Posttraumatic stress disorder in primary care with special reference to personality disorder comorbidity

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ABSTRACT

Background
Posttraumatic stress disorder (PTSD) is a common and disabling disturbance in primary care. Few studies have been carried out in primary care samples and none have taken into consideration the association between PTSD and personality disorder.

Aim
To describe prevalence and risk factors of PTSD and its comorbidity with personality disorder.

Setting
General practice centre in Valencia (Spain).

Method
Patients who had experienced at least one traumatic event in their lives were selected from a random sample attending a primary healthcare centre in Valencia and blindly assessed by trained professionals. Patients suffering from PTSD were compared with those who were not. PTSD and personality disorder diagnoses were established using CIDI and SCID-II interviews respectively. Sex, age at the time of experiencing trauma, frequency, multiplicity and type of trauma, dissociative symptoms, personality disorder and severity of PTSD were subjected to multivariate analysis to estimate the probability of developing PTSD and its duration.

Results
Life prevalence rate was 14% and current prevalence 9%. Dissociative symptoms and personality disorder were significantly associated with PTSD. Cluster analysis based on age, frequency and type of trauma revealed the existence of one subgroup composed mainly of women who had experienced frequent body-contact trauma at an early age, developed severe PTSD and suffer from a variety of personality disorders, particularly paranoid personality disorder. Time to the complete disappearance of symptoms was only explained by the initial severity of PTSD.

Conclusion
PTSD is a frequent disorder in general practice and it is often associated with personality disorder. Women who experienced high frequency body-contact traumatic events at an early age often suffer from personality disorder and present a particularly severe form of PTSD deserving referral to specialised care.

Keywords
epidemiology; personality disorder; posttraumatic stress disorder; stress.

INTRODUCTION

Almost 50% of people in the general population experience a traumatic event in the course of their lives, some show no pathological reaction, some display acute and transient symptoms, but only a small proportion develop posttraumatic stress disorder (PTSD). The type and frequency of trauma may influence the response. Exposure to extreme fear-inducing events, such as an earthquake or a terrorist attack, are associated with a high probability of developing PTSD and body-contact traumas, such as sexual abuse or physical violence, are particularly noxious if they are repeated and experienced early in life. On the other hand the involvement of personality in shaping the response to stress seems obvious, either as a risk factor, as sequelae or both.

PTSD has a high prevalence in primary care, it involves considerable dysfunction and yet there are few studies of PTSD carried out in this setting.[1–9] The relationship between frequency and type of trauma has been studied in primary care patients but nothing is known relating Axis II comorbidity. Moreover, analysis of risk factors have commonly relied on bivariate statistical methods, an approach that does not control interactions and confounding effects.

The aim of this research is to study the prevalence, clinical picture and associated risk factors of PTSD in a sample of primary care patients who have

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How this fits in

Prevalence, risk factors and clinical picture of posttraumatic stress disorder (PTSD) in primary care are well known. This study confirms most previous findings and also contributes to describe its comorbidity with personality disorder. Women who experienced repeated and multiple early trauma and suffer from personality disorder constitute a particularly severe form of PTSD.

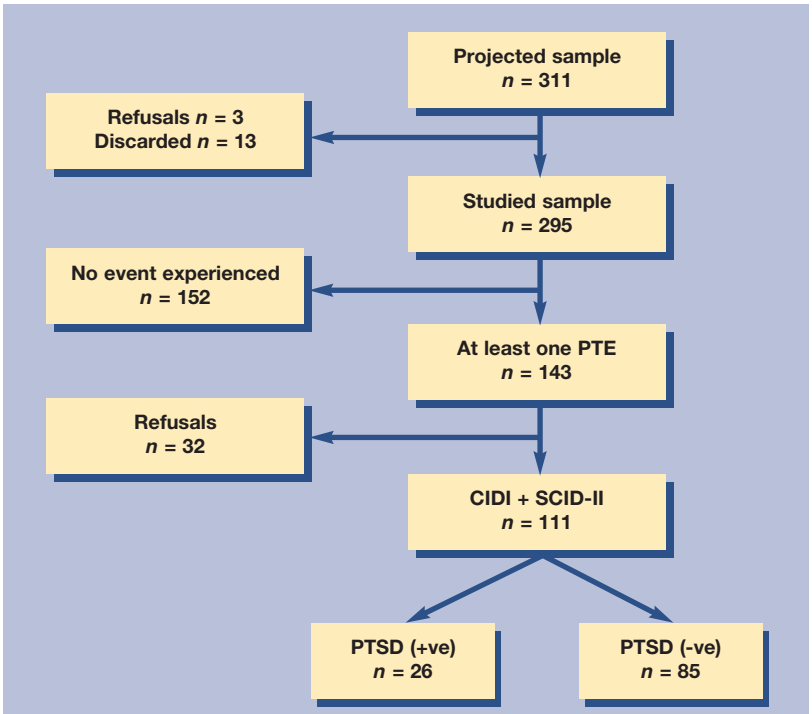
experienced at least one traumatic event in their lives, using multivariate analysis to control the effect of confounding factors. A distinctive feature of this study is the description of PTSD comorbidity with the full spectrum of personality disorder, an area insufficiently studied in general practice and also in other settings.

To achieve this aim a random sample of patients attending a general practice health centre in Valencia (Spain) was studied employing standardised instruments and blind assessment.

METHOD

The survey was conducted in Paterna Health Center, which covers an urban catchment area of 48 253 inhabitants. The original sample included 311 patients aged between 16 and 75 years selected at random among those attending each day during the last 2 years. Patients who agreed to participate in the study were interviewed by their family doctor and those who had experienced at least one traumatic event in their lives were referred to mental health services for inclusion in the study. To identify risk factors for PTSD, patients who developed the disorder were compared with those who did not.

Figure 1. Sample flow chart.



PTE = principal traumatic event. PTSD = posttraumatic stress disorder.

Measures

Three previously trained family doctors (interobserver reliability k = 0.95; test–retest k = 0.83) interviewed patients using Composit International Interview (CIDI) check-list for traumatic events.[10] Following that, selected patients were assessed with the CIDI full interview to establish whether they were suffering from PTSD. The following risk factors were considered:

- frequency and variety of principal traumatic events defined according to DSM-IV criteria A; principal traumatic events were also considered in two groups, those involving body contact (rape, sexual assault, physical assault and torture) and those not involving such contact (accident, natural disaster, witnessing somebody dying, been threatened with a weapon);
- dissociative symptoms (numbing, reduction in awareness of surroundings, derealisation, amnesia and depersonalisation) occurring within the first 48 hours after experiencing the event were identified with the Spanish version of Schedule for Clinical Assessment in Neuropsychiatry (SCAN)[11,12] and registered on a five step scale from 'absent' to 'very strong' (α = 0.78); and
- personality disorder diagnosed with the Spanish version of SCID-II.[13,14]

The diagnosis of PTSD and personality disorder were established in independent sessions by one psychiatrist and one psychologist who were blind to each other's findings. Levels of severity were established according to the number of symptoms; subclinical or partial disorder was considered when the patient fulfilled more than two and less than five DSM-IV criteria.

Data analysis

Logistic regression and Cox regression models were constructed with variables showing significant associations with PTSD in bivariate analysis. Cluster analysis based on unweighted pair group method with arithmetic mMean (UPGMA) was used to classify patients according to the type and frequency of principal traumatic event and the age at the time of experiencing it.

RESULTS

Thirteen patients were excluded because they did not fall within the age range, showed psychotic

symptoms or refused to participate, and 32 did not present at the diagnostic interview, accounting for 11.7% lost from the projected sample and 22.4% of those included in the diagnostic study; one patient refused to be interviewed with the SCID-II. The flow of patients is shown in Figure 1. There were no significant differences in age and sex between those who participated and those who did not. Thirty-four per cent were males and the mean age was 44 years (standard deviation [SD] = 17). The age distribution in the catchment area was 63%, 27% and 11% for age groups 15–44, 45–64 and ≥65 years, respectively, whereas the distribution for the sample was 50, 33 and 17%, respectively. In comparison with the general population of the catchment area there was a significantly lower proportion of young males (12 versus 24%).

Table 1. Principal traumatic events.

	Male	Female	Total
	n (%)	*n* (%)	*n* (%)
Accident	14 (28.0)	8 (13.1)	22 (19.0)
Natural disaster	4 (8.0)	3 (4.9)	7 (6.3)
Witnessing death or harm	13 (26.0)	2 (3.3)	15 (13.5)
Sexual trauma	1 (2.0)	6 (9.8)	7 (6.3)
Physical assault	4 (8.0)	17 (27.9)	21 (18.9)
Threatened with weapon	6 (12.0)	5 (8.2)	11 (9.9)
Harm/death to close relative	6 (12.0)	19 (31.1)	25 (22.5)
Others	2 (4.0)	1 (1.6)	3 (2.7)
Body-contact events	5 (10.0)	23 (62.3)	28 (25.2)
Non-body-contact events	45 (90.0)	38 (37.7)	83 (74.8)
Total	50 (100.0)	61 (100.0)	111 (100.0)

Traumatic events

Out of 295, 143 (48%) had experienced at least one event classified as a principal traumatic event. Eighty (72.1%) experienced the same principal traumatic event only once, 15 (13%) between two and five times and 16 (14%) more than five times. There were no significant differences in age or sex between those who suffered at least one principal traumatic event and those who did not, but the type of event suffered differed significantly by sex ($\chi^2 = 27.8$, $P<0.001$) (Table 1). Women experienced more body-contact principal traumatic events than men (odds ratio [OR] = 5.4, 95% CI = 1.9 to 15.7). The mean number of different principal traumatic events by subject was 2.38 (SD = 1.33), there being no significant difference by sex (t = 0.17, P = not significant).

PTSD

Forty patients complied with DSM-IV criteria for PTSD at least once in their lives and 26 were suffering it at the time of the survey. Prevalence rates by sex and level of severity were estimated (Table 2). Age at onset was 22.6 (SD = 12.9). Eighty per cent of patients suffering from current PTSD commenced symptoms within 1 week after experiencing the traumatic event. The duration of symptoms in patients who suffered life PTSD was 14.7 years (SD = 13.2).

Factors associated with PTSD

Female sex (OR = 3.2, 95% CI = 1.3 to 7.4), having experienced principal traumatic event at an early age (t = 2.3, P = 0.03), repeatedly experiencing principal traumatic event (Mann–Whitney, P = 0.002) and experiencing multiple different principal traumatic event were all associated with PTSD diagnosis (t = -2.1, P = 0.03).

Acute stress disorder and dissociative symptoms experienced within 48 hours after the event were also associated with PTSD (OR = 4.6, 95% CI 95% = 1.6 to 13.6). There was also a positive correlation between the number of dissociative symptoms and the number of symptoms of PTSD (r = 0.46, $P<0.001$).

Twenty-five per cent of principal traumatic events were body-contact events (28/111). Of those

Table 2. Life and current prevalence by sex and level of severity

	Male			Female			Total		
	n	Preference	95% CI	*n*	Preference	95% CI	*n*	Preference	95% CI
PTSD-life									
Subclinical	23	18.9	12.9 to 26.7	28	16.2	11.4 to 22.4	51	17.3	13.4 to 22.0
Light	1	0.8	0.1 to 4.5	4	2.3	0.9 to 5.8	5	1.7	0.7 to 3.9
Moderate/severe	10	8.2	4.5 to 14.4	25	14.5	10.0 to 20.5	35	11.9	8.7 to 16.1
Life prevalence	11	9.0	5.1 to 15.4	29	16.8	11.9 to 23.0	40	13.7	10.1 to 17.9
PTSD current									
Subclinical	11	9.0	5.1 to 15.4	25	14.5	10.0 to 20.5	36	12.2	8.9 to 16.4
Light	3	2.5	0.8 to 7.0	9	5.2	2.8 to 9.6	12	4.1	2.3 to 7.0
Moderate/severe	2	1.6	05 to 5.8	12	6.9	4.0 to 11.7	14	4.7	2.8 to 7.8
Current prevalence	5	4.1	1.8 to 9.2	21	12.1	8.1 to 17.8	26	8.8	6.1 to 12.6

PTSD = posttraumatic stress disorder.

Table 3. Cluster analysis (UPGMA) based on type of principal traumatic event (body-contact vs non body-contact), frequency of principal traumatic event (1-5 vs 5+) and age at experiencing it.

	Group A	Group B			
	n (%)	*n* (%)	Total	OR	95% CI
Under 16 years old	18 (100)	11 (12)	29	NA	NA
Body contact PTE	15 (83)	13 (14)	28	30.8	7.8 to 121.2
High PTE frequency	13 (72)	3 (3.3)	16	78.0	16.7 to 365.6
Female	17 (94)	44 (47)	61	18.9	2.4 to 148
Life PTSD	14 (77)	26 (28)	40	9.0	2.7 -29.9
Current PTSD	9 (50)	17 (18)	26	4.5	1.5 to 12.9
Dependent PD	4 (22)	6 (6)	10	4	1 to 16
Avoidant PD	6 (30)	9 (10)	15	4.5	1.4 to 14.9
Paranoid PD	6 (30)	2 (2)	8	22	3.4 to 121.6
NOS PD	5 (28)	2 (2)	7	16.9	2.9 to 96.4
Any PD	12 (66)	24 (26)	36	5.5	1.9 to 16.6

NA = not applicable. NOS = not otherwise specified. PD = personality disorder. PTE = principal traumatic event. PTSD = posttraumatic stress disorder.

patients who suffered a body-contact principal traumatic event, 68% (19/28) developed PTSD whereas of those suffering no body-contact principal traumatic event only 25% (21/83) developed it (OR = 6.2, 95% CI = 2.4 to 15.9).

Thirty-six patients were diagnosed as having at least one personality disorder 50% had one diagnosis, 30% had two diagnoses and 20% had more than two). PTSD was significantly associated with personality disorder (OR = 8.3 CI 95% = 3.3 to 20.5) but only at the expense of female sex (female OR = 19.1, CI 95% = 5.1 to 71.1; male OR = 1.1, 95% CI = 0.2 to 6.6). PTSD was also associated with higher personality disorder comorbidity (t = -4.2, P<0.001).

To verify the existence of a different group of patients who had experienced repeated body-contact principal traumatic event at an early age as suggested by the concept of Complex PTSD,[15] a cluster analysis based on age at experiencing principal traumatic event (0–16 versus >16 years), type of principal traumatic event (body-contact versus no body-contact) and frequency (1–5 versus >5) was explored by means of cluster analysis. The results are shown on Table 3. As expected there was one group of 18 patients (77% of all PTSD, 17% of those who experienced any type of principal traumatic event) who suffered high frequency body-contact principal traumatic event at an early age (Group A in Table 3). This group was composed mainly of females who experienced from more severe life and current PTSD than group B (life-PTSD mean number of symptoms for group A = 10.9 and for Group B = 6.5, f = 3.5, P = 0.001; current-PTSD for Group A = 7.5 and for Group B = 3.2, f = 4.2, P<0.001). Group A also presented a different symptom profile from Group B in that inability to recall, diminished interest, feeling of detachment and hopelessness were significantly more frequent.

The personality disorders significantly more prevalent on group A were: paranoid, 'not otherwise specified' (NOS), dependent and avoidant, in decreasing order of frequency. Significant differences were also found in the mean number of traits of avoidant personality disorder (A = 2.6, B = 0.9; t = 4.1, P<0.001), dependent personality disorder (A = 2.5, B = 1.1; t = 3.0, P<0.001), paranoid personality disorder (A = 2.5, B = 0.6; t = 3.3, P = 0.004), borderline personality disorder (A = 1.8, B = 0.5; t = 3.1, P = 0.005) and any personality disorder (A = 17.9, B = 7.9; t = 4.2, P<0.001).

Multivariate analysis of factors associated with PTSD

Factors found to be significantly related to PTSD in bivariate analysis (age, sex, frequency, multiplicity, body-contact principal traumatic event, dissociative symptoms and personality disorder) were introduced as explanatory variables in a multivariate logistic model. Personality disorder (OR = 7.7, 95% CI = 2.7 to 22.0, P<0.001), frequency of principal traumatic event (OR = 2.0, 95 % CI = 1.3 to 3.2, P = 0.002) and dissociative symptoms (OR = 1.4, 95% CI = 1.1 to 1.7) explained the probability of suffering PTSD (Hosmer and Lomeshow χ^2 = 2.1, P = 0.9, Nagerlkerke r^2 = 0.47).

Multivariate analysis of factors associated with duration of symptoms

A Cox model was employed to account for the duration of symptoms. Only the presence of personality disorder explained the duration of symptoms (OR = 3.91, 95% CI = 1.38 to 11.9, P = 0.01, model χ^2 = 7.59, P = 0.006). Adding severity of symptoms to the model, only severity was associated with duration (OR = 0.7, 95% CI = 0.57 to 0.85, P<0.001, model χ^2 = 13.78, P<0.001).

DISCUSSION

Summary of the main findings and comparison with existing literature

Current prevalence rate of PTSD was 8.8 and life prevalence 13.7. Female sex, repetition, multiplicity and type of principal traumatic event, the presence of dissociative symptoms following the traumatic event and personality disorder were significantly associated with PTSD. A particularly severe subgroup was composed of women who had experienced frequent body-contact trauma at an early age and suffered from personality disorder. Time to the complete disappearance of symptoms was only explained by the initial severity of PTSD.

Traumatic events. In this study, the proportion of patients who had been exposed to at least one principal traumatic event is 48% and the most common one was witnessing the death or serious harm of a close relative or friend, followed by accidents and physical assault. As expected, figures from previous studies vary considerably depending on culture and specific social and environmental conditions.[3–9] Nevertheless our study confirms the generalised finding that accidents are more frequent among men whereas body-contact principal traumatic events are more frequent among women.[17]

PTSD. The estimated current prevalence rate in this sample is 8.8%, which is the same prevalence reported in the largest survey of PTSD carried out in a representative sample of primary care in Israel[7] and close to the 11.8% found in California,[3] in spite of a wide difference in reported rates of traumatic events. Lifetime prevalence rate in this survey is 13.7% which comes within the 12–39% range previously reported in primary care samples.[4,5] Women present a higher prevalence, a fact already reported in most studies.

Practically up to one in six patients is currently suffering from subclinical PTSD, a worrying fact in view of the levels of distress associated with this condition.[18,19] If both rates are added together it represents 24% of people attending primary care services who are suffering from symptoms due to traumatic stress. This figure is of particular significance in view of the fact that not a single case of PTSD in this sample had been previously identified by the family doctor.

Factors associated with PTSD. In this study we found a strong comorbid association of personality disorder and PTSD in women only, which was maintained after controlling for the effect of other explanatory factors. This is an expected finding given the obvious importance of personality in the response to traumatic events. A significant association was found between PTSD and paranoid, avoidant, dependent and NOS personality disorders, as well as between PTSD and paranoid, avoidant, dependent and borderline personality traits. The strongest association appears to be between PTSD and paranoid personality disorder. Shea[20] found that patients with PTSD were more likely to meet criteria for borderline or self-defeating personality disorder. Yen[21] reported the presence of PTSD in a large sample of psychiatric patients suffering from schizotype, borderline, avoidance or obsessive-compulsive personality disorder.

Cluster analysis based on frequency and type of principal traumatic event and age at experiencing it revealed the existence of two groups of patients. One group experienced repeated body-contact principal traumatic event early in life and was composed mainly by women with high prevalence of severe PTSD and personality disorder, particularly paranoid personality disorder. This group presented an inability to recall, diminished interest, feelings of detachment and hopelessness significantly more frequently (Table 4). It is important to underline that 6% of the sample presents this very severe type of PTSD. Herman[15] described a similar condition characterised by a combination of PTSD and borderline personality traits associated with early trauma. The other group was composed mainly by men who experienced a single non body-contact principal traumatic event late in life, suffered less frequently and less severely from PTSD, were rarely diagnosed from personality disorder and presented a more uniform symptom profile.

Dissociative symptoms developed within 24 hours after the traumatic event predict the development of PTSD in this study. A 'dose-response' relationship as expressed by a positive significant correlation between the number of dissociative symptoms and the number of PTSD symptoms underlines the validity of the association. There is no information on dissociative symptoms in primary care research and a meta-analytic review of surveys[16] and research on high risk groups[22,23] yields mixed findings. It may be that differences in samples account for the contradictory data, but it may also be that dissociative symptoms are particularly liable to memory bias in retrospective

Table 4. Symptom distribution by cluster.

Symptoms	Group A (*n* = 18)	Group B (*n* = 93)	Total	%	χ^2	*P*-value
Re-experiencing						
Recurring recollections	14 (78)	67 (72)	81	73	0.2	0.6
Nightmares	7 (39)	38 (41)	45	40.5	0.02	0.9
Reliving the event	13 (72)	38 (41)	51	45.9	5.9	0.02
Distress at exposure	13 (72)	45 (48)	58	52.3	3.4	0.07
Physiological reactivity	14 (78)	53 (57)	67	60.4	2.7	0.1
Increased arousal						
Insomnia	9 (50)	39 (42)	48	43.2	0.4	0.52
Irritability	12 (67)	32 (34)	44	39.6	6.5	0.01
Poor concentration	11 (61)	35 (38)	46	41.4	3.4	0.064
Hypervigilance	15 (83)	64 (69)	79	71.2	1.5	0.2
Increased startle response	11 (61)	31 (33)	42	37.8	4.9	0.03
Avoidance/numbing						
Mental avoidance	13 (72)	40 (43)	53	47.7	5.1	0.02
Behavioural avoidance	13 (72)	38 (41)	51	45.9	6.0	0.01
Inability to recall	9 (50)	10 (11)	19	17.1	16	0.001[a]
Diminished interest	11 (61)	20 (22)	31	27.9	11.7	0.001[a]
Feeling of detachment	11 (61)	20 (22)	31	27.9	11.7	0.001[a]
Restricted affect	8 (44)	16 (17)	24	21.6	6.6	0.01
Hopelessness	13 (72)	20 (22)	33	29.7	18.5	0.001[a]

[a] = *significant.*

studies as they often occur many months or years before the study.

Factors related to duration of symptoms. The result of the Cox multivariate analysis shows that the presence of personality disorder increases the duration of symptoms, but this effect disappears when the initial severity of PTSD is added to the model. Initial severity is the most frequently reported risk factor for PTSD. It has been reported in primary care patients that the degree of psychosocial impairment at intake is significantly related to remission status, which agrees with our finding.[24]

The duration of symptoms for life PTSD on this sample is considerably longer than expected in comparison with previous findings. In the National Comorbidity Survey the median time to remission was about 45 months although one-third failed to remit after many years.[25] The longer length of duration of symptoms found in this study may be the result of memory distortion or from the confounding effect of distress caused by personality disorder. Yet it should be noted that we were not measuring time to remission, an impossible task in a retrospective survey, but time to complete disappearance of troublesome symptoms.

Strengths and limitations of the study

The main strength of this study is the use of psychometrically sound instruments administered by well trained blind observers. However, its validity is limited by recall bias, particularly in the possibility of missing cases of PTSD already recovered by the time of the interview. Another limitation of this study lies in the small size of the sample which precludes a detailed analysis of the relationship between the most rare individual personality disorders and PTSD.

Implications for clinical practice and future research

From a practical point of view the presence of dissociative symptoms following the traumatic event could be considered a fair predictor of PTSD. Women whose PTSD is associated with repeated traumatic events in infancy should be further explored for the presence of personality disorder and if confirmed should be referred to specialised psychiatric facilities.

Our findings show that the relationship between PTSD and personality disorder is not limited to the borderline type. Further research is needed to clarify the relevance of other personality disorders in this area.

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