Post-traumatic Stress Disorder in the Forensic Psychiatric Setting

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The objective was to assess the prevalence of post-traumatic stress disorder (PTSD) in offenders who undergo forensic psychiatric evaluation (FPE), compare differences with regard to the prevalence of PTSD between immigrants and Swedes, compare psychiatric comorbidity and offenses between PTSD and non-PTSD patients, and compare various instruments and questionnaires when assessing the level of PTSD symptoms. Twenty-five immigrants and 25 Swedes were studied consecutively. The Clinician-Administered PTSD Scale (CAPS), Impact of Event Scale-22 (IES), Post-traumatic Symptom Scale (PTSS-10), and Structured Clinical Interview for DSM-IV (SCID)-PTSD were administered. In the immigrant group, 60 percent had PTSD, compared with 12 percent of the Swedes. Subjects with PTSD scored higher on IES-22 and PTSS-10 than those without PTSD. Considering the number of sexual and violent offenses together, the proportion of these types of offenses was higher in the PTSD group than in the non-PTSD group.

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According to DSM-IV,[1] specific criteria must be met for the clinician to assign a diagnosis of post-traumatic stress disorder (PTSD). The criteria comprise the stressor that defines the etiologic event in PTSD, symptoms related to re-experiencing the trauma, numbing of responsiveness or avoidance of thoughts or acts related to the trauma, and symptoms involving excess arousal. As described in DSM-IV-TR,[2] PTSD may arise after exposure to an extreme traumatic stressor occurring in a direct personal experience of an event that involves actual or threatened death or serious injury; other threats to one's physical integrity; the witnessing of an event that involves death, injury, or threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate.

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Roughly 15 to 24 percent of people exposed to traumatic events have experienced PTSD sometime in life.[3–5] The prevalence of PTSD in the general population in the United States has been estimated to range from 0.4 percent to approximately 9 percent (lifetime prevalence).[4,5] The rather extraordinary range of findings as to the prevalence of PTSD is related to the methods used to assess the prevalence of the diagnosis. In the psychiatric setting, reports about the occurrence of PTSD[6,7] depend on how the studies have been performed. Research analyses of PTSD in the United States have reported estimated rates of co-occurrence of PTSD in mental illness ranging between 29 and 43 percent.[8] In Sweden, the prevalence of PTSD in immigrants has been noted to vary between 33 and 40 percent[9–11] compared with 0.3 to 1 percent in native-born patients.[10]

From a clinical point of view, it is well known that many subjects who undergo forensic psychiatric evaluation (FPE) have had various traumatic events in their lives. However, it is not conceivable that all traumatic events result in a symptom cluster justifying a diagnosis of PTSD. Within uniform types of trauma, greater duration or intensity of exposure to the trauma tends to increase the risk of PTSD.[12] Moreover, events that involve the element of interpersonal assault carry higher risks of PTSD than do events that lack this element.[3,13] Sexual trauma and

combat, for example, are associated with very high conditional risks of PTSD.[3,14–16] Also, genetics may influence the risk of development of PTSD. Results from the Vietnam Era Twin Registry study of 4,042 male veteran twin pairs, suggest that genetic factors account for 30 percent of the variance in PTSD symptoms.[17]

In the forensic psychiatric context with regard to criminal responsibility, aggressive behavior related to PTSD may have legal ramifications,[18–20] due to the severity of the condition. In this respect, the implications of dissociative flashbacks and the potential for exculpation by an insanity defense are matters for discussion.[20,21]

In the Swedish forensic psychiatric setting, a legal concept described as a severe mental disorder serves as the prerequisite for the court to provide a sentence of compulsory forensic psychiatric treatment. Severe mental disorder indicates a more complex and heavier burden of psychiatric factors, such as psychoses, severe depression, and certain personality disorders, with either marked impulsivity or compulsions.[22] In this context, in Sweden, PTSD may or may not fulfill the criteria for a severe mental disorder.

In a retrospective, unpublished pilot study in men ($n = 23$) from Latin America who underwent FPE during a specific period, we found that 8 of the 23 fulfilled the criteria for PTSD, according to DSM-IV.[1] Only two of them were assigned a diagnosis of PTSD at the routine FPE. This was often because the history of an extreme trauma was not assessed in a structured manner. In the Swedish forensic psychiatric setting, 33 percent of those who undergo FPE are immigrants (first-generation), some of whom have been exposed to military combat and torture. However, other stressors, such as child sexual assault or unstable family environments during childhood, have been described as the cause of trauma in PTSD,[23] making this diagnosis important even in nonimmigrants (native-born). Also, unstable family environments may be related to antisocial behavior.[24] Moreover, problems related to modulating affects have been described in PTSD, and it is conceivable that this may have implications for social interactions. To our knowledge, no prospective studies have been conducted to assess possible differences between patients with PTSD and those without, with regard to sexual and violent offenses.

The main objective of this study was to examine the prevalence of PTSD in subjects referred for FPE in Sweden, applying a structured assessment. A second objective was to assess the differences between immigrants (first-generation group) and Swedes (native-born group), with regard to the occurrence of PTSD in a forensic psychiatric setting. We also wanted to describe possible relationships between PTSD and comorbid psychiatric disorders, criminal behavior, and alcohol and drug abuse. Finally, the goal was also to test the feasibility of applying an extensive structured questionnaire to a group of subjects in custody who were undergoing FPE and to compare the results from an extensive questionnaire with those from screening instruments to detect PTSD and PTSD symptoms.

Methods

Subjects

Consecutive subjects who underwent FPE at the Department of Forensic Psychiatry in Stockholm, Sweden, during a specific period were studied. Study participants provided informed consent. The Swedes served as a comparison group.

Eighty-seven men were asked to participate in the study, and 37 (20 immigrants and 17 Swedes) declined. Fifty men, aged 18 to 64 years, 25 Swedes (native-born group) and 25 immigrants (first-generation group), entered the study. Demographic data are given in Table 1. The immigrants were from El Salvador ($n = 2$), Turkey ($n = 3$), Iraq ($n = 4$), Germany ($n = 1$), Romania ($n = 1$), the former Yugoslavia ($n = 5$), Afghanistan ($n = 1$), Morocco ($n = 1$), Angola ($n = 1$), Lebanon ($n = 2$), Bosnia ($n = 1$), Lithuania, ($n = 1$), Somalia ($n = 1$), and Iran (n

Table 1 Demographic Data in First-Generation Immigrants and Native-Born Swedes

	Immigrants ($n = 25$)	Swedes ($n = 25$)	
Age (years)	34 (19–54)	34 (18–64)	NS*
Education (n)			NS†
Less than high school	20	18	
High school	5	7	
College	0	0	
Employed (n)	7	8	NS†
Unemployed (n)	18	17	NS†

Age is presented as the median (range). NS, not significant.
* Mann-Whitney test.
† V-square test (chi-square corrected for small numbers in some cells).

= 1). Seven of the 25 immigrants were Swedish citizens at the time of the study.

Table 2 presents an index of offenses (the crime that triggered the FPE and that had occurred during a three-month period before the FPE) and psychiatric diagnoses according to the DSM-IV[1] in the immigrants and the Swedes, assigned at the routine FPE. Offenses were categorized, according to the Swedish penal code, into violent crimes (murder, attempted murder, manslaughter, attempted manslaughter, and all kinds of assaults, with the exception of sexual assaults), sexual crimes, arson, robbery, and crimes against property. Sexual crimes should also be regarded as violent crimes, but the offenses were categorized as sexual crimes according to the Swedish penal code. All offenses were also classified as impulsive or controlled/instrumental according to the FPE. According to Swedish law, it is important to consider the degree of control during the offense. A controlled behavior will probably not be considered the result of a severe mental disorder, which is the prerequisite for being sentenced to forensic psychiatric care.

The main psychiatric diagnoses according to the DSM-IV,[1] assigned at the routine FPE, included psychotic disorders (schizophrenia, delusional disorder, or psychotic disorder not otherwise specified), mood disorders, neuropsychiatric disorders (NDs: Asperger's disorder, mental retardation, or cognitive dysfunction), personality disorders (PDs), PTSD, and substance use disorders.

Table 2 Offenses That Triggered the FPE

	Immigrants (n = 25)	Swedes (n = 25)
Violent crimes	15	15
Sexual crimes	7	5
Arson	0	2
Robbery	3	1
Property crimes	0	2
Psychotic disorder	5	4
Personality disorder	13 (3)	10 (6)
Mood disorder	1	5
Neuropsychiatric disorder	0	5
Substance use disorder (primary diagnoses)	2 (5)/0 (5)	1 (12)/0 (8)
PTSD	4 (7)	0

Diagnoses and offenses are according to DSM-IV and assigned at the routine FPE in first-generation immigrants and native-born Swedes. The number who received a secondary diagnosis is given in parentheses. A secondary diagnosis of pedophilia was noted in one case in the immigrant group and in two cases in the Swedish group.
Significant differences between immigrants and Swedes were not found.

Diagnoses During the Routine FPE

Diagnoses during the FPE were assigned in a semi-structured manner applying the Structured Clinical Interview for DSM-IV (SCID; not for PTSD).[25]

Assessment of PTSD

A structured assessment of present PTSD was used, applying the Clinician-Administered PTSD Scale (CAPS) for the DSM-IV, current and lifetime diagnostic version (ver. 9/96; CAPS-DX), designed by Blake *et al.*[26–28] In the present study, only current PTSD was registered. CAPS enables quantification of each of the 17 possible symptoms that define PTSD according to DSM-IV,[1] by assessing both the intensity and the frequency of each symptom. Excellent validity and inter-rater reliability, ranging from .80 to .90 for CAPS, have been shown in various settings.[29] All ratings were made on a zero-to-four scale, with brief descriptors of each of the five scale values. The original scoring rule according to Blake *et al.* was used. An item is considered valid if the frequency score is one or greater and the intensity score is two or greater.

In the present study, two persons (raters of the answers) scored the answers of the different items in CAPS. The first rater conducted the interview with the patient and scored the answers. The second rater, an expert in PTSD and in applying the CAPS instrument, performed the second rating of the answers, blind to the rating of the answers made by the first rater, and did not interview the patient. It was not possible to interview the patients twice. The agreement between the first and the second scoring of the answers was noted.

The SCID-PTSD, a short screening version based on the symptoms of PTSD according to the DSM-IV,[1] was administered.

In the present study, a diagnosis of PTSD according to CAPS was considered the most accurate reflection of the patient's PTSD psychopathology.

Self-Report Questionnaires and GAF

Two self-report questionnaires, the Impact of Event Scale (IES)[30,31] and a modified version of the Post-traumatic Symptom Scale-10 (PTSS-10)[32] were used to describe the type of symptoms related to PTSD and whether the total load of symptoms, as reflected by either IES or PTSS-10, was associated with PTSD.

In the present study, the 22-item version of IES, the IES-22,[31] was applied. IES consists of items describing the various symptoms related to avoidance, intrusion of thoughts, and arousal. The individual is asked to score the items as zero, one, three, or five denoting never present, seldom present, sometimes present, and often present, respectively. The maximum score is 110.

The PTSS-10 has 10 items. In the modified version, a seven-point Likert rating scale is used for each item, with response options ranging from one (no problems) to seven (very severe problems). Subjects were requested to indicate the extent to which they had experienced each of the following problems during the past week: difficulty sleeping, nightmares about the trauma, depression, startle reactions, tendency to isolate oneself from others, irritability, emotional lability, guilt or self-blame, fear of places or situations resembling the traumatic event, and bodily tension.

The Global Assessment of Functioning (GAF) according to DSM-IV[1] was estimated.

Trauma

Traumatic events (all occurring more than two years earlier) were categorized into the following five groups: assaultive violence, other injury or shocking experience, learning about trauma to others, sudden unexpected death of a close friend or relative, and any other trauma. In Table 3, the distribution of these categories of trauma is given for Swedes and immigrants, respectively. The severity of the trauma, described as separate traumatic events or repeated/long-term traumatic events during one or several periods, was registered. Child abuse, physical and/or sexual, was registered in the PTSD and non-PTSD group, respectively. Immigrant status may *per se* constitute a condition of trauma, but it was not registered in the study as a trauma.

Table 3 Type and Number of Self-Reported Main Trauma in First-Generation Immigrants and Native-Born Swedes

	Immigrants (n = 25)	Swedes (n = 25)
Assaultive violence	21	19
Other injury or shocking experience	2	4
Learning about trauma affecting others	2	1
Sudden unexpected death of a relative or close friend	0	1
Any trauma	0	0

Immigrants versus Swedes, V-square (chi-square corrected for small n in any cell). Significant differences were not found.

Severe Mental Disorder: The Legal Concept

The statement of whether a mental disorder was considered in the FPE to be severe or not was registered.

Statistics

Data are presented as the median (range) or the mean (±SD) for continuous variables or, for categorical data, as the number in various groups. The Mann-Whitney test (continuous variables), chi-square test (noncontinuous variables), V-square test[33] (noncontinuous variables, χ^2 corrected for sample size), Fisher's exact test (noncontinuous variables with less than five in each cell), multivariate analysis of variance (MANOVA), and analysis of variance (ANOVA) were applied for statistical comparisons. The Bonferroni correction was applied to comparisons made in nonparametric tests. Discriminant functional analysis was used for prediction. A significance level of $p < .05$ was considered significant. The agreement between the judgments of the CAPS answers was tested by Cohen's κ.[34] All analysis were performed on computer with Statistica software by StatSoft.

Ethics

The study was approved by the research ethics committee at Huddinge University Hospital, Stockholm, Sweden. All the participants gave oral and written informed consent. In Sweden, all subjects who undergo an FPE are registered in a specific database and the offenses and diagnoses assigned during the FPE are noted. All subjects are informed of the registration procedure. Thus, the offenses and the assigned diagnoses at the FPE in those who refused to participate in the study are also described, according to the approval granted by the ethics committee.

Results

Post-traumatic Stress Disorder

The inter-rater agreement for the CAPS scoring was .86, considered to be good to excellent[34] (Cohen's κ).

The prevalence of PTSD according to CAPS was 36 percent (n = 18). The occurrence of PTSD was five times more common in immigrants than in

Swedes (60 percent [$n = 15$] versus 12 percent [$n = 3$], $p < .001$; $df = 1$, V-square = 12.5). Three subjects in the Swedish group fulfilled the criteria for PTSD according to CAPS. Two had a history of sexual abuse combined with serious violent abuse during childhood, and one had witnessed a murder during childhood.

At the FPE, a diagnosis of PTSD was assigned in only 11 cases, in which all involved were immigrants. Thus 73 percent of the PTSD (according to CAPS) cases in immigrants and 0 percent of the PTSD (according to CAPS) cases in Swedes were assigned a diagnosis of PTSD at the routine FPE.

When comparing the SCID-PTSD to CAPS, we found that the SCID-PTSD diagnosed PTSD in all subjects in whom CAPS had diagnosed PTSD, except one, who was in the Swedish group. In the immigrant group, specificity was 94 percent and sensitivity was 75 percent.

Subjects

Demographic data in PTSD and non-PTSD subjects are given in Table 4. No differences were found.

Table 5 presents an index of offenses and psychiatric diagnoses in the PTSD and the non-PTSD groups. When sexual crimes and violent crimes were considered together, a greater proportion was found in the PTSD group than in the non-PTSD group ($p < .05$; $df = 1$, V-square = 5.25). This difference was not found when Swedes were compared with immigrants.

No differences between the PTSD and the non-PTSD groups were found with regard to psychiatric diagnoses at the FPE. There was a trend toward more substance use disorders in the non-PTSD group than in the PTSD group, but the differences were not significant. In the PTSD group, 83 percent of criminal offenses were impulsive, compared with 69 percent in the non-PTSD group. The difference was not significant.

Table 4 Demographic Data in Subjects With PTSD and Without PTSD

	PTSD ($n = 18$)	Non-PTSD ($n = 32$)	
Age (years)	34.5 (19–51)	32 (18–64)	NS*
Education (*n*)			NS†
Less than high school	15	22	
High school	3	10	
College	0	0	
Employed	3	11	NS†
Unemployed	15	21	NS†

PTSD was assessed according to CAPS. Age is presented as the median (range). NS, not significant.
* Mann-Whitney test.
† V-square test (chi square corrected for small numbers in some cells.

Table 5 Index Offenses and Psychiatric Diagnoses

	PTSD ($n = 18$)	Non-PTSD ($n = 32$)
Violent crimes	12	18
Sexual crimes	6	6
Arson	0	2
Robbery	0	4
Property crimes	0	2
Psychotic disorder	5	4
Personality disorder	8 (3)	15 (3)
Mood disorder	1	5
Neuropsychiatric disorder	0	5
PTSD	4 (7)	
Substance use disorder	0 (4/3)	3 (14/10)

Offenses and diagnoses are according to DSM-IV at the routine FPE in the PTSD-group (n = 18) and non-PTSD group (n = 32) according to CAPS. Data are the number of subjects. Secondary diagnoses are given in parentheses. A secondary diagnosis of pedophilia was noted in two cases in the PTSD-group and in one case in the non-PTSD group. The incidence of violent + sexual crimes was higher in PTSD patients compared with non-PTSD patients ($p < 0.05$; V-square test, i.e., chi-square corrected for small numbers in some cells).

Self-Report Questionnaires and GAF

IES, GAF, and PTSS-10 scores are given in Tables 6 and 7. Immigrants had significantly increased scores compared with Swedes on the IES-22 ($p < .01$, $df = 1,47$, $F = 9.36$; ANOVA), PTSS-10 ($p < .05$, $df = 1,47$, $F = 7.33$; ANOVA), and lower scores on GAF ($p < .05$, $df = 1,47$, $F = 6.20$; ANOVA). Comparing IES-22, PTSS-10, and GAF results between PTSD and non-PTSD subjects revealed a more marked pathology on all scales in the PTSD group than in the non-PTSD group ($p < .01$ for all three comparisons; $df = 1,48$; $F = 11.15$ for IES, 11.45 for PTSS-10 and 7.53 for GAF; ANOVA; Table 7). When we considered the interaction between being an immigrant and native-born Swede and being assigned a diagnosis of PTSD according to CAPS in the statistical analysis by applying a multivariate approach (MANOVA), the differences between the PTSD and non-PTSD groups for IES-22

Table 6 IES, PTSS-10, and GAF Scores in First-Generation Immigrants and Native-Born Swedes

	Immigrants ($n = 25$)	Swedes ($n = 25$)	*p*
IES-22	71 (25.9)	46 (24.8)	0.004
PTSS-10	46 (18.1)	33 (13.9)	0.01
GAF	49 (9.5)	56 (8.1)	0.018

Data are expressed as the mean (SD). Immigrants versus Swedes (ANOVA).

Table 7 IES, PTSS-10, and GAF Scores in Subjects With PTSD and in Those Without PTSD, According to CAPS

	PTSD (n = 18)	Non-PTSD (n = 32)	p
IES-22	75 (24.4)	46 (24.1)	0.001
PTSS-10	50 (16.9)	32 (13.8)	0.002
GAF	47 (5.9)	55 (9.6)	0.009

Data are expressed as the mean (SD). PTSD versus non-PTSD (ANOVA).

and PTSS-10 remained, but at a reduced level (df = 2,44, F = 5.18, $p < .05$ and df = 2,44, F = 4.52, $p <$ .05, respectively). No difference in GAF scores was noted between immigrants and Swedes.

Considering IES-22, all subjects with a score greater than 88 (maximum value: 110) had a diagnosis of PTSD according to CAPS. For PTSS-10, all subjects with scores greater than 58 had PTSD according to CAPS. Applying a discriminant functional analysis with the objective of delineating the optimal cutoff (PTSD versus non-PTSD) for the IES-22 (maximum value: 110) and PTSS-10 (maximum value: 70) yielded a score of 72 for IES-22 and 49 for PTSS-10. For IES-22, these cutoff values resulted in classifications of 71 percent of PTSD (according to CAPS) cases and 83 percent of non-PTSD (according to CAPS) cases. For PTSS-10, the corresponding classification of cases was 67 and 83 percent.

Trauma

Table 8 presents types of trauma in the PTSD group and the non-PTSD group. In the PTSD-group, a greater tendency toward more assaultive violence was noted than in the non-PTSD group (p = .075; df = 1, V-square = 3.18). In the PTSD group, 16 of 18 had experienced either combat/torture or sexual assaults as the main trauma. In the non-PTSD group, only two subjects had experienced combat/torture or sexual assault as the main trauma.

The occurrence of reported repeated/long-term traumatic events or single traumatic events was studied. The number of individuals with repeated and long-term traumatic events was significantly higher in the PTSD group than in the non-PTSD group ($p < .0001$; df = 1, V-square = 17.36).

In the PTSD group, two subjects had been subjected to sexual assault and three to physical assault while they were children. No statistically significant differences were noted. A total of 28 percent of subjects in the PTSD group had endured either sexual or physical assault during childhood, compared with 25 percent in the non-PTSD group (NS, V-square).

Severe Mental Disorder: The Legal Concept

Of all subjects (n = 50), 18 (36%) had a severe mental disorder according to Swedish legislation. The proportions in immigrants and Swedes were 40 and 32 percent, respectively. In the PTSD group, 56 percent fulfilled the criteria for severe mental disorder, compared with 24 percent of the non-PTSD group ($p < .05$; df = 1, χ^2 = 4.67).

Analysis of Refusers With Regard to Type of Offenses and Diagnoses From the FPE

Among the 87 subjects who were asked to participate in the study, 20 immigrants and 17 Swedes refused. The refusers did not differ with regard to type of offenses compared with those immigrants and Swedes who participated in the study. Diagnoses in the Swedish group who participated did not differ from those of Swedes who did not participate. For immigrants, the study group had a nonsignificant increased occurrence of personality disorders compared with the refusers (52 percent versus 25 percent; χ^2 test). A main diagnosis of PTSD in immigrants at the FPE was as common in the study group as in the group of refusers, while a tendency toward more secondary diagnoses of PTSD in the study group compared with the refusers was noted (28 percent versus 0 percent). However, among the refusers, two subjects received a diagnosis of unspecified adjustment disorder related to maladaptive reactions to stressors.

Discussion

In the present study, a PTSD diagnosis according to CAPS was considered the most accurate reflection of the patient's PTSD psychopathology.

Thus, the first main finding of the present study is the high prevalence of PTSD in the immigrant group

Table 8 Type and Number of Self-Reported Main Trauma in the PTSD Group and in the Non-PTSD Group, According to CAPS

	PTSD (n = 18)	Non-PTSD (n = 32)
Assaultive violence	16*	21
Other injury or shocking experience	2	7
Learning about trauma affecting others	0	3
Sudden unexpected death of a relative or closed friends	0	1
Any trauma	0	0

* $p < 0.01$, PTSD versus non-PTSD (V-square test, i.e., chi-square corrected for small numbers in some cells).

compared with that in the Swedish group. In the immigrant group, subjects were assigned a diagnosis of PTSD in 60 percent of cases detected as PTSD according to CAPS. There was a greater proportion of sexual/violent crimes in the PTSD group than in the non-PTSD group. In fact, all offenses in the PTSD group were classified as either violent or sexual. However, it is important to point out that this statistic does not tell anything about causal relationships between sexual/violent crimes and PTSD.

Interpretation of results from studies performed in the forensic psychiatric setting presents specific problems. Malingering must always be considered. Also, the results must be interpreted with caution because of the high rate of persons who declined participation in the study (43%), which is in line with results from other PTSD studies. Psychological resistance may be of importance in the PTSD population. In one study of PTSD in the aftermath of an industrial disaster, Weisaeth[35] noted that the reluctance to seek help was motivated by the very symptoms that predicted PTSD. The same mechanisms may have influenced the participation in the present study. Also, in the forensic psychiatric clinical setting, patients with paranoid symptoms often refuse to participate in psychological assessments.

One should consider the implications on the results of the high rate of persons who declined participation in the study. In the immigrant study group 28 percent had a secondary diagnosis of PTSD at the FPE, but no one had a secondary diagnosis of PTSD in the immigrant group who declined participation in the study. However, in the latter group, 10 percent had a diagnosis of adjustment disorder related to maladaptive stress reaction. It may have been that it was not possible to assign a diagnosis of PTSD because of the lack of a structured assessment. In the immigrants, there were no differences between the study group and those who declined to participate, with regard to the main diagnosis of PTSD, suggesting that the study group was unbiased.

The high prevalence of PTSD in the immigrant group should be regarded in light of the manifold increase of PTSD in noncriminal immigrants compared with Swedes, which has been presented in several studies.[9–11] In these studies, the prevalence of PTSD in different immigrants varied from 33 to 40 percent. However, the results in the present study, suggesting 60 percent of cases of PTSD in the immigrant group, still imply that the occurrence of posttraumatic symptoms in immigrants in the forensic setting is even higher than in society.

During the FPE, seven subjects with PTSD according to CAPS were not assigned a diagnosis of PTSD in the present study. Three of these subjects were Swedes, which may suggest the risk of not considering a diagnosis of PTSD when the patient does not have a history of combat or torture. Two of the Swedes who fulfilled the criteria for PTSD according to CAPS in this study were subjected to severe sexual assaults over a long period in childhood, and the third one witnessed a murder at the age of 12.

SCID-PTSD seemed to be as valid as CAPS in Swedes. However, in immigrants, the sensitivity—that is, the capacity of the instrument to assign a diagnosis of PTSD when present (as defined by CAPS)—was reduced with the SCID-PTSD, although the specificity was good. This suggests that in immigrants, the symptoms and the responses may be more difficult to interpret when using a screening questionnaire, reflecting the need for a more structured approach in the immigrant group.

The self-report questionnaires IES-22 and PTSS-10 seemed to be too unspecific to differentiate between PTSD and non-PTSD in the group under consideration. The cutoff scores for PTSD on IES-22 and PTSS-10 yielded a very low sensitivity: 31 percent for IES-22 and 56 percent for PTSS-10. All subjects above the cutoff scores were immigrants. However, these instruments, as well as GAF, may be appropriate for describing total symptomatology and reduced psychosocial functioning level in forensic patients with PTSD. It is noteworthy, however, that compared with Swedes, immigrants also had increased scores on IES-22 and PTSS-10 (Table 5).

No differences in psychiatric comorbidity were found between PTSD subjects and non-PTSD subjects. This is not in line with results from studies of patients with mental disorders. Previous studies have shown that depression is common in PTSD.[36,37] The present data may be related to a Type II error, as the number of subjects studied was quite low.

In the subjects in the present study, the legal concept of severe mental disorder according to Swedish law seemed to be applicable slightly more often in the PTSD group than in the non-PTSD group. The presence of severe mental disorder according to this concept indicates that the patient has a psychosis, a psychosis-like state, or a severely reduced capacity for impulse control. Thus, it is conceivable that the legal

concept reflects a more severe mental illness condition. Speculatively, this may be related to specific difficulties that PTSD patients have in coping with emotional triggers, social interactions, and new traumatic events.[38,39]

In summary, the present data suggest that the CAPS instrument could be useful in forensic psychiatry. It should be considered for use especially in immigrants, as the sensitivity of SCID-PTSD in immigrants seemed to be reduced. This lack of sensitivity may also have implications outside Sweden. Considering criminal responsibility, a structured assessment may decrease the risk of not detecting malingering. In guidelines presented by the American Academy of Psychiatry and the Law,[40] difficulties when considering the insanity defense in PTSD cases have been discussed. To our knowledge, not much is reported about the prevalence of PTSD and possible associations with violent behavior in various criminal populations.

In one national study from New Zealand, prevalence of psychiatric disorders was investigated. The prevalence of PTSD in sentenced men was 8.5 percent and in remanded men 9.5 percent.[41] In another study, Orcutt and coworkers[42] have presented results suggesting that PTSD symptoms could increase the risk of interpersonal violence in Vietnam veteran couples. Scarpa[43] has also discussed the cycle from exposure to violence to later perpetration of aggression in terms of psychophysiological processes that may emerge from chronic violent exposure. Results of one study by Canestrini[44] in the New York prison system suggest a beneficial effect of trauma-focused intervention on prevention of criminal recidivism in female inmates. However, further research is needed to clarify possible relationships between violent/sexual offenses and PTSD. Also, the validity of CAPS across different cultures and across time warrants further research.

In the present study, we investigated current PTSD. We did not find it possible, in the present forensic psychiatric setting, to ask about PTSD symptomatology earlier in life; thus, we did not investigate lifetime PTSD. However, CAPS requires that the respondents give examples of symptoms, if they manifest such symptoms, and that they discuss the frequency and severity of them. In this way it is possible to check whether the respondents have understood the questions properly and whether the symptoms are really symptoms of PTSD. Therefore, the prevalence of PTSD among the immigrant group may have been underestimated, whereas it is hardly possible that it was overestimated.

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