records concerning past violence episodes, criminal records, reports of related persons are appealed. Although, it is more comprehensive than unaided clinical assessment, it suffers from the same limitations as clinical assessment as noted above.

Similar to the other two clinical assessments just described, in the guided structured assessment a clinician conducts the assessment; however, data which will be sought, processed and judged by clinician is specified upfront in "guided or structured clinical assessment". This method was demonstrated to be more accurate and had some predictive value (62). The accuracy of clinical predictions can also be enhanced and become comparable with actuarial method by using a multi-disciplinary team consensus (63). Furthermore, Buchanan suggested the validity of risk assessment using clinical approaches could be enhanced if clinicians focused on the mechanism through which violence occurs (64).

In comparison, the actuarial approach of risk assessment allows assessors to rely on some static, albeit limited, defined factors to make their decisions for future violence. Data gathered is entered into an existing equation, in which error rates and predictive accuracy are known. This technique improves the consistency of risk assessment across different groups, contexts and time. However, it minimises or sometimes entirely excludes the involvement of mental health professionals with the expense of missing some important case-specific clinical information, which can only be induced by clinical expertise. One has to remember that highly relevant case-specific factors, which are not found among the equation variables, can bear the highest predictive value for specific patients (56).

With the help of constructive criticism, the latest approach in risk assessment for violence combines the merits of clinical evaluation with the empirical knowledge of actuarial method. In doing so, this adjusted actuarial assessment helps to overcome the shortcomings of both methods. Inherent to this approach has been the development of applicable systematic risk assessment scales, which facilitates classifying patients as high or low risk according to the 'yes/no answers' to sequentially structured questions. "Iterative Classification Tree" (ITC), which was developed by Monahan and colleagues (29), is a successful example of those regression trees used in clinics. Application of ITC aided to classify 72.6% of a sample as high or low risk and the predictive accuracy

(using 106 risk factors) was considerably high. The area under the receiver operating characteristic curve was 0.8 (29). Nevertheless, this method is not free of limitations. The need of a rapid assessment, especially in emergency settings, limits its applicability in daily practice. Introduction of this approach to everyday practice will cause a considerable novel burden on mental health services. Moreover, required additional employment will increase the cost of mental services, which would not be appreciated by most of the suppliers (61). However, this kind of tools is extremely useful and helpful in forensic settings.

The picture provided from the overview of these methods indicates that the best, which can be expected from a clinician, is to incorporate assessment of risk factors favoured by actuarial studies into clinical evaluation. Significant risk factors can be grouped into three categories: demographic, clinical and situational (1, 29). Furthermore contextual cues available at the time of evaluation are helpful data in estimation of violence (65).

1. Demographic Factors:

Past violent behaviour alone appears to be the best demographic predictor (6,11,22,29,60,66-69). The predictive validity of past violent behaviour increases with frequency and seriousness of recent violent behaviours. Short duration between the last two incidents and past convictions related to past violent behaviours are reliable details in risk assessment (29). The age at the first serious offence was also found to be significant factor. Commitment of serious violent act at an earlier age is inversely correlated with future risk and the number of violent offences is positively

Table 1: Predictors of future violence for psychiatric patients

Demographic Predictors
1. Presence of past violent behaviour
2. Frequency and seriousness of recent violent behaviours
3. Convictions due to past violent acts
4. Commitment of violent acts at an early age
5. Age is a special predictor within distinct age groups, i.e. older age in dementia patients while younger age in schizophrenia and mania patients
6. Lower education level
7. Lower income
8. Child abuse history and witnessing domestic violence whilst being raised up
9. Alcohol and substance abuse history
10. Involuntary legal status during psychiatric assessment
11. Criminal arrest history in patient's father

Clinical Predictors
1. Diagnosis: Diagnoses strongest predictors for violence in order; substance use disorders, antisocial personality disorder, psychotic disorders with substance misuse co-morbidity, other personality disorders (e.g. borderline personality disorder), psychotic disorders without substance co-morbidity
2. Psychiatric Symptoms and Signs:
   a. "Threat-control override symptoms": a symptom pattern where the patient is feeling threatened and not under their own control (some of the Schneiderian symptoms)
   b. Consistent command hallucinations from familiar voices
   c. Perceived stress by the patient and impact of the stress on patient's life (stress can be financial, interpersonal circumstantial (e.g. housing, hospitalisation), and physical and mental health related)
   d. Anger and motor impulsiveness during examination
   e. Hostile and aggressive interpersonal style
   f. Presence of violence thoughts and fantasies
   g. Low levels of total and verbal IQ
3. Physical Symptoms
   a. Loss of unconsciousness
   b. Organic brain disease
   c. Being under the effect of alcohol and drugs during the psychiatric assessment
4. Treatment related factors:
   Non-compliance

Situational and Structural Predictors
1. Housing
2. Mental health care coverage; lack of contact with a specialized mental health service
3. Social support networks: number of people such as family, friends, and mental health professionals within the social network of the patient inversely related with future violence risk

   For inpatients:
4. Quality of the relationship between the patient and the staff of the psychiatric ward
5. Overcrowding of the ward
6. Presence of provocative relatives, friends or fellow patients in the ward
7. Access to weapons

correlated with future violent episodes (70). A summary of violence predictors for psychiatric patients is presented in Table 1.

Although past violent behaviour is the best predictor of violence, it has been suggested that asking direct questions about past violence acts may prompt patients to act out, but the opposite may be true. Studies support that patients report feeling relieved and understood when their aggression was questioned (71). As reviewed by McNiel, evaluation should include inquires about: how recent any type of aggressive behaviour has occurred; whether anyone was harmed during previous episodes of violence; the frequency of past violence behaviours; the patterns of escalation in cycles of violence; the association of particular symptoms to previous episodes; the circumstances and context of previous violent behaviours; and whether a weapon was used in past violence acts (72).

In addition to a history for violent acts, gender is an important risk factor. Males are deemed to be more likely to be violent than females within the population (10-11,29,73-74) but emerging evidence has been suggesting that the gender gap is gradually diminishing among individuals with mental illness (59,73). The crime rate among female patients is increasing and noticeably high when compared with general female population (42, 45, 50). Furthermore, female inpatients have assaulted more frequently than male inpatients, while males have engaged in fear-inducing behaviour more often and more serious forms of violence (75-76). Swanson and colleagues reported that males tended to fight with acquaintances and strangers in public places while females were more likely to fight with family members at home (77). These findings suggest that sex should not be considered as a distinguishing risk factor any more at least for inpatients but it indicates varied types of violence.

Studies repetitively showed an inverse relation between violence and age (10-11,29,58). Patients in their late teens and early twenties are at the greatest risk for violence (10,55). Age as a risk factor also is known to interact with other risk factors, namely diagnosis and phase of the illness (72). For instance, elderly patients with dementia and younger patients with acute schizophrenia and mania form higher risk groups (27,78). Studies constantly reported that there also is an apparent relation between violence and lower level of education and socioeconomic class (11,29,43,79), which points out the importance of social and cultural measures in the management of violence. Although, being African American has been in some studies to be associated with violence, this difference has been noted to disappear when socioeconomic status was controlled (80).

A history of child abuse and witnessing domestic violence whilst growing up is also related with violence in hospitalized mental health patients, as well as the general population (29,47,81-82). Moreover, the seriousness and frequency of the abuse as a child increase the risk of violence in future. A history of excessive drinking, substance abuse, involuntary legal status, and criminal arrest of patient's father were among other key demographic factors positively correlated with the risk (29).

2. Clinical Factors

Numerous studies have reported that there is a causal connection between psychiatric diagnosis and violence (22-23,25-27,30,52,83). As reviewed above, growing evidence indicates that substance use disorders and antisocial personality disorder are markedly higher risk groups for committing violent behaviour over all other mental disorders (29,41,45-46, 52). Available evidence also suggests that psychotic disorders with co-morbid substance abuse (17,28,84) and personality disorders even without any co-morbidity (85) are associated with violence. When personality disorders are mentioned, it generally signifies antisocial and borderline personality disorder (85), since there is scarce literature concentrating on other personality disorders. Psychotic disorders without alcohol or substance abuse also pose a particular risk for violence but the risk, which can be ascribed to this group, is relatively low (10,30,47,84). However, those patients are certainly more likely to act violently compared to patients with non-psychotic mental illnesses (23,30,41,83,86).

Although psychotic symptoms have been long implicated as a risk factor for violence presumably due to the belief that such patients were in less control of

reality, emotions, and behaviour, recent literature suggested that it might be a subgroup of psychotic symptoms associated with violence rather than diagnosis (11,52,79). Specifically, "threat-control override symptoms", which are a symptom pattern where the patient is feeling threatened and not under their own control, were reported to increase the risk of violence (11,79,87). It was contended that delusions might play a role in the precipitation of violence (88). In addition, command hallucinations are considered by many clinicians to be a risk factor. In a review by Hersh and Borum (89), estimates of compliance to command hallucinations differ widely between 39% and 89%. Surprisingly, patients experiencing commands telling to engage in violent acts appear to be no more likely to conduct violence than patients experiencing non-violent commands. In contrast, the familiarity of voice and the consistency with delusions appeared to be more vital in acting out. Interestingly, Monahan and colleagues (29) suggested the complete opposite view on threat- control symptoms, suggesting that these symptoms decrease the risk of violence. They reported that not only the presence of psychotic symptoms but also their ratings by Brief Psychiatric Rating Scale (90) were inversely correlated with the risk of violence, with the exception of hostility subscale. These opposite findings and important caveats in either side of this discussion currently make a general conclusion difficult and further research is required to work out the relationship of psychotic symptoms and violence.

Perceived stress by the patient is an important factor increases the risk for violence (29,70). The origins of this stress can be various; financial (e.g. unemployment), interpersonal (e.g. problems at workplace, at home, in family), circumstantial (e.g. housing, hospitalisation), and physical and mental health related problems (e.g. serious physical illness of self or significant other, psychological factors such as threats to self-esteem). Perception and effect of these stressors on patient's life can vary across individuals (91-92) making it difficult to evaluate. Despite the difficulty and subjectivity involved in evaluation, a well rounded risk assessment should include individual's level of stress and meaning and impact of their stressors.

All measures of anger, motor impulsiveness and a high score in the screening version of Hare Psychopathy Checklist (93-94) were also found to be significant clinical risk factors listed among actuarial factors (95). Although psychopathy seems to be the best static factor among all clinical factors, it is suggested that the presence of a hostile and aggressive interpersonal style is a more important risk factor, especially when the patient perceives that aggressive behaviour will be rewarded or regarded as successful (70). It was also suggested that the presence, frequency, time of onset, target and escalation time of violence fantasies were significantly related with future violent acts (29). Therefore, not only the past violent acts but also violent fantasies should be questioned during the evaluation of violent patients. Asking about the presence and nature of violence fantasies should be a routine component of a clinical assessment. However, the perturbing truth is neither violent thoughts nor fantasies are questioned in practice (96), although most psychiatrists are used to enquire thoughts regarding other types of aggression, such as suicide and self-mutilation. Certainly, not all of the patients who have violence thoughts and fantasies will act on them but some will, therefore, simply questioning the presence of these thoughts may reduce the risk.

Physical conditions such as loss of consciousness caused by a head trauma and/or organic brain disease are important clinical risk factors. Violence can be a consequence of primary aetiology or a co-morbid condition for these physical conditions (26,29,78,97-98). Being violent and being under the effect of alcohol or a substance at the time of evaluation are good predictors for future violence (29). Low levels of verbal IQ and intelligence are also associated with violence (29,82).

Another defined risk factor for violence is being non-compliant to therapy. It has been demonstrated that treatment of psychopathology successfully reduces the risk markedly (29,47,99-102). The evident association of violence with non-compliance triggered the development of schemes for enhancement of case management to reduce the risk through increasing compliance rates (103-104)

Although the practicality of integrated methods

(clinical and actuarial) for everyday use is still questioned, utilization of tools like ITC will help mental health professionals, particularly forensic psychiatrists, to assess risk for violence. Nevertheless, all mental health professionals should know the clinical implications and meaning of these validated clinical factors. Although, integration approach cannot be employed, knowledge gained through actuarial studies may strengthen clinical decision and reduce the future risk of violence with appropriate intervention.

3. Situational and Structural Factors

Situational and structural variables within treatment and family settings can modulate the risk of violence. Social support networks, housing, and mental health care coverage are important factors determining the risk of violence (6,29,79).

Swanson and colleagues suggested that lack of contact with a specialized mental health service was a significant risk factor in the mentally ill (79,92). In agreement with this, more frequent social contact is associated with lower risk for violence. However, frequent contact with family and friends for patients in case of severe functional impairment [assessed by Global Assessment of Functioning (GAF) (105)] was related with higher likelihood of violent instances (92). The number of mental health professionals in the social network of the patient is negatively correlated with the risk of violence (29). Nevertheless, mental health professionals should be cautious in their relationship with violent patients. The quality of this relationship is the decisive factor rather than the frequency of the relationship. The attitudes and manners of mental health staff can reverse this unique alliance. Additionally, sometimes it can become a predisposing factor and target of violence (106-111). It is understandable how difficult it is to develop a patient-professional relationship. Despite the low rate of serious injury incidents among mental health staff (109), the rates of any type of assault by patients on staff are elevated. Reported rates of Level 1 (physical contact) and Level 2 (threatening) violence vary within the range of 10-15% (21,112-113). For example, the rate of psychiatrists being assaulted at least once in their careers is around 42% (108). Moreover, male trainees, younger staff and psychiatrists recently out of training are twice as likely to be injured compared to female professionals (109). In an emergency setting, it has been demonstrated that both nurses and male doctors are at the greatest risk of an assault. (114).

Some staff rationalise and convince themselves that violence is an occupational hazard, which they should cope. In spite of these remarks, victims of patient violence reported anger, fear, anxiety and some symptoms of posttraumatic stress disorder (PTSD) (115-117). These symptoms of PTSD include increased startle response, body tension, and changes in sleep pattern after a real assault. Thus training of all professional and non-professional staff for aggression management is crucial (69). In fact, it should be mandatory, since training in aggression management was shown to decrease the assaults and injuries to staff significantly (110-111). Clinicians should also be always aware that the patient might have a weapon, which can easily be unnoticed especially under emergency conditions (72). In the USA, 4-17% of patients assessed in psychiatric emergency services, were reported to possess weapons (118-121). Although, there is no empirical evidence supporting the relationship between weapon availability and risk of violence, it can be intuitively concluded that easy access to weapons or possessing weapons may increase the risk and worsen the consequences.

Overcrowding of the ward and provocation by staff or other patients are the two main ward-related situational risk factors for violence in psychiatric inpatients. Anxiety, negative and demeaning authoritarian attitudes toward patients, poor communication within staff and between staff and patients, conflict amongst staff members, inexperience and low tolerance of staff in managing violence and shortage of staff are significant staff-related predisposing factors (6,106,122-125). The most common events preceding violent incidents in wards are restrictions on patients associated with the routine hospital regime and provocation by other patients, relatives, and visitors (125).

Although research often assesses risk factors on the ward, psychiatric research suggests that over half of the victims of violence are partners or family members, with the primary care giver being at the

highest risk (75,126-127). Estroff and colleagues reported that mothers living with their adult schizophrenic children are at considerably increased risk for victimisation (91). Additionally, patients in constricted social networks and financial dependency are more likely to engage in violent behaviour (29,75,128-129). Similar to the findings on patient-professional relationship it is not only the number of persons involved in the social network but also the nature of this relationship that directly determines the risk of violence. While positive persons in social network and material supporters of patient reduce the risk, negative persons increase the risk considerably (29). Furthermore, being homeless is associated with a higher risk, in both patients with psychiatric disorders and the general public. It was estimated that homeless patients in New York City were 40 times more likely than general population to commit violent crimes; the most common ones are assault, robbery, and attempted murder (130).

Research in the last two decades provided us a variety of clinical, demographic and situational factors, which facilitate estimation for future violence. However, none of the mentioned predictors is definite and determines the risk alone. To conclude, violence is an outcome reached by different routes, i.e. it is the end result of an interaction of a wide range of factors and not merely a manifestation of an individual pathology (6).

Contextual Cues

Factors enable staff to anticipate and prevent future violence are detailed above. However, in most cases a crisis situation underlies violence. Crisis situations need an immediate assessment, which usually has to be made within minutes of seeing the patient. Therefore, a proper risk assessment by checking all factors mentioned above is impossible under emergency circumstances. Nevertheless, there are some indicators, called "contextual cues", promptly available and can easily be detected.

Some basic demographic factors such as living alone or being brought involuntarily to the hospital can be learnt within seconds. Patients brought in by police were reported to be more likely to be assaultive or threatening before and during assessment (131-132). Some of the prodromal features of violent behaviour are also helpful in immediate clinical judgement: a) hostile suspiciousness (e.g. hostility, uncooperativeness and suspiciousness); b) agitation excitement (e.g. tension and excitement); and c) hyperactivity (especially, motor hyperactivity) (72, 133). Although verbal stridency (verbal abuse and profanities) seems to be a common sense for prodromal feature, empirical evidence suggests there is not a strong predictive correlation between them. It is reported that patients who make threats are more likely to become violent but the victim of their violence is often not limited to the target of the threat (22).

Further Suggestions for the Assessment of Violent Patient:

All the symptoms and variables discussed in the previous sections help the assessment of violence, but it has been emphasized that not all the patients do display all (97,134). Furthermore, by using empirical information, models of integration have been proposed to aid clinical assessment (72,135). In general, the process of assessing risk involves four steps: 1) gathering information about relevant risk factors and rationally weigh this information to formulate an evaluation of the level of risk for violence; 2) based on the assessed risk, development of a plan of intervention to reduce risk; 3) implementation of the plan of action and 4) documentation of the process (72).

An essential first step in the risk assessment should be an enquiry into violence thoughts and fantasies. The intention of acting on them, threats to victims, and premeditation should also be questioned. The information regarding availability and purchase of a weapon, action plans, access to potential victims should also be gathered (96,136). Depending on the circumstances relevant risk factors should be checked in a tolerable time period. The enquiry into violence should be offered as neutrally as possible so that the bias and the effect on patient's well-being can be limited. Clinician should also know when to back-off for the sake of assessment which will enable revisiting the undisclosed issues later in the interview. For more detailed tips for interviewing and managing violent

patients, Borum et al can be applied (137).

Conclusion

All of these facts indicate that violence is not necessarily a characteristic of mental disorders but occurs with a low degree of frequency among mentally ill. However, people with certain mental disorders and who have some symptoms are at a higher risk in engaging violence. Past violent acts and substance use disorders are apparently foremost risk factors associated with future violence. Mental health professionals have some, albeit limited, ability to predict future violence. Nevertheless, the risk assessment is crucial and could be life-saving for the patient and people related to him/her. It should be part of everyday psychiatric examination similar to enquiring suicide and self-mutilation. Good clinical practice compels clinicians to familiarise themselves with risk factors and structure their interviews, which enable guided judgement in management of violent patients. Regression trees like ITC can be used as a memory aide or an assessment guide. One has to also bear in mind that assessment of violence is an ongoing process and should be individualised. Some patients may require close monitoring whilst risk assessment for some others can be reduced with taking appropriate measures within minutes.

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