AN EMPIRICAL STUDY OF DEFENSE MECHANISMS IN PANIC DISORDER[+]

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SUMMARY

Panic disorder is present in 2.9% of females and 1.3% of males in the Mexican urban population; about two thirds of these patients have an associated depressive disorder. Genetics and psychosocial factors are intertwined in the etiology of this disorder. There are several studies related to the role of defense mechanisms in the pathogenesis of psychiatric disorders. Few studies of anxiety disorders have been conducted in Mexico, and there is little evidence about the importance of the defense mechanisms that are present in these disorders. In the DSM-IV-TR, defense mechanisms or coping styles are defined as "automatic psychological processes that protect the individual against anxiety and from the awareness of internal or external dangers or stressors. Individuals are often unaware of the processes as they operate". The purpose of the present research was to identify the differential use of the defense mechanisms in normal controls and in patients with panic disorder alone or complicated mainly with mood disorders, and the patients who responded or did not respond to psychopharmacological treatment.

Method. The sample of this study comprised 48 consecutive outpatients with panic disorder from the Instituto Nacional de Psiquiatría, Ramón de la Fuente Muñiz. All of them were evaluated three times: first by a third grade psychiatry resident, in second place by a specialist in psychiatry and finally by one of the authors. After the patients agreed to participate, they completed a demographic questionnaire, the Hopkins Symptom Check List (SCL-90), and the Defense Style Questionnaire (DSQ, Spanish Version). To evaluate the intensity of anxiety and depression, the Anxiety Hamilton Scale and the Hamilton Scale for Depression were used in their first appointment. Patients were treated as usual with a tricyclic antidepressant, a benzodiazepine, or both, during an eight week period. Then they were evaluated again with the same instruments and scales.

The Defense Style Questionnaire (DSQ) is a self-report instrument of common defense styles, which are empirically validated clusters of perceived defense mechanisms. Subjects rate their degree of agreement with 88 statements designed to tap defense or coping mechanisms on a nine-point scale. The DSQ is a widely used measure of empirically derived groupings of defense mechanisms ranking an adaptive hierarchy. A review of published studies, indicates strong evidence that adaptiveness of defense style correlates with mental health, and that some diagnoses are correlated with specific defense patterns (borderline personality disorder correlates with greater use of both, maladaptive and image-distorting defenses, and less use of adaptive defenses). For other diagnoses, the pattern of defenses is less clear.

The validity and the reliability of the DSQ Spanish Version were established before its application, in a sample of 261 psychiatric patients and controls. Two factors were obtained in the factor analysis. The first was denominated Mature Style. This category included: suppression, working orientation, sublimation, anticipation, affiliation, reactive formation, altruism, and humor. The Immature Style was the second factor; it included projection, acting out, repression, somatization, autistic fantasy, affective isolation and social withdrawal, inhibition, help rejection, splitting, undoing, consume, idealization, denial, projective identification, passive-aggression, and omnipotence. Higher mean scores indicated greater use of the individual defense mechanism and style. The mean scores for individual DSQ defense mechanisms and styles were calculated by adding and averaging the scores. The reliability calculated was .89 (Cronbach alpha) for the items corresponding to the 25 defense mechanisms.

Axis I was ascertained reliably with face-to-face interview and a list of the DSM-III-R criteria. This group had 32 patients with panic disorder and 16 patients with panic disorder associated to mood comorbidity or alcohol dependence, in persistent remission for at least one year; 32 subjects were included in the normal control group.

Results. The comparison of patients with panic disorder, patients with panic disorder associated to mood disorders and controls, showed that both groups of patients used more projection, regression, inhibition, acting out, fantasy, splitting, help rejection, undoing, and reactive formation ($p<.01$), than the control group. The patients with panic disorder alone, used more somatization and denial ($p<.01$) than controls, but not more than the group of patients with panic and mood disorders. They also used less humor and sublimation as defenses than the control group ($p=.03$). The defense mechanisms of the patients who responded to pharmacological treatment were similar to the defenses of patients who did not improve or deserted. The only defense used more by the patients who responded to treatment was undoing.

Conclusions. Overall, the results of this study on panic disorder draw us to the conclusion that patients with this disorder make

[+]Master thesis in Psychiatry, presented at the Annual Meeting of the APA, 2001.

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Recibido: 9 de junio de 2006. Aceptado: 7 de julio de 2006.

more use of immature and neurotic defenses than nonpatients. It is clear that maladaptive defenses, measured with this version of the DSQ, are related to mental illness and greater symptomatology, and adapative defenses are related to a better health. There was a clear difference in the use of defense mechanisms between the groups with illnesses and the control group. The clinical value of these observations depends on the relationship of the defenses with the symptoms. In this survey it is not possible to propose that defense mechanisms are the cause of the panic disorder, the reaction to the disease, or just a manifestation of the illness. The theory which establishes that the predominant use of certain defenses predisposes an individual to the development of specific illnesses, is attractive, but there is no evidence to support this hypothesis at present. In order to determine whether specific defenses or defense styles create vulnerability for the development of specific illnesses, the ideal study would be a prospective and longitudinal one; it would measure defenses in childhood, in adolescence, and at several points in adulthood, and would note whether there were significant correlations between pre-existing defenses and specific illnesses. Such a study has yet to be undertaken. It is intriguing to speculate if an assessment of defenses could guide to treatment choices. Therapists do tend to consider diagnosis, ego strength, symptoms, behavior, and defenses when planning treatment, but a systematic assessment of defenses is not used as a basis for planning specific interventions. Although several studies have examined the relationship among defenses, alliance, therapist interventions, and outcome, more studies looking at a wider range of specific diagnoses are necessary.

Key words: Anxiety, defense mechanisms, defensive styles, major depression, panic disorder.

Resumen

El trastorno de angustia es un padecimiento frecuente en la población mundial. En México, 2.9% de las mujeres y 1.3% de los hombres lo han presentado alguna vez en la vida. Las causas del padecimiento probablemente involucren factores biológicos y psicosociales en interacción. Existe evidencia empírica de la participación de los mecanismos de defensa en la patogénesis del trastorno de angustia. En comparación con sujetos sanos, estos pacientes usan defensas inmaduras y neuróticas como proyección, pasividad agresiva, fantasía, exoactuación, devaluación, desplazamiento, somatización y escisión. En comparación con los pacientes deprimidos, utilizan más las defensas neuróticas como somatización, devaluación e idealización.

Objetivos. Fueron dos los objetivos de esta investigación: 1) Se determinaron las diferencias en el uso de los mecanismos de defensa entre los pacientes con trastorno de angustia, con y sin otros trastornos coexistentes, y los sujetos sanos. 2) Se compararon las defensas de los pacientes respondedores con los no respondedores al tratamiento farmacológico después de 8 semanas.

Procedimiento. Los pacientes fueron evaluados por un médico residente de tercer año de la especialidad en psiquiatría. En un período menor a una semana fueron reevaluados por alguno de los médicos adscritos a la Consulta Externa. Si su diagnóstico definitivo era de trastorno de angustia se les invitaba a participar en el estudio. En la entrevista de evaluación se explicaba en qué consistía éste. Si aceptaban participar, se aplicaba un listado con los criterios del trastorno de angustia y se interrogaba sobre los criterios mayores para trastornos psicóticos, demenciales, anímicos, de ansiedad, adaptativos, somatomorfos y de uso de alcohol y sustancias, en el último año. Se incluyeron pacientes con diagnóstico de trastorno de angustia aunque tuvieran algún padecimiento comórbido pero que no hubieran presentado psicosis, demencia, ni trastorno por uso de sustancias durante el último año. Se aplicaron las escalas de Hamilton para Ansiedad, la de Hamilton para Depresión, la de Impresión Global del Médico y la Lista de 90 Síntomas de Hopkins (SCL-90) para medir la intensidad de los síntomas. En ese momento contestaron el DSQ de 88 reactivos. Tras 8 semanas de tratamiento farmacológico con su médico tratante, se les reevaluó de la misma forma. Ninguno recibió psicoterapia.

Resultados. Los pacientes con trastorno de angustia recurrieron menos a las defensas adaptativas, como la sublimación y el humor, aunque más a la formación reactiva, que los sujetos sanos. A la vez usaron más las defensas desadaptativas basadas en la escisión (proyección, regresión, negación, exoactuación y fantasía), así como las defensas neuróticas (inhibición, somatización, aislamiento social, rechazo de ayuda y anulación). La presencia de un trastorno depresivo o por uso de alcohol en el pasado no influyó en la forma en que los pacientes con trastorno de angustia usaron sus mecanismos de defensa. Por otro lado, dichos mecanismos no influyeron en la respuesta al tratamiento farmacológico. Sin embargo, los que utilizaron más la anulación respondieron mejor a tratamiento y no desertaron del estudio.

Conclusiones. La mayoría de los hallazgos fueron similares a los documentados previamente por varios autores en otros países. Las limitaciones metodológicas del estudio se relacionaron principalmente con las dificultades para medir las defensas a través de sus correlatos conductuales y actitudinales.

Palabras clave: Crisis de angustia, trastorno de angustia, depresión mayor, mecanismos de defensa, estilos defensivos.

Introduction

Panic disorder is present in 2.9% of women and in 1.3% of males in Mexico (28). It is characterized by unexpected and repeated panic attacks. The fundamental characteristic of a panic attack is the experience of deep fear without any apparent cause, accompanied by different symptoms: cardiac, respiratory, neuromuscular, gastrointestinal and cognitive (6). Although panic attacks are characteristic of panic disorder, they can be present altogether in other mental disorders (7, 9, 20) and even in physical illness (40).

Almost two thirds of the patients will present a depressive episode, which may precede a panic disorder, or may arise with it, thereby complicating its outcome and delaying its treatment (33). Although the cause of panic disorder is unknown, it seems to result from the interaction of biologic and psychosocial factors (18). Panic disorder has been considered a neurosis produced by unconscious conflicts. The ego, one of the structures of the mind, has no conscience of such conflicts due to the action of the defense mechanisms (22, 31). The concept of defense mechanism is a construct and it corresponds to an intrapsychic phenomenon outside of the

own individual's conscience. However, defense mechanisms correlate with the individual's attitudes and conducts, with the way in which he or she perceives him/herself and in the way of interpreting other's attitudes and daily events. Acting out is a defense characterized by facing conflicts through actions more than with reflection (i.e. I act impulsively when something bothers me, I become aggressive when I feel hurt). Reactive formation is a defense used to face conflicts or threats by replacing unacceptable conducts, thoughts or feelings by another conducts, thoughts or feelings that are diametrically opposite (I try to be nice with persons I dislike, I am very good with people with whom there is a good reason to be angry at; if I was stolen, I would prefer to help and not to punish the thief). The definitions of these two defenses are taken from the DSM-IV-TR (6) and the conduct correlates are items of the Defensive Style Questionnaire (16). The defense mechanisms are included in Appendix B (Criteria and axis that require more study) of the DSM-IV-TR defining them as "psychological processes that protect the individual against anxiety and from the awareness of internal or external dangers or stressors". Taking as a base the empirical studies that were carried out up to that moment (12, 32, 39), the 31 defenses were classified in seven levels: high adaptive level, mental inhibitions (compromise formation) level, minor image-distorting level, disavowal level, major image-distorting level, action level and level of defensive dysregulation (6). However, the groupings and the number of levels vary (35).

Measurement of defense mechanisms

Defense mechanisms have been empirically measured in different ways: by direct clinical evaluation using the Defense Mechanisms Rating Scale (DMRS) (34), determining the defense mechanisms in case vignettes of the individual's life (40) and through the self-report with the Defensive Style Questionnaire (DSQ) (12), an instrument used in this survey to evaluate the defenses.

The Defensive Style Questionnaire

The Defensive Style Questionnaire (DSQ) (12) is a self-report instrument, empirically validated, which measures the individual's common defensive functioning, and the patient grades how much he agrees with the item in a Likert scale of 9 points. It has two versions: the one of 24 defenses and 88 items has shown a correlation with the DMRS (15) and with the results obtained by Vaillant (39), and the version of 40 items (DSQ-40) with only 20 defense mechanisms (4, 5).

Defense mechanisms in panic disorder

Patients with panic disorder use more immature and neurotic defenses (projection, passive-aggression, acting out, devaluation, fantasy, displacement, splitting and somatization) than healthy individuals (24) and more somatization, devaluation and idealization than depressed patients (36). Two surveys quoted in a recent review of the DSQ-40 (11), describe the use of immature defensive styles, such as avoiding in social phobia and of undoing and affiliation in panic disorder. Patients with agoraphobia use displacement, somatization, reactive formation and idealization; those patients with social phobia use displacement and devaluation. On the other hand, patients with obsessive-compulsive disorder use undoing, projection and acting out (34). In patients with a specific phobia, immature defenses, such as projection, interfere with the response to treatment (29). It has also been studied the effect of psychological treatment on the defense mechanisms used by patients with obsessive compulsive disorder. With recovery, these patients used more adaptive defensive styles and less undoing (2).

Defense mechanisms in other mental disorders

An inverse relationship has been observed between the defensive functioning and the severity of the depression (14). Patients with a major depressive disorder use mature defense mechanisms in fewer circumstances, although after treatment they use mature defenses more, and neurotic defenses less (1, 30). The relationship between defense mechanisms and personality disorders is an interesting theme for investigators. Devens and Erikson (21) observed, in paranoid, schizotypal, and schizoid personality disorders, high scores in immature defenses. Histrionic, borderline, narcissistic and antisocial personality disorders had high scores of immature defense mechanisms and low scores of mature defense mechanisms. In the borderline personality disorder, they found a correlation, which had been previously reported (13), with primitive defenses (projection, projective identification, acting out, splitting, omnipotence and devaluation). Affective instability is due to primitive and maladaptive defenses (projection, acting out, passive-aggression and autistic fantasy) and of image distortion (splitting). Impulsive aggressiveness maintains an inverse relation with mature and adaptive defenses (25). There are surveys of the relationship between defense mechanisms and personality disorders in the Mexican population (26), but there are no reports of surveys about defense mechanisms in anxiety disorders.

Objectives

The objectives of this study were to determine the differences in the use of the defense mechanisms in patients with panic disorder, with or without coexistent disorders, and healthy individuals. In addition, to

determine the defenses of the patients who responded to an eight week period of pharmacological treatment.

Design

A process study was carried out to determine the validity and reliability of the Defensive Style Questionnaire (DSQ) and a longitudinal comparative scrutiny was carried out.

Reliability and validity of the DSQ in Spanish

In order to determine the reliability and validity of the DSQ, 261 individuals were evaluated, 173 women (66.28%) and 88 men (33.72%) with a mean age of 29.33 ± 11.64 years. One hundred and sixty five persons were healthy individuals, 120 women (72%) and 45 men (28%); some of them had studies at a professional level in Medicine and Psychology, while others came from the general population. Their mean age was 20.94 ± 3.03 years. The group of patients consisted of 96 individuals, 53 women (55.2%) and 43 men (44.8%) with a mean age of 35.18 ± 10.65 years. The diagnoses in order of frequency were: panic disorder, 87; mood disorders, 37; psychotic disorders, 18; use of alcohol and drugs, 10; personality disorders, 4; suicide attempt, 3; and one with an adjustment disorder. Some of them presented several diagnoses.

Validity

Factorial analysis of variance using Varimax rotation (SPSS version 10.0) DSQ with 66 items were grouped in two factors. The first one included suppression, work orientation, sublimation, anticipation, affiliation, reactive formation, altruism and humor. Suppression had the highest factor loading (.658) and humor, the lowest (.293). The second groups: projection, acting out, repression, somatization, fantasy, social withdrawal, inhibition, help rejection, splitting, undoing, consume, idealization, negation, isolation, projective identification, passive-aggression and omnipotence. Projection had the highest factor loading (.785) and omnipotence, the lowest (.442). The Eigen value of factor 1 was 2.16 and of factor 2, was 6.48. The percentage of variance of factor 1 was of 8.6% and of factor 2 of 25.9% (accumulated total variance 34.5%). The first factor was denominated Adaptive Defenses because it grouped mature defenses. The second factor grouped immature and neurotic defense mechanisms and was denominated maladaptive or immature defenses (table 1).

Reliability

The Cronbach alpha was of .898 when 66 items were used and it was of .815 when the items were grouped into 25 defenses.

TABLE 1. Defense mechanisms with corresponding items

Adaptive defense mechanisms	
Defenses (Items)	*Factor loading*
Suppression (3, 59)	.6578
Work orientation (74, 84)	.5731
Sublimation (5)	.5578
Anticipation (68)	.5098
Affiliation (80, 81)	.4817
Reactive formation (13, 56, 63, 65)	.4329
Altruism (1)	.3044
Humor (61)	.2923
Maladaptive defense mechanisms	
Defenses (Items)	*Factor loading*
Projection (4,12,25,36,55,60,72,87)	.7848
Acting out (7, 21, 27, 33, 46)	.7377
Regression (9, 67)	.7135
Somatization (28, 62)	.6877
Fantasy (40)	.6722
Social withdrawal (32, 35, 49)	.6088
Inhibition (10, 17, 29, 41, 50)	.6050
Help rejection (69, 75, 82)	.5918
Splitting (23, 43, 53, 64)	.5808
Undoing (71, 78)	.5794
Consume (73, 79, 85)	.5530
Idealization (30, 51)	.5398
Negation (16, 52)	.5206
Isolation (76, 77, 83)	.5112
Projective identification (19)	.4877
Passive aggression (54)	.4796
Omnipotence (11, 18, 24, 45)	.4416
Lie Scale *(6,14,15,20,26,31,38,42,44,48,57)*	

Sample

Patients of both sexes, 18 to 65 years old, who attended for the first time to the Outpatients Clinical Service of the Instituto Nacional de Psiquiatría Ramón de la Fuente with a clinical diagnosis of Panic disorder (3, 6) and who had accepted to participate in the study, were included. Patients with an organic disorder, with a psychotic disorder or with substance use disorder were excluded. Forty nine individuals were evaluated; one patient who presented symptoms of dementia was excluded. The group of patients was composed by 48 patients, 30 women (62.5%) and 18 men (37.5%), with a mean age of 35.06 ± 10.62 years, with diverse schooling level, mostly married and with laboral activity (table 2). The control group was composed by 32 individuals, 22 women (68.75%) and 10 men (31.25%), with a mean age of 21.97 ± 3.57 years; a third part were married, most of them were studying at a professional level and all of them had an occupation. Groups were similar in gender, but they differed in age, schooling level, marital status, and labor activity (table 2). All patients had panic disorder, 12 had this diagnosis alone, and 16 had a major depressive disorder in addition (n=12), or alcohol abuse with a persistent absolute remission (more than one year) (n=4).

Proceeding

Patients were evaluated by a third grade resident in psychiatry. In a period shorter than one week they were re-

TABLE 2. Sociodemographic characteristics of the sample

	Control group (n = 32)	*Panic disorder group (n = 48)*	*Statistics*
Gender			
Femenine	22 (68.75 %)	30 (62.5 %)	χ^2= 0.32 gl 1
Masculine	10 (31.25 %)	18 (37.5 %)	p= n.s.
Age (years)	21.97 ± 3.57	35.06 ± 10.62	F 45.06 gl 1,78 p< .01
Educative level			
Elementary school	-	6 (12.5 %)	χ^2= 14.84 gl 1
Middle school	-	16 (33.33 %)	p< .01
High school	6 (18.75 %)	8 (16.66 %)	
College	26 (81.25 %)	18 (37.5 %)	
Civil status			
Married	12 (37.5 %)	29 (60.41 %)	χ^2= 4.04 gl 1
Non married	20 (62.5 %)	14 (29.16 %)	p< .05
Divorced	-	3 (6.25 %)	
Widow	-	2 (4.17 %)	
Occupation			
Employed	32 (100 %)	42 (87.5 %)	χ^2= 4.02 gl 1
Unemployed		6 (22.5 %)	p< .05

evaluated by specialists in Psychiatry in the outpatient's clinical service, and if their definite diagnosis was panic disorder, they were invited to participate in the study. If they accepted, they completed a questionnaire with items about the diagnostic criteria of panic disorder, and the major criteria of psychotic disorders, mood disorders, anxiety disorders, adjustment disorders, somatoform disorders, and use of alcohol and substances during the last year. Patients with panic disorder with some kind of comorbid illness but without psychosis or substance use disorder during the last year, were included. The Anxiety Hamilton Scale, the Hamilton Scale for Depression, the Clinical Global Impression (CGI) and the Hopkins Symptoms Checklist of 90 items (SCL-90) (8) were applied to measure the intensity of symptoms. Patients answered the Defense Style Questionnaire (DSQ) with 88 items (16). After 8 weeks of pharmacological treatment by their physician, they were re-evaluated in the same way. None of the patients received psychotherapy.

RESULTS

The severity of the anxiety symptoms, the depression and general psychopathology were similar in the patients with panic disorder and those who presented in addition another mental disorder (table 3).

Adaptive defense mechanisms

Patients with panic disorder scored lower in sublimation (F=-4.94 gl 1, 62 p=.02) and humor (F=-8.84 gl 1, 62 p=.004), although they used reactive formation more (F=7.9 gl 1, 62 p=.006) than healthy individuals (table 4).

Immature or maladaptive defense mechanisms

Patients with panic disorder had higher scores in maladaptive defenses (2.97 ± .80= than healthy individuals (4.04 ± .98) (F=22.59 gl 1, 62, p=.00001). They used more projection, regression, inhibition, negation, acting out, somatization, social withdrawal, fantasy, splitting, help rejection and undoing (p<.005) (table 5).

When the patients with panic disorder alone (n=32) were separated from those with depression and alcohol abuse in total persistent remission (n=16), it was observed that reactive formation was used more in both groups (p=.01) and humor was used less (p=.003) than in healthy individuals. Anyhow, there was no difference in the use of maladaptive defenses between the two groups of patients (p=n.s.). In relation to maladaptive or immature defenses, the group of pa-

TABLE 3. Level of symptomatology

Evaluation Scale	*Panic disorder group n = 32*	*Comorbid panic disorder group n = 16*	*Total sample n = 48*
Hamilton Depression Rating Scale			
Onset	28.44 ± 6.14	29.19 ± 8.12	28.69 ± 6.78
Final	16.92 ± 8.60	17.25 ± 7.39	17.03 ± 8.14
Hamilton Anxiety Rating Scale			
Onset	25.78 ± 6.66	26.69 ± 9.43	26.8 ± 7.60
Final	13.6 ± 8.10	15 ± 6.74	14.03 ± 7.62
SCL- 90			
Onset	141.96 ± 54.16	162.69 ± 50.6	148.88 ± 53.38
Final	110.55 ± 62.06	124.67 ± 56.57	114.65 ± 59.93

TABLE 4. Adaptive defense mechanisms

Adaptive defense mechanisms	*Panic disorder group (n= 32)*	*Control group (n= 32)*
Affiliation	5.69 ± 1.93	5.14 ± 2.64
Altruism	4.8 ± 2.83	4.84 ± 2.70
Anticipation	7.28 ± 2.05	6.56 ± 2.42
Reactive formation	4.85 ± 1.83 **	3.65 ± 2.45
Humor	3.81 ± 2.72	5.59 ± 2.14**
Work orientation	5.73 ± 2.60	5.78 ± 2.60
Sublimation	4.86 ± 2.79	6.13 ± 1.60 *
Suppression	5.09 ± 2.13	5.34 ± 2.40
Total	5.27 ± 1.03	4.96 ± 2.64

*p< .05, ** p< .01

TABLE 5. Maladaptive defense mechanisms

Maladaptive defense mechanisms	*Panic disorder group (n= 32)*	*Control group (n= 32)*
Isolation	4.34 ± 2.15	3.53 ± 1.90
Social withdrawal	6.21 ± 1.79 *	5.28 ± 1.90
Undoing	3.68 ± 2.17 ***	2.27 ± 1.70
Consume	3.25 ± 2.02	3.38 ± 1.93
Splitting	3.41 ± 1.45 **	2.19 ± 1.40
Acting out	4.77 ± 1.88 ***	3.41 ± 2.45
Fantasy	5.75 ± 2.72 ***	2.91 ± 2.54
Idealization	2.09 ± 1.61	1.95 ± 1.91
Projective identification	3.23 ± 2.93	3.22 ± 2.64
Inhibition	4.46 ± 2.02**	3.10 ± 2.31
Negation	3.48 ± 1.96 ***	2.08 ± 1.83
Omnipotence	3.90 ± 1.71	4.13 ± 1.79
Passive aggression	3.34 ± 2.59	2.75 ± 2.33
Projection	2.97 ± 1.24 ***	2.03 ± 0.80
Help rejecting	4.22 ± 2.24 ***	2.28 ± 1.19
Regression	5.32 ± 1.87 ***	3.27 ± 2.21
Somatization	4.20 ± 2.51 ***	2.47 ± 1.67
Total	4.04 ± 0.80 ***	2.97 ± 0.80

*p< .05, **p< .01, ***p< .001

tients with panic disorder and the group with comorbidity (3.88 ± 3.28) scored higher than the control group (2.97 ± 0.8) (F=7 gl 2, 77 p=.001). The patients in both groups used projection, acting out, fantasy, splitting, regression, inhibition, help rejection and undoing more than the control group (p<.01). Again, there was no difference in the use of the defenses between patients with and without associated psychopathology.

Defense mechanisms and response to treatment

Treatment consisted in the administration of tricyclic antidepressants (imipramine) and a benzodiazepine (alprazolam or clonazepam) at the same time. All in all, forty patients finished their treatment: 33 received the combination, 2 received tricyclic antidepressants and 5 received benzodiazepines. Eight of them deserted. Patients were divided according to their response to treatment in 2 groups, using as parameter the Clinical Global Impression Scale (10). Thirty three patients responded to treatment (improved or greatly improved). Fourteen patients did not respond to treatment (got worse, without or with little improvement and those who abandoned treatment). Symptomatology was less in the group that responded (table 6). The proportion of patients that did not fulfill the criteria of panic disorder was higher in the group of those who responded (83.33% versus 21.22%) (X^2=9.15 gl 1 p<.01). There was no difference observed in the use of adaptive defenses between the patients who responded or did not respond to pharmacological treatment. It was only observed that the patients who responded used undoing more (4.08 ± 3.35 *versus* 2.75 ± 2.57) (t 2.01 gl 45, p> 0.5).

TABLE 6. Level of symptomatology: Treatment responders versus non responders

Evaluation Scale	*Treatment responders (n = 33)*	*Treatment non responders (n = 14)*
Hamilton Anxiety Rating Scale		
Onset	29.52 ± 6.84	26.87 ± 6.50
Final	14.59 ± 5.87 *	30.0 ± 6.07
Hamilton Depression Rating Scale		
Onset	26.33 ± 7.53	25.33 ± 8.0
Final	11.77 ± 5.27 *	25.67 ± 7.61
SCL- 90		
Onset	152.85 ± 54.96	140.13 ± 50.42
Final	107.63 ± 5.27 *	162.0 ± 47.52

* p< .01 Treatment responders versus non responders

DISCUSSION

Patients with panic disorder use less adaptive defenses, as sublimation and humor, although they use more reactive formation than healthy individuals, and they use more maladaptive defenses like splitting, projection, regression, negation, acting out and fantasy and other neurotic ones (inhibition, somatization, social withdrawal, help rejection and undoing). The use of defense mechanisms is not influenced by the presence of a depressive disorder or by the use of alcohol in the past. Defense mechanisms seem not to have an influence in the response of the patients to pharmacological treatment, although those who used undoing more, responded to treatment.

Adaptive defenses

With reactive formation, the individual faces emotional conflicts by replacing one's own unacceptable conducts, thoughts or feelings by others diametrically opposed (6). It has been observed in other surveys, that the patient with panic disorder uses this defense (10, 34). In the factorial analysis of variance it was grouped into adaptive defense mechanisms because of its usefulness in culture (order, responsibility and punctuality). Since the conflict of these patients is related with guilt for experiencing negative emotions, reactive formation allows them to diminish it, converting negative

feelings into positive ones, and to even diminish the effect of their actions by means of another defense, undoing (17). Anyhow, the presence of any defense may represent a reaction to the disorder more than its cause. Panic attacks increase the need of support by others (41) and reactive formation can facilitate dependency relationships for the individual.

Sublimation and humor are not related to any stage of development, but they are considered mature defenses (38). Patients with panic disorder use them less. The content of the item related to sublimation (I manage my anguish doing something constructive and creative), makes it difficult for a patient with panic disorder to score high at it. Since anxiety is an unpleasant state of the mood, it is possible that it affects the punctuation of the items related to the humor defense. On the other hand, it has been reported a lesser use of this defense in patients with anxiety disorders in general and specially in social phobia and the obsessive-compulsive disorder (34).

Maladaptive defenses

Patients used more maladaptive defenses, based on splitting (projection, regression, negation, acting out and fantasy) and neurotic defenses (inhibition, somatization, social withdrawal, help rejection and undoing). This finding tallies with the previous evidence about the relationship between defenses and the different anxiety disorders: Patients with an obsessive-compulsive disorder use more undoing, projection and acting out; rituals correspond to unconscious attempts to compensate (undo) for aggressive or sexual instincts. In patients with social phobia displacement of conflicts on others is related with anxiety in social settings (34). Patients with panic disorder use displacement and somatization (26, 36). The presence of defenses as splitting, projection, regression, negation, acting out, and fantasy has been described in patients with panic disorder (36). These defenses, rather related to personality disorders, lead us to consider that some defenses are associated with panic disorder and others are associated to personality disorders (37). Defenses such as projection, fantasy, acting out, explained the 36.4% of the variance of the identity alteration and the emotional instability; the 24.1% of variance of risky behaviors of patients in cluster B personality disorders was explained by acting out, dissociation and splitting.

Associated disorders and use of defenses

The presence of a depressive disorder or the use of alcohol in the past had no influence, in this survey, in the defenses of patients with panic disorder. Depression was related, in males with defenses such as turning against the self, and in women with projection and turning against the object (27). In dysthymia, low self-esteem is the product of devaluation and somatization. The exteriorization of the conflict is related with projection, and the anger towards others with passive-aggression and projection (10). Acting out, passive-aggression, fantasy and projection have been observed in suicidal depressed patients (19). In this study it was not found an influence related to depression, possibly because the main diagnosis was panic disorder.

Defenses and response to pharmacological treatment

The most frequent defense used , by those who had a response to treatment, was undoing. Undoing, a product of magical thinking, diminishes anguish (31). To trust in something that may solve a problem, in this case psychopharmacological treatment, could explain a better adhesion and response to treatment.

Methodological aspects

The diagnostic process of panic disorder was appropriate: each patient was evaluated by a resident, a specialist and an investigator, and a list with the appropriate diagnostic criteria was used, although for the remaining diagnoses a structured clinical interview was not used. The control group was younger and had more education. Theoretically, personality is structured in the first years of life, principally in the moments in which parental figures are introjected. Defenses based on splitting, which correspond to the immature functioning of the self, are substituted by others of a major level beginning from the third year of life and at the end of the freudian phallic stage the personality is practically established (23). There are no studies demonstrating that defenses change throughout life. Still the question remains, if defenses are stable and persistent or "state markers" that change with the presence of psychopathology. In the studies with depressed patients, it has been observed that with recovery they use more adaptive defenses and less maladaptive ones. However, defenses such as reactive formation, altruism, idealization, and undoing seem to correspond to features, and not to be associated to the mood state (11). Finally, the design of the study allows to explore relationships between the defenses and panic disorder, but not to establish the cause. The results obtained may orientate future surveys towards specific factors.

Acknowledgements

To Professor Ramón de la Fuente Muñiz†, doctors Alfredo Castillo Machado+, Alejandro Díaz Martínez, Gerhard Heinze Martin, María Elena Medina Mora, Yolanda Alexander Flores (translator)

REFERENCES

1. AKKERMAN K, LEVIN TJ, CARR VJ: Long-term changes in defense style among patients recovering from major depression. *J Nerv Ment Dis,* 187:80-7,1999.
2. ALBUCHER RC, ABELSON JL, NESSE RM: Defense mechanism changes in successfully treated patients with obsessive compulsive disorder. *Am J Psychiatry,* 155:558-9,1998.
3. AMERICAN PSYCHIATRIC ASSOCIATION: *DSM- III- R. Diagnostic and Statistical Manual of Mental Disorders. Third edition revised.* American Psychiatric Press, Washington, 1987.
4. ANDREWS G,POLLOCK C,STEWART G: The determination of defense style by questionnaire. *Arch Gen Psychiatry,* 46:455-60,1989.
5. ANDREWS G,SINGH M,BOND M: The Defense Style Questionnaire. *J Nerv Ment Dis*, 181:246-256,1993.
6. ASOCIACION PSIQUIATRICA AMERICANA: *Manual Diagnóstico y Estadístico de los Trastornos Mentales*. Four edition. Texto revisado. DSM-IV-TR. Masson, Barcelona, 2002.
7. BAILLIE AJ, RAPEE RM: Panic attacks as risk markers for mental disorders. *Soc Psychiatry Psychiatr Epidemiol,* 40:240-4,2005.
8. BECH P, MALTS UF, DENCKER SJ y cols: Scales for assessment of diagnosis and severity of mental disorders. *Acta Psychiat Scand,* 87(suppl 372):33-4,1993.
9. BIEDERMAN J,PETTY C,FARAONE SV y cols: Patterns of comorbidity in panic disorder and major depression. *Depress Anxiety,* 21:55-60,2005.
10. BLOCH AM, SHEAR K, MARKOWITZ JC y cols: An empirical study of defense mechanisms in dysthymia. *Am J Psychiatry,* 150:1194-8,1993.
11. BOND M: Empirical studies of defense style. *Harv Rev Psychiatry,* 12:263-78,2004.
12. BOND M, GARDNER S,CHRISTIAN J y cols: Empirical study of self- rated defense styles. *Arch Gen Psychiatry* 40:333-8, 1983.
13. BOND M,PARIS J,ZWEIG-FRANK H: Defense styles and borderline personality disorder. *J Pers Dis,* 8:28-31,1994.
14. BOND M, PERRY JC: Long- term changes in defense style with psychodynamic psychotherapy for depressive, anxiety and personality disorders. *Am J Psychiatry,* 161:1665-71,2004.
15. BOND M, PERRY JC, GAUTIER M y cols: Validating the self- report of defense styles. *J Pers Disord,* 3:101-12,1989.
16. BOND M, WESLEY S: *Manual for the Defense Style Questionnaire*. McGill University, Montreal, 1996.
17. BUSCH FN, SHEAR MK, COOPER AM y cols: An empirical study of defense mechanisms in panic disorder. *J Nerv Ment Dis,* 183:299-303,1995.
18. CHAVEZ-LEON E: *Trastorno de Angustia. PAC Psiquiatría- 5. Libro 8*. Intersistemas, México, 2004.
19. CORRUBLE E, BRONNEC M, FALISSARD B y cols: Defense styles in depressed suicide attempters. *Psychiat Clin Neurosci,* 58:285-88,2004.
20. DANNON PN, LOWENGRUB K, AMIAZ R y cols: Comorbid cannabis use and panic disorder: short term and long term follow- up study. *Hum Psychopharmacol Clin Exp,* 19:97-101, 2004.
21. DEVENS M, ERIKSON MT: The relationship between defense styles and personality disorders. *J Pers Dis,* 12:86-93,1998.
22. GABBARD GO: *Psychodynamic Psychiatry in Clinical Practice*. American Psychiatric Publishing, Arlington, 2005.
23. KERNBERG OF: *La Teoría de las Relaciones Objetales y el Psicoanálisis Clínico*. Paidos, México, 1993.
24. KIPPER L, BLAYA C, TERUCHKIN B y cols: Brazilian patients with panic disorder: the use of defense mechanisms and their association with severity. *J Nerv Ment Dis,* 192:1-7,2004.
25. KOENIGSBERG HW, HARVEY PD, MITROPOULOU V y cols: Are the interpersonal and identity disturbances in the borderline personality disorder criteria linked to the traits of affective instability and impulsivity. *J Pers Disord,* 15:358-70, 2001.
26. LOPEZ-RAMIREZ ME, CHAVEZ-LEON E: *Relationship Between Defense Mechanisms and Personality Disorders*. New Research Abstracts, American Psychiatric Association, 157th Annual Meeting, 101, New York, 2004.
27. MARGO GM, GREENBERG RP, FISHER S y cols: A direct comparison of the defense mechanisms of nondepressed people and depressed psychiatric inpatients. *Compr Psychiatry*, 34:65-69, 1993.
28. MEDINA-MORA ME, BORGES G, LARA-MUÑOZ C y cols S: Prevalencia de trastornos mentales y uso de servicios: Resultados de la Encuesta Nacional de Epidemiología Psiquiátrica en México. *Salud Mental*, 26(4):1-16, 2003.
29. MULLEN LS, BLANCO C, VAUGHN SC y cols: Defense mechanisms and personality in depression. *Depress Anxiety*, 10:168-74, 1999.
30. MURIS P,MERCKELBACH H: Defence style and behaviour therapy outcome in specific phobia. *Psychol Med*, 26:635-9,1996.
31. NEMIAH JC: Psychoneurotic disorders. En: Nicholi Jr AM: *The Harvard Guide to Modern Psychiatry*. The Belknap Press of Harvard University Press, Cambridge, 1988.
32. PERRY JC, COOPER SH: An empirical study of defense mechanisms: I. Clinical interview and life vignette ratings. *Arch Gen Psychiatry*, 46:444-52, 1989.
33. POLLACK MH, SMOLLER JW, OTTO MW y cols: Phenomenology of panic disorder. En: Stein DJ, Hollander E (eds.). *Textbook of Anxiety Disorders*. American Psychiatric Publishing, Washington, 2002.
34. POLLOCK C, ANDREWS G: Defense styles associated with specific anxiety disorders. *Am J Psychiatry,* 146:1500-02, 1989.
35. RUTHERFORD MJ, MCDERMOTT PA, CACCIOLA JS y cols: A psychometric evaluation of the defense style questionnaire in methadone patients. *J Pers Disord*, 12:119-25, 1998.
36. SPINHOVEN P, KOOIMAN C: Defense style in depressed and anxious psychiatric outpatients: An explorative study. *J Nerv Ment Dis*, 185:87-94, 1997.
37. TAUSCHKE E, HELMES E, MERSKEY H: Evidence that defense mechanisms are more related to personality than to symptoms. *Br J Med Psychol*, 64:137-46, 1991
38. VAILLANT GE: Defense Mechanisms. En: Nicholi Jr AM: *The New Harvard Guide to Psychiatry*. The Belknap Press of Harvard University Press, Cambridge, 1988.
39. VAILLANT GE, BOND M, VAILLANT CO: An empirically validated hierarchy of defense mechanisms. *Arch Gen Psychiatry*, 43:786-94, 1986.
40. WEISSMAN MM, FYER AJ, HAGHIGHI F: Potential panic disorder syndrome: clinical and genetic linkage evidence. *Am J Med Genet,* 96:24-35, 2000.
41. YAMADA K, FUJII I,AKIYOSHI J y cols.: Coping behavior in patients with panic disorder. *Psychiatry Clin Neurosci*, 58: 173-8, 2004.