

Retrospective and prospective study of premenstrual symptomatology in the general population¹

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ABSTRACT

This study consisted of three phases in which a cross method and a prospective one were combined in order to observe three consecutive menstrual cycles. The procedure of statistic analysis (C by Young) was not merely a comparison of scores. It also analysed the trend changes in the observations and their attributions to the premenstrual phase or the follicular phase. If attention is paid exclusively to the prospective analysis of the subsyndromic incidence figure, the general population data is 7%. The women in the retrospective premenstrual group stood out because of a greater number of symptoms, their seriousness and the degree of inference in their jobs and relationships with others, and because they even tended to avoid social situations. Cognitive vulnerability common to depressive disorders can't have been verified. The prospective analysis verified that there was no adequate equivalence between retrospective and prospective information, that remarkable symptom variations are evident within different cycles in the same woman (consecutive or alternate), and the expected pattern of premenstrual symptomatic increase and follicular decrease, although there was a distribution of follicular increase. Dysphoric symptoms stood out more than those characterised by a depressive state of mind.

Key words: premenstrual dysphoric syndrome, symptomatology, prospective, retrospective.

INTRODUCTION

The End-of-Luteinic-Phase Dysphoric Disorder (late luteinic phase), which was proposed as a diagnostic entity for research in Appendix A of DSM-III-R (APA, 1988), was later renamed as Premenstrual Dysphoric Syndrome in DSM-IV (APA, 1995). This change of label seemed to predict the difficulties and inconsistencies contained in its study results, and, definitively, by its scientific consideration as a second-degree mood change—which necessarily affects the attention paid to the health of those who suffer from it.

From a psychopathological point of view it should first be borne in mind that the field of analysis about premenstrual changes has been limited to Premenstrual Dysphoric Syndrome—in general terms, the classical

term of Premenstrual Disorder is being alluded here.

This is an important fact, since different types and degrees of disturbance affect many women, we could even say most of them, although the functional interference or upset may be limited. Most of the indicators of these premenstrual changes are physical (e.g. breast sensitivity), and the general affective manifestations are minor. Only in the most severe cases of Premenstrual Disorder would there be coinciding with Premenstrual Dysphoric Syndrome (Freeman, Derubets and Rickels, 1996).

In consequence, Premenstrual Dysphoric Syndrome represents a subgroup of Premenstrual Disorders (Frackiewicz and Shiovitz, 2001; Freeman, 2003; Stearns, 2001) in which affective symptoms necessarily dominate both frequency and intensity (e.g. depressive mood, anxiety, emotional lability, irritability, and so on). The consequences on a woman's degree of functioning are remarkable, interfering in social, work or (or studies), family or interpersonal life. Premenstrual dysphoric syndrome is far from having the status of a disorder—within mood disorders—given the difficulties in establishing a stable presentational pattern. Premenstrual dysphoric syndrome is also far from having a common aetiological model, since diagnosis requires prospective observation and, also in part, because the suffering woman's subjective value is prominent.

It is commonly accepted that Premenstrual Dysphoric Syndrome has an incidence rate of 3-9%; in

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the DSM-IV-TR (APA, 2000) 3-5 % is pointed out without modification in relation to what was stated by the DSM-IV years ago (APA, 1995). Halbreich, Borenstein, Pearlstein and Kahn (2003) argue that these figures may not respond to what was found in studies that focussed on more serious forms, and establish reference figures of between 13 and 19%. According to these authors what is really noteworthy, irrespective of percentage disagreement, is that the WHO study about the overburdening that several physical and mental diseases provoke, Premenstrual Dysphoric Syndrome is not mentioned. It is worth remarking on this omission by the WHO, as its international classification (CIE-10) requires the need of fewer diagnostic indicators (of Premenstrual Pressure Disorder) than the demanding APA classification. In other words, with less restrictive criteria in the case of CIE-10 (since the DSM have risen from 10 in the third revised edition to 11 in the fourth), the aforementioned study of disease overburden provides no information about the repercussions on the woman's social-and-labour or, no doubt, on the social-and-family functioning, although criteria of both classification systems point out the interference with some area of functioning of the woman.

Out of the sphere of international classification, it is common to conceive Dysphoric Premenstrual Syndrome as the expression of a physical and emotional symptomatic pattern of perimenstrual interference. Thirty to ninety percent of women point out physical and emotional disturbance during that period, which may become really disrupting in 2-15% of all women (Marván & Cortés-Iniestra, 2001) as depression (Halbreich, 2003; Yonkers, Halbreich, Freeman, Brown *et al.*, 1997) with acute postmenstrual disappearance (Kahn & Halbreich, 2003), and with no different manifestations in relation to a comparison group during the follicular phase (Trunnell, Turner & Keye, 1988).

This syndrome shows an additional effect with other comorbid conditions and, even though severity seems to increase with age, the pattern decreases as the woman's reproductive phase comes to an end (Sternfeld, Swindle, Chawla, Long *et al.*, 2002).

The problems with the study of this syndrome start out of specification of other non-merely symptomatic aspects. As it is argued by Kuan, Carter y Ott (2004) in a letter to the editor of a journal, some of the inconsistencies of the results may be due to the changes in the menstrual cycles which women go through during the reproductive years. One more origin of inconsistency may be due to cultural influence: Women tend to manifest more symptoms in some cultures than in others; more physical than emotional symptom variations have been shown, even when using self-registers (McFarland, Ross & DeCourville, 1989); and reverse symptom severity, consequently dependent on the state of health (Sternfeld *et al.*, 2002).

As it has been argued above, the diversity of contributions made in the last few years conflicts with aspects which make the definition and follow up slippery, since prospective corroboration is necessary. This brings about designs with small samples in order to manage the extraordinary amount of data produced, which limits adequate generalization in spite of the improvement on the internal consistency of the results. Furthermore, there is no hormonal lab test so far which confirms or indicates the presence and gravity of the syndrome (Freeman, 2003), in spite of the evident

presence of neurohormonal change. In short, this conjunction of factors makes it difficult to reliably apprehend the components integrating a recognisable mosaic. In consequence, the interpretations made by Rivera-Tovar and Frank more than fifteen years ago (1990) seem up to date, in the sense that there is not a definitive agreement on the parts of the features composing this syndrome, and because of the serious inconvenience of relying on retrospective diagnoses, which affects a good part of the research carried out.

From an etiological point of view, the majority of the research carried out show that gonadal hormones can't be held responsible for the whole burden that this syndrome covers, as it is successfully stood out by Uriel Halbreich (2003). Alterations in neurotransmission have been described, such as low levels of beta-endorphins, which bring about symptoms of anxiety and agitation similar to those coming from opiate abstinence syndrome; influence of serotonin levels, judging by the effectiveness of the ISRS; circadian modifications and disbalance of metabolites such as sodium and potassium (Halbreich & Endicott, 1985; Parry, 1994; Rivera-Tovar, Rhodes, Pearlstein & Frank, 1994). But this atomization of alteration indicates the existence of remarkable individual differences covering the operativeness of several systems, which is translated into neurohormonal modifications. In this way, the changes in the strogens take part all in the implied regulation of neurotransmission, in mood control, and in behavioural and cognitive functions (serotonin, noradrenaline, GABA, dopamine and acetylcholine). In general terms, greater neuronal excitability results from this disbalance.

In consequence, we should notice genetic predisposition or vulnerability, and make reference to biological variables (gonadal hormones and neurotransmission) in interaction with environmental precipitants (Khan & Halbreich, 2003), plus the personal coping resources facing stressful situations in progress.

Attempts have been made to establish the vulnerability factors participating in this syndrome, above all, due to their proximity to Depressive Disorders. For example, there seems to be a strong association between the symptoms of a previous disorder with the premenstrual symptoms (the so-called premenstrual exacerbation). For this reason, the case of premenstrual worsening due exclusively to previous medical or psychopathological condition is excluded for the diagnosis of this syndrome. The findings of the research do not suggest a connection with concrete diagnostic entities. However, the connection seems to be more outstanding among those who show anxious-depressive symptomatology (Hsiao, Hsiao & Liu, 2004) and, maybe, some sensitivity to alcohol (abuse) in the luteinic phase (Nyberg, Wahlström, Bäckström & Poromaa, 2004).

These results are not surprising. In fact, the symptoms that best characterise this syndrome are depression, irritability, fatigue, or emotional lability (Mortola, 1992), for example. Even though the Major Depressive Disorder has a different clinical and biological profile, the well-know fact is still intriguing that the younger the age of menarchy, the higher the probabilities that the disorder may develop (Kutcher, Kusumakar, LeBlanc, Santor *et al.*, 2004). Therefore, the coincidence with other disorders, especially with the

affective-type ones, is common (Bancroft, Rennie y Warner, 1994; DeJong, Rubinow, Roy-Byrne, Hoban *et al.*, 1985; Endicott, Halbreich, Schacht y Nee, 1981), and the possibility exists that they, first, may share etiopathogenia, and, also, that a previous Premenstrual Disforic Syndrome gives way to a depressive disorder (DeJong *et al.*, 1985).

Regarding cognitive vulnerability, some findings suggest that attributional and coping styles play a role in symptomatic expression and in syndrome severity (Sigmon, Whitcomb-Smith, Rohan y Kendrew, 2004). Halbreich (2003) proposes a model which integrates genetic, neurotransmitting, environmental and upbringing factors, up to the most immediate factors in time referring to perception and coping mechanisms. In the same sense, Bancroft *et al.* (1994) established a three-factor model for the syndrome under study, in which they stood out a vulnerability component, namely neuroticism, in its role as a predisposer to depression. Its importance lies in the way how the woman reacts in front of some changes (and instabilities) of menstruation. However, some studies have failed in their hope to show the role played by this type of variables in relation to the Premenstrual Disforic Syndrome (Trunnell *et al.*, 1988).

This study is proposed on the basis on the following reasons: Because of fluctuations in the presence and type of symptoms during the cycle, which represent a precise portrait of what takes place in this pathology (Mortola, 1992); because divergences in manifestation intensity are observed, at a great extent due to methodological reasons (Steiner, 1992); because assessment of women's repercussions of this manifestation from a socio-economic point of view has been avoided; and because, as a matter of fact, little is known about the role played by cognitive vulnerability in its development and maintenance.

Therefore, we set the following objectives: establishing the presence of Premenstrual Disforic Syndrome; characterising Premenstrual Disforic Syndrome from a clinical point of view, both retrospectively and prospectively; establishing the social, labour, and relationship repercussions of Premenstrual Disforic Syndrome; testing the relation between Premenstrual Disforic Syndrome and cognitive vulnerability to depression, and differentiating Premenstrual Disforic Syndrome from Depressive Disorders.

The hypotheses of work were the following: verification of continuity in the clinical characteristics of the syndromic and subsyndromic groups, except when meeting the diagnostic criteria (A and/or B); the verification of significant social, economic, labour, and relational repercussions on women with Premenstrual Disforic Syndrome; the verification of cognitive vulnerability to depression with a different profile in each alteration; a central pattern that characterizes the syndrome: increase of premenstrual symptomatic intensity, follicular decrease, and dominance of indicators of the anxious-depressive spectrum; and, finally, lack of equivalence between retrospective and prospective assessment of symptom type and intensity of Premenstrual Disforic Syndrome.

METHODS

Participants

In this research, which took place between December 2001 and December 2004, a total of 95 women participated initially. Their age was 23,60 years in average (t.d. of 3.05); most of them were single (98%) and middle-class (average Index of Social Class of 36.38; t.d. of 22.86). Twenty-three point two percent were university graduates; 58.9% had done some university course, and 17.9% had finished Compulsory Secondary Education, Post-Obligatory Secondary Education, or the first stage of Vocational Studies. Fourteen point seven percent developed a freelance professional activity or owned small companies, 1.1% as saleswomen, and 1.1% as non-qualified workers; the remaining 76.8% were students.

The evaluation of menstruation had a first phase during which self-applied initial interview (SAII) was applied to 85 women. This was the first step for retrospective analysis of Premenstrual Disforic Syndrome. Forty-four possible premenstrual cases were so established, 28 of them subsyndromic. Thirteen were control cases. After the first phase, 28 women who did not meet the proposed requirements were ruled out. In the second phase, in which all the tests and diagnostic criteria were applied by means of structured interviews of Axis I of the DSM-IV (SCID-I) (APA, 1999) and Axis II of clinical assessment plus the MCMI-II (Millon, 1999), a total of 29 women were ruled out and, finally, 16 more dropped out at the moment of carrying out daily self-registers for three consecutive months. This depuration of the sample brought about the remain of 12 cases for prospective study. The comparative analysis between the women object of study and those who were ruled out did not offer significant statistic differences for age ($t = 0.775$; $p = 0.450$); social class ($t = 0.397$; $p = 0.697$); educational level ($X^2 = 1.334$; $p = 0.513$); profession ($X^2 = 1.957$; $p = 0.581$), or current occupation ($X^2 = 2.378$; $p = 0.304$).

Apart from this, according to age interval and marital status characteristics, women were chosen who met the current diagnostic requirements for Mood Disorder, Depressive Disorders to be precise (criteria DSM-IV; APA, 1995). In total there were 10 women who did not differ from the remaining 85 in average age ($F = 2.457$; $p = 0.068$); social class ($F = 0.469$; $p = 0.705$); educational level ($X^2 = 6.611$; $p = 0.358$); or current occupation ($X^2 = 5.764$; $p = 0.450$), but they did in regards profession ($X^2 = 29.286$; $p = 0.004$).

Design, variables and control conditions

Design

A mixed design was carried out, in which a cross section for retrospective exploration was combined (by means of SAII, the presential interview for diverse diagnostic instruments and criteria) plus the comparison with the group of women with depressive disorders, and a prospective longitudinal section, given a selected group with the 85 initial participants (design of interrupted time series). For the cross moment, a correlation method for comparison of groups was used in one rate, and repeated rate group comparison for one of the objectives of study relative to mood criteria.

Predictive Variables

Socio-demoChartic Variables: Age (continuous quantitative variable); occupation (qualitative with five levels: student, unemployed, technical professional, administration personnel, non-qualified worker); educational level (qualitative with three levels: primary education/compulsary secondary education, post-obligatory education/first stage of vocational studies, and college/university graduate; marital status (single and married), and social class (SCI) based on Hollingshead (1975). If student, profession and educational level of the subjects or their parents are categorised: it adds the products of the professional value by seven, and those of educational level by four (Social Class Index).

Data of interest regarding menstrual cycle: prescription of preconceptives; volume of menstrual bleeding; presence of pain; use of medicines; use of drugs, including alcohol; past and current physical and mental health. All these assigned variables were conceived as dicotomic qualitative variables in relation to presence/lack.

Diagnostic criteria for Disorders of Axes I and II of the DSM-IV (APA, 1995): qualitative variables with presence/lack levels for each established diagnostic entity.

Groups: Qualitative variable of four categories relative to retrospective diagnosis, namely *premenstrual* [1] (meeting at least five symptoms of Criterion A for diagnosis of Premenstrual Disforic Disease and meeting Criterion B, following the DSM-IV classification); *subsindromic* [2] (three to four symptoms of at least moderate intensity and/or interference with function); *control* [3] (no previous condition met), and *depressive* [4] (comparison group with depressive disorder diagnosis attended in private office).

Criterion Variables

Cognitive vulnerability to depresión: Quantitative variable from the DAS scale of disfunctional attitudes and its three variables.

Depressive symptomatology: Quantitative variable from the global score of the BDI depression inventory.

Physiologic and cognitive anxious symptomatology: Quantitative variable from global rates of BAI and PSWQ inventories, respectively.

Symptomatology of somatization: Quantitative variable from the global score of the SAS (somato-sensory amplification) scale.

Indicators of Criterion A for diagnosis of Premenstrual Disforic Syndrome: Each one of the 11 symptoms indicated in Appendix B of the DSM-IV (APA, 1995) as members of Criterion A. Each symptom is taken as a discreet quantitative variable attending to intensity, provided the existence of the symptom (0-10 points). The qualitative version of this variable is also under consideration, by distributing the intensity in the following categories: lacking [0]; slight [1-3]; moderate [4-7], and severe [8-10]. This Criterion was collected both in a self-informed retrospective way and prospectively. The indicators are: Anxiety, Mood, Lability, Irritability, Interest, Concentration, Energy, Appetite (including a separate form for food whims - frequency-), Sleep (including a separate form for night wakes up -frequency-), Excitability, and Physical Symptoms (including nine different ways for types of physical symptom: sensitive breasts, breast size

increase, body swelling, weight increase, headaches, in joint and muscle disturbance or pain, digestive problems, less urination, and skin changes).

Indicators of Criterion B for diagnosis of Premenstrual Disforic Syndrome: In addition to the indicator pointed out in Appendix B of the DSM-IV (APA, 1995), different modalities are developed which indicate Degree of affectation or perturbation. They are taken as discreet quantitative variables attending to intensity, provided that the indicator does show (0-10 marks) (in some cases, given the variable nature, frequency is attended to). The qualitative version of each of these variables is also under consideration, by distributing the intensity in the following categories: lacking [0]; slight [1-3]; moderate [4-7], and severe [8-10]. These criteria were collected both in a self-informed retrospective way and prospectively. The indicators are: Degree of interference with daily life; Degree of interference with occupation; Number of days during which occupation is not developed due to premenstrual symptoms (frequency); Number of days during which occupation is not developed due to menstrual symptoms (frequency); Number of days on sick leave for premenstrual symptoms (frequency); Number of days on sick leave for menstrual symptoms (frequency); Degree of performance decrease for premenstrual symptoms; Degree of performance decrease for menstrual symptoms; Degree of overeffort to carry out such tasks; Degree of interference in the relationships with others; Degree of avoidance of social situations; Degree of challenge.

Socio-sanitary cost related variables. Continuous quantitative variables related to medicine yearly costs coping with menstruation-related symptoms, and yearly costs of medical attention. Discreet quantitative variables related to the number of visits to state-ruled and private medical attention.

Variables relativas al coste socio-sanitario. Variables cuantitativas continuas en cuanto al coste anual en fármacos para tratar los síntomas relacionados con la menstruación y el coste anual de la atención médica. Variables cuantitativas discretas en cuanto al número de visitas a los médicos de atención pública y de asistencia privada.

Control conditions

Inclusion criteria. For some menstruation-related groups: regular periods, lack of ingestion of oral contraceptives, lack of use of alcohol or other drugs, between 18 and 35 years of age, no current suffering from mental or personality disorders, no suffering from female genitalurinary-related physical disease or from a chronic disease which could modify menstruation, and reach more than six marks in the EPI Sincerity scale. In the second phase of the work, standard or expected answers to any control indicators of the MCMI-II were regarded inclusion criteria (validity, sincerity, social desirability, and alteration).

In the depressive-disorder group the participants included were 18- to 35-year-old women who searched for psychological attention in a private treatment center of Seville city from December 2002 to December 2004 (INTECO: address of the first author). The condition for participation was that these women should not have started the intervention why they were asking for aid, should not show relevant physical suffering, should lack well-known menstruation-related pathologies,

should not have abused alcohol or drugs (other than psychomedicines), and should have scored 6 or more marks in the EPI sincerity scale. It was accepted that some cases might have a different diagnosis belonging to Axis II, either as a disorder, or as a depressive-disorder related marked style.

Instruments

Self-Applied Initial Interview (SAII) (Rodríguez Testal and Gómez Márquez, 2001): This interview includes 16 items referring to socio-demographic data (age, marital status, socio-educational level, occupation), menstruation characteristics (regular, irregular, painful, abundantly bleeding, prolonged), use of oral contraceptives, current or past presence of physical or psychological disorders, pharmacological treatment for any disease and for menstruation, type and frequency of drugs used, including alcohol, and twelve questions referring to criteria A and B (interference in daily and social activities) of the DSM-IV (APA, 1995) for the SDP, whose answer pattern is Yes/No, followed by observation gaps.

Sincerity of the EPI. Obtained from the Eysenck Personality Inventory (Eysenck, H.J. y Eysenck, S.B.G., 1990), it consists of nine questions about situations and reactions that anybody may go through, to which the answers are Yes/No. The people scoring below 6 marks are excluded, as it is thought that they are trying to disguise some expectable aspects of general population.

Beck's Anxiety Inventory (BAI), Beck, Epstein, Brown y Steer, 1988). It consists of 21 items describing diverse anxiety symptoms (most of them physiological) which take place in the seven days previous to the battery application, this inventory has a 0-3 intensity Likert response format, and a score margin of 0-63 marks. The cut point is established in 25.76 marks, which is the average considered for persons with significant anxiety indicators. Sanz and Navarro (2003) showed psychometric properties adequate to this instrument in the Spanish population.

Beck's Depression Inventory (BDI), 1978, Beck, Rush, Shaw and Emery, 1979; version by Vázquez and Sanz, 1997; 1999). It consists of 21 groups with four statements each, the subject points out the most adjusted one to how they were feeling over the last week. Each section scores 0-3 in depressive intensity, with a result range of 0-63 points. A 0-9 result implies lack of depression, and 10 onwards its presence. The cut point for university students is 11.

Dysfunctional Attitude Scale (DAS) by Weissman and Beck, 1978. Version by Sanz and Vázquez, 1993; 1994). This scale contains 40 statements referred to frequent attitudes or beliefs to which a given degree or agreement has to be indicated according to seven response choices, from 'total disagreement' up to 'total agreement'. As a result, a total score is obtained (DAS-T), with a cut point of 143.8 for depression-diagnosed subjects, as well as three factors identified as Dysfunctional Attitudes of Achievement (score significant for depressive subjects in 34 points), Dysfunctional Attitudes of Dependency (cut point in 32

points), and Dysfunctional Attitudes of Autonomy (cut point in 29.7 points). This scale is a procedural rate regarded as indicator of cognitive vulnerability to depression.

Somatosensory Amplification Scale (SAS), by Barsky, Wyshak and Klerman, 1990. Version by Belloch, Ayllón, Martínez, Castañeiras *et al.*, 1999). This scale allows to evaluate people's sensitivity to body changes and signals (not to the symptoms of a disease). It consists of 10 items in a five-point Likert-type gradation. The score ranges between 10 and 55 points. A score above 21 is considered to indicate psychopathological tendency to amplifying sensations.

Worry or cognitive anxiety questionnaire (PSWQ) by Meyer, Miller, Metzger and Borkovec, 1990). This questionnaire holds the tendency to generalised, uncontrollable, pathological worry (Fresco, Heimberg, Mennim and Turk, 2002; Stanley, Novy, Bourland, Beck *et al.*, 2001), which allows to differentiate between persons with Generalised Anxiety Disorder and persons with other anxiety disorders (Brown, Anthony y Barlow, 1992). There are 16 statements about anxious worries which have to be responded from 1 to 5 according to the statement's degree of adjustment to the person evaluated; the margin of scores is 0-80 points. The average for subjects with significant levels of anxiety is 68.11, which is the limit borne in mind to regard a score as significant.

Structured clinical interview for disorders of Axis I of the DSM-IV, SCID-I, clinical version (APA, 1999). This interview consists of 26 general questions about demographic data, academic history, occupational history, current state of treatment, main reason for consultation and description of the problem, beginning of the disease or current exacerbation, new symptoms and recurrence, environmental context and possible precipitants, course of the disease or current exacerbation, history of previous treatments, other current problems, current social functioning, general vision of diagnoses, and six item modules for diagnosis: Module A: 69 items for affective episodes; Module B: 15 items for psychotic and associated symptoms; Module C: 39 items for the differential diagnosis of psychotic disorders; Module D: 19 items for the diagnosis of mood disorders; Module E: 32 items for the diagnosis of disorders derived from the use of alcohol and other substances; Module F: 91 items for the diagnosis of anxiety and other disorders. The responses in modules A, B, E, and F are coded as + (threshold or true, - (subthreshold or false), or ? (insufficient information to code the answer as - or +). In the cases of modules C and D, a decision-tree format is used, in which each diagnosis Criterion is placed in a box with two exit choices, and each Criterion is scored as true or false according to the responses to modules A and B. In this study questions from only modules A, B, E, and F were included, since modules C and D were evaluated later, according to the audio register of responses given to the questions asked in this interview.

Millon's Clinical Multiaxial Interview (MCMI-II), de Millon, 1997) in the TEA Spanish version (1999). This questionnaire consists of 175 items with a true/false response format. It is made up of ten personality basic

scales (schizoid, phobic, dependent, histrionic, narcissist, antisocial, aggressive-sadist, compulsive, passive-aggressive, and selfdestructive-masochist) and three pathological personality scales (schizotypal, borderline, and paranoid). It includes elements from Axis I (six clinical syndromes of moderate seriousness and three severe ones) as well as control scales (validity, sincerity, social desirability, and change). The two personality scale groups were borne in mind for this study, and, especially, control scales plus clinical observation, in order to detect a possible change in this area. The cut-off point of the base measure greater than 75 was used to consider the possible existence of personality alteration.

Daily Register for Premenstrual Dysphoric Syndrome (RSDP-III, from the former version by Gómez Márquez and Rodríguez Testal, 2001). Based on each of the symptoms described in the diagnostic Criterion A for the SDP of the DSM-IV-TR (APA, 2000) and in the Brief Psychiatric Rating Scale (BPRS: Lukoff, Nuechterlein and Ventura, 1986), it, measures the intensity or degree to which a series of physical, psychological or behavioural phenomena are produced during the menstrual cycle. It consists of identification data, instructions, example of elaboration, presence/absence of menstruation, and 33 items referring to anxiety/tension/oppression (items 1-3), out of control/impulsiveness (item 4), decrease in energy and thus fatigue (items 5 and 7), decrease in concentration (item 6), depressive mood (items 8-13), lability and sensitivity (item 12), interest (item 13), excitability (item 14, not considered in the DSM-IV), expansiveness (item 15, not considered in the DSM-IV), irritability (item 16), anger or bad mood (item 17), sleep alterations (items 18-20), dissociative symptoms (items 21-24, not considered in the DSM-IV), psychotic

(from 33.1 to 33.9). The responses are given in Likert-type format with 0-10 intensity.

Since the structure of this register does not closely follow the DSM-IV (APA, 1995) pattern, Chart 1 proposes equivalence between the RSDP-III and the criteria identification in the way they are shown in Appendix B of the former.

Procedure

Sampling and recruiting. The sampling was of a non-probabilistic type (incidental), based on those women who responded to an announcement about menstruation which was distributed in different centres in the city of Seville. A total of 70 posters were placed in different schools in the University of Seville (University College of Teacher Training, and Schools of Psychology, Pedagogy, Philosophy, History, History of Art, Geography, Law, Economics, Business Administration, Pharmacy, Mathematics, and Computer Science), as well as in Civic Centres of the Townhall of Seville, INEM employment centers (National Institute for Employment), and women's associations. The participants were contacted by the phone calls made by the researchers, who briefly presented the study as their personal data were being collected (name, surnames, telephone number, age, oral contraceptives, cycle length, time availability). In this way, there was an initial contact with a total of 110 women.

A group of women with depressive disorders was also selected. They had to meet the general characteristics of the three menstruation-centred groups: age margin, single, mainly students. Cases with depressive diagnoses were also recruited (major depressive disorder, dystymia, and unspecified depressive disorders), without previous psychological treatment which might interfere in the results of the tests administered. The women were evaluated by the main researcher of this study. In this case, the selection of the participants was *ad hoc*, according to the characteristics of the other groups.

Conditions for participation. All the participants were asked for their verbal consent to use their data in the research. It was made clear that their names would be substituted by initials plus a number assigned by participation order.

Evaluation systematization. An order of test administration was followed with all the participants in the first interview or *first phase (retrospective)*: The Self-Administered Initial Interview (SAII), Scale S of the EPI, Beck's Anxiety Inventory, the Worry Questionnaire, the Somatosensory Amplification Scale, and the Disfunctional Attitude Scale. All the tests were conducted in a self-informed format. The researchers took part only to resolve any doubts or questions during the evaluation process. In such cases the information was given neutrally, without any orientation or giving any lead that might bias the answers. In the *second phase (diagnosis)* (for those women in the menstruation-related groups), interviews were recorded and there was a check to see that the diagnosis criteria for disorders of Axis I or II were fulfilled, with structured interviews and the MCMI-II questionnaire. In the *third phase (prospective)*, the participants were told to complete the self-reports before going to bed at

ÁREA	RSDP-III Ítem	Criteria A (DSM-IV)
Anxiety	1-3	(2)
Out of control/impulsiveness	4	(10)
Anergy (and fatigue)	5 y 7	(7)
Concentration	6	(6)
Depressive (lability/sensitivity)	8-13	(1)
Depressive (interest)	12	(3)
Excitability	13	(5)
Excitability (irritable)	14-17	(4)
Sleep	16	(9)
Dissociative	18-20	(9)
Psychotic	21-24	(9)
Appetite	25-28	(8)
Physical	29-32	(8)
	33.1-33.9	(11)

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: Bold characters show the typical or most important DSM indicators.

Chart 1. Equivalence between symptom items of the RSDP and Criterion A of the DSM-IV (appendix B) (APA, 1995).

symptoms (items 25-28, based on the BPRS scale), appetite changes (items 29-32), and physical symptoms

night, so that they all did it at the same time, that this reminded them to carry out the task, that it allowed for an evaluation of all that had taken place after a whole day, and that they should not make any changes through the day on account of the circumstances experienced.

Phase 1 (retrospective): Administration of the Self-Administered Initial Interview. Even though initially there were 110 sure contacts relative to the study, 85 women came to the first interview (of the three menstruation-related groups). Before the evaluation process started, each participant was informed of what was going to be done and what their participation consisted of. The appraisal of the initial interview data permitted the establishment of three retrospective groups: 44 in the case of premenstrual women or with potential Premenstrual Dysphoric Syndrome; 28 in the case of women considered subsyndromic, that is to say, when rigorous diagnostic conditions are not met but others are shown, and 13 are considered witness or control subjects, or without a menstruation-related clinical symptomatology. In this phase the participation of 28 women was ruled out, because they met several exclusion criteria: use of oral contraceptives, current mental disorder, menstrual irregularity, current pregnancy, direct drop out of the interview phase, genitourinary disease, or any other disease which could, potentially, alter menstruation.

Phase 2 (of current diagnosis): Application of the SCID I, the MSMI-II of personality and clinical assessment. At this stage nine cases were detected with current mental disorder (mood alteration, four in total), and closely-related manifestations which might suggest a personality disorder or, at least, the possibility that functioning (personality style) might represent distortion or bias for the completion of the tests (a total of five cases). The reason for excluding women from the study, in whom a mood disorder had been detected, instead of including them in the depressive group, is so that a possible cross condition between mental disorder and menstrual alteration was avoided. Twenty more women have to be added to this total when in some of the control scales of the MCMI-II (validity, sincerity, desirability and/or alteration) scores were found to be insufficient for access to totally reliable information when the daily self-reports were done (this was especially important in case of the alteration scale or when the women tended to show themselves in a situation worse than their actual one).

The group of depressive women fulfilled a wide detailed protocol that coincides with the chosen criteria variables. Moreover, in a specific way, the protocol was made up of other disorder-related instruments, psychiatric treatments and variables of social and family functioning. The protocol also included personality tests administered to the three other groups of women mentioned. In spite of some differences with the structure of the protocol, the order of administration of the common tests was the same. Before the evaluation process, the patients gave their consent to use the information with research aims.

Phase 3 (prospective): Day self-reports. The moment when the self-registers were submitted was especially important, since, as it was pointed out in the introduction to the study, it was necessary to count on

information of at least two consecutive cycles. Managing to have three was advantageous. In this way it was possible to reliably analyse consecutive and alternating cycles, to keep the information of at least two consecutive cycles (fundamental, according to the DSM criteria), and to repeat measures of depression criteria (BDI) and vulnerability (DAS). At this time, as shown in Chart 2, a total of 16 women dropped out. The rest of the participants were given a set of tests (in total 90 self-reports for each one). In order to avoid mistakes in this procedure, they were not told which given registers were going to be analysed, since, as a matter of fact, the information about the first three days after menstruation was discarded, the eight days corresponding to the follicular phase were taken versus eight days of the premenstrual phase, and the rest was eliminated. They were given the pattern that three days after the beginning of menstruation, for ten days and, approximately, ten days before the date estimated for the next menstruation, they had to start adding to the reports the BDI and DAS tests (for the cross calculation of repeated measures) which were also provided.

Groups	Reasons for elimination	Cases excluded
Premenstrual I	Direct exclusion criteria	16
	Axis I	2
	Axis II	2
	MCMI-II control scales	9
Subsindrómico	On submitting reports	10
	Direct exclusion criteria	8
	Axis I	2
	Axis II	2
Control	MCMI-II control scales	7
	On submitting reports	5
	Direct exclusion criteria	4
	Axis I	1
Control	MCMI-II control scales	4
	On submitting reports	1

Chart 2. Exclusion before the carrying out the prospective study. Summary of groups, reasons and number of cases.

Establishment of the phases. From a physiological point of view, the cycle starts on the first day of menstruation, and with it the follicular phase. However, from a behavioural viewpoint, the premenstrual symptomatological remission takes place from the second day of menstruation. In contrast, it is established that, in case of an SDP (Mortola, 1992), the least amount of symptomatology appears after the first four days. For this reason, the three first days of the cycle are eliminated in order to avoid interference between the data of the current follicular cycle and the premenstrual symptomatology of the former cycle.

According to the literature consulted, six to seven data per phase are valid to detect the possible variability of the sample, and overlapping is avoided between the premenstrual and postmenstrual phases, in case of short cycles. Nevertheless, the length of phases has been

($X^2 = 5,784$; $p = 0,055$) (in this case, to the limit of significance); prolonged menstruation ($X^2 = 0,194$; $p > 0,05$) and abundant bleeding ($X^2 = 1,016$; $p > 0,05$).

As for interference and disturbance in functioning, the premenstrual group shows that a good number of its members is affected, at least on average (72.7%); this is valid especially for general discomfort in any area of functioning (Criterion B such as it appears in the DMS), as well as at work (59.1%), performance (52.3%), extra effort to recover (70.5%), interference with other people (59.1%), tendency to avoid or escape other people (45.5%), and conflicts or disputes arising from these changes (54.5%). From a descriptive point of view, the work repercussion in this group is marked in eight women (18.2%) by premenstrual symptoms and brings about them not going to work for a minimum of one day and a maximum of two and a half days. Two point three percent of the cases are even on sick leave. When menstrual symptoms are taken into consideration, 23 women (52.3%) do not go to work for a minimum of half a day and a maximum of two days. Two point three percent of the total are on sick leave. This could be considered an objective or direct repercussion, but, in addition, the women in this group estimate that they need almost five days (average of 4.93 days; t.d. 14.62) to recover their capacity to work or perform fully. This data is linked to the extra effort that needs to be given to the job or occupation, as pointed out above. Thirty one point eight percent women in this group take medicines for the premenstrual phase (typically analgesics), 88.63% take them during their menstruation and spend an average of 14.34 euros per year. Eleven point four percent go to a public health doctor (another 4.5% even twice for this reason), and 15.9% go to a private doctor (2.3% go twice) with an average yearly cost of 33 euros.

After phase 2 (of current diagnosis) 16 women were removed from this group (six for menstrual irregularity or for use of contraceptives, and ten for dropping out. See Chart 2). Two cases when some disorder of Axis I was detected; another two cases, for a likely malfunction of Axis II; nine for scores which suggest lack of validity or reliability, for tendency to show alteration or social desirability during the test administration (from the MCMI-II), and ten drop outs before the report daily follow-up phase (phase 3 or prospective); therefore, five remaining subjects were retrospectively identified or confirmed as being "pure" premenstrual cases.

It is striking that the level of medium or moderate intensity is marked in the subsyndromic group, as well as in the symptomatic contents (Criterion A) referring to anxiety (67.9%), mood (60.7%), lability (50%), and irritability (60.7%). While the premenstrual group shares all the Criterion A indicators among the moderate and serious levels, the subsyndromic group seems to concentrate all four indicators mentioned in the medium or moderate level. In this subsyndromic group the repercussion of premenstrual symptoms (Criterion B) lies mainly at the low level (75%). Another particularity of this Criterion is that absenteeism is lower. Cases for menstrual, not premenstrual symptoms stand out (14.3%). There are no sick leaves for premenstrual symptoms, but there is a one-day-off case for menstrual symptoms. All of

this means an average of almost five days (average 4.67 and t.d. 18.51) to completely recover performance capacity, and shows women's extra effort at work or in carrying out their occupation. In this group, 21.4% takes medicines in the premenstrual period; 85.71% do so during menstruation, which implies a yearly cost of 13.61 euros for this type of treatment. Three point six percent go to a public health doctor; another 3.6 go up to four times, and 10.7% go to a private doctor for this reason, which represents a yearly cost of 30 euros per person.

From this group eight subjects were eliminated in phase 2 (diagnostic), three of them for menstrual irregularity or for use of contraceptives, and five more for dropping out; also, seven for lack of sincerity, validity, tendency to show alteration or social desirability in the test administration (from MCMI-II); two more when an Axis I disorder was identified, and two for a possible Axis II disorder. Finally, five subject dropped out just when they were giving in the daily self-reports (phase 3 or prospective); eventually, four sub-threshold cases remained who showed occasional symptomatology which was not so marked as in the first group, and, mainly, because of absence of clear interference with the level of functioning.

Most of the symptoms were slightly absent or at a low level in the control group. Although the sample was small, there was a clear inversion of the indicators in this group in relation to the two other groups. In any case, physical symptoms abound and in the categories of greater severity (38.46%, gather all the physical disturbances in the moderate and serious categories). It is observed that the case of Criterion B is similar to the one of Criterion A, that is to say, the degree of incidence is nil or low (46.2% in both levels, and for the global interference value). This is corroborated by the fact that no woman stops attending to her normal tasks for this reason, only one woman does not carry out her job for menstrual symptoms, and there are no cases of sick leave at any moment of the cycle. Moreover, as regards the time necessary to recover normal performance, the average does not reach even half a day (average 0.30 days; t.d. 0.63). Fifteen point four percent of the women in this group take medicines (analgesics) for the premenstrual period; 46.2% do so during menstruation, with an average cost of ten euros for this type of treatment among those who use it. Seven point seven percent goes to a Social Security doctor, and none go to a private doctor for this reason.

Finally, four women were removed from this group in phase 2 (diagnostic): one for menstrual irregularity or for contraceptive use, and three for dropping out; one case was rejected because an Axis II disorder was detected, four, because of non expected scores in the control scales of the MCMI-II, and one more case for dropping out just when the daily self-reports were handed in (phase 3 or prospective). Three cases of this group remained.

Inferencial Statistics. A contrast of cross measures

If we attend to the whole sampling (all four groups; $N = 95$), a normal distribution is observed in phase 1 (retrospective) (Kolmogorov-Smirnov, Z with $p > 0,05$) in the scores of the different tests.

However, the menstruation related criteria have not been distributed in a normal way, for which reason non parametric tests were used for the comparison among groups.

The contrasts among groups about the psychopathological criteria used show statistically significant differences in cases of physical anxiety (BAI), depression (BDI), cognitive anxiety (PSWQ), vulnerability in the global scores (DAS-T), achievement (DAS-L) and autonomy (DAS-A)

(Tables 1 and 2). These differences are due to the depressive group, who had higher scores in these criteria. There are not any differences between the two main groups in the study as regards BAI ($t = -1,29$; $p > 0,05$); BDI ($t = -1,91$; $p > 0,05$), PSWQ ($t = -0,553$; $p > 0,05$) or for the total of the DAS scale ($t = -0,620$; $p > 0,05$) and its dependency factors ($t = -0,303$; $p > 0,05$), achievement ($t = -1,105$; $p > 0,05$) or autonomy ($t = 0,969$; $p > 0,05$).

BAI				BDI			
	Average	Typ.Desv.	F		Average	Typ.Desv.	F
Premenstrual	12,45	7,632	13,776**	Premenstrual	8,86	5,576	35,008**
Subsyndromic	10,25	6,665		Subsyndromic	6,43	5,088	
Control	4,23	4,764	Levene's F	Control	2,54	1,127	Levene's F
Depressive	23,10	8,595	2,425	Depressive	23,00	5,518	3,677**
SAS				PSWQ			
	Average	Typ.Desv.	F		Average	Typ.Desv.	F
Premenstrual	24,14	5,991	1,882	Premenstrual	54,52	11,601	6,344**
Subsyndromic	23,18	4,707		Subsyndromic	53,07	9,560	
Control	20,85	4,488	Levene's F	Control	50,77	11,483	Levene's F
Total	23,32	5,447	2,078	Depressive	68,20	4,104	2,285

(N = 95) SIGNIFICANCE * $p < 0,05$; ** $p < 0,01$

Nota: Information of the SAS measure was not available for the depressive group

Table 1. Unidirectional analysis of GROUPS' variance in PHYSICAL ANXIETY (BAI) and DEPRESSION (BDI), SOMATIZATION (SAS), AND COGNITIVE ANXIETY (PSWQ) rates.

DAS-T				DAS-D			
	Average	Typ.Desv.	F		Average	Typ.Desv.	F
Premenstrual	113,52	21,716	6,688**	Premenstrual	31,07	7,654	2,486
Subsyndromic	110,04	25,560		Subsyndromic	30,50	8,012	
Control	94,08	17,452	Levene's F	Control	25,46	5,517	Levene's F
Depressive	138,90	35,003	2,098	Depressive	34,20	11,793	2,271
DAS-L				DAS-A			
	Average	Typ.Desv.	F		Average	Typ.Desv.	F
Premenstrual	31,64	9,504	23,283**	Premenstrual	17,27	4,353	2,927*
Subsyndromic	29,14	9,058		Subsyndromic	18,32	4,667	
Control	24,85	6,631	Levene's F	Control	14,77	4,381	Levene's F
Depressive	54,60	11,452	1,555	Depressive	20,30	6,667	1,922

(N = 95) SIGNIFICANCE* $p < 0,05$; ** $p < 0,01$

Table 2. Unidirectional analysis of GROUPS' variance in COGNITIVE VULNERABILITY (DAS-A) and other factors (dependence, achievement and autonomy) measures.

The BAI, BDI, PSWQ, DAS-T and DAS-L (t test; $p < 0,05$) measures of the depressive women group obtain significantly higher scores than the three other groups. However, it is interesting to note that there are not any statistically significant differences in the vulnerability for the emotional dependency measure of the depressive women's group versus the three other groups ($p > 0,05$). The contrast of the depressive women's group versus the three other groups is even more important in the autonomy measure: while the depressive women significantly show more dysfunctional attitudes in this sense than the women in the control group ($t = -2,40$; $p < 0,05$), they are not shown to be any different from the premenstrual ($t = -1,37$; $p > 0,05$) or the subsyndromic women ($t = -1,02$; $p > 0,05$). This result gets complemented by indicating that, in this measure, there are not any differences between the subsyndromic women and the control group ($t = -1,81$; $p > 0,05$), but there are between the subsyndromic and the premenstrual women ($t = -2,31$; $p < 0,05$).

As for the different areas related to premenstrual symptomatology (retrospective), non-parametric contrasts were followed (Kruskal-Wallis's H). In the case of Criterion A (Table 3), statistically significant differences were found in most of the areas,

fundamentally due to the control group. Curiously enough, the components without any differences among the three groups are no be found in the physical symptoms area: five of the nine indicators. This suggests, as predicted, that physical or body changes and disturbances are not so specific. In consequence, this is not the most suitable area for differentiating women affected by this syndrome from those who are not. All in all, two of these nine indicators showed significant differences between the premenstrual and the subsyndromic groups; namely, increase of breast size ($t = -3,25$; $p = 0,002$) and discomfort or pain in muscles and joints ($t = -2,30$; $p = 0,024$). In this way, in these two indicators the group that diverges in scores is the one described as premenstrual, and the values of the two other groups are not statistically different.

The other areas with statistically significant differences were: loss of interest, ($t = -3,59$; $p = 0,001$); loss of or difficulty in concentration) ($t = -3,93$; $p = 0,0001$); sleep alterations ($t = -2,27$; $p = 0,026$) and lack of control ($t = -2,58$; $p = 0,013$). These results are interesting because both the prospectively premenstrual group and the group which met these conditions incompletely or without sufficient degree of interference (Criterion B) show that, more importantly than purely dysphoric

symptoms, cognitive indicators outstand, such as loss of interest and concentration.

	Total Average (t. d.)	K-W's H	Premenstrual Average (t.d.)	Subsyndromic Average (t. d.)	Control Average(t.d.)
Anxiety	5,16(2,94)	26,149**	6,27(2,39)	5,30(2,60)	1,08(1,49)
Mood	5,46(2,94)	28,125**	6,66(2,10)	5,64(2,55)	1,00(1,78)
Lability	6,51(2,93)	30,618**	7,66(1,85)	7,04(2,28)	1,46(1,71)
Irritability	6,56(10,58)	18,811**	6,55(2,52)	8,79(17,87)	1,85(2,47)
Interest	2,69(2,97)	22,712**	4,07(2,92)	1,71(2,56)	0,15(0,55)
Concentration	2,44(3,13)	17,956**	3,84(3,31)	1,18(2,42)	0,38(0,87)
Energy	4,41(3,33)	13,809**	5,43(3,03)	4,29(3,20)	1,23(2,61)
Appetite	3,87(3,23)	9,170*	4,45(3,19)	4,11(3,31)	1,38(1,93)
Whims (frequency)	5,38(20,98)	3,763	5,22(20,76)	8,00(25,75)	0,27(0,52)
Sleep	1,85(3,13)	8,477*	2,80(3,58)	1,14(2,57)	0,15(0,55)
Waking up (frequency)	1,40(10,73)	4,255	2,62(14,89)	0,053(0,28)	0,19(0,48)
Lack of control	5,24(2,92)	19,667**	6,48(1,97)	4,71(3,24)	2,15(2,37)
Very sensitive breasts	6,13(3,08)	3,478	6,73(2,87)	5,39(3,40)	5,69(2,84)
Breast size increase	5,68(3,20)	11,236**	6,82(2,73)	4,25(3,56)	4,92(2,46)
Body Swelling	4,78(3,20)	5,264	5,36(3,15)	4,68(2,89)	3,00(3,53)
Weight increase	4,00(3,24)	3,909	4,18(3,37)	4,50(3,03)	2,31(2,86)
Headaches	2,78(3,18)	7,738*	3,57(3,17)	2,39(3,34)	0,92(1,84)
Discomfort or pain (joints, muscles)	3,20(3,67)	6,695*	4,16(3,79)	2,21(3,28)	2,08(3,40)
Digestive Problems (diarrhoea or constipation)	4,09(3,51)	6,454*	4,80(3,65)	3,96(3,19)	2,00(2,97)
Less frequent or less amount of urination	0,92(1,81)	3,086	1,05(1,90)	1,07(1,99)	0,15(0,55)
Changes in the skin (spots, feeling dirty, oily, strong perspiration)	5,45(2,88)	4,852	5,98(3,01)	5,14(2,53)	4,31(2,95)

(N = 85) SIGNIFICACIÓN. * p < 0,05; ** p < 0,01

Note: Significant scores obtained with post-hoc analyses (t test) are highlighted in bold

Table 3. Kruskal-Wallis's GROUP analysis (one-way ANOVA) of the intensity of the Criterion A indicators for the diagnosis of the Premenstrual Dysphoric Syndrome (retrospective)

	Total Average (t.d.)	K-W's H	Premenstrual Average (t.d.)	Subsyndromic Average (t.d.)	Control Average (t.d.)
Degree of interference with daily-life	5,34(10,63)	52,829**	6,09(14,04)	2,11(1,72)	0,62(1,79)
Degree of interference with job	3,94(2,94)	49,384**	8,44(1,98)	2,32(2,00)	1,31(0,96)
Number of days when job is not carried out due to premenstrual symptoms	0,13(0,42)	5,700	0,23(0,55)	0,035(0,18)	0,00(0,00)
Number of days when job is not carried out due to menstrual symptoms	0,37(0,56)	15,824**	0,60(0,64)	0,14(0,35)	0,07(0,27)
Number of days on sick leave for premenstrual symptoms	0,011(0,10)	0,931	0,02(0,15)	0,00(0,00)	0,00(0,00)
Number of days on sick leave for menstrual symptoms	0,023(0,15)	0,489	0,022(0,15)	0,035(0,18)	0,00(0,00)
Degree of performance reduction of premenstrual symptoms	3,06(2,88)	31,745**	4,70(2,76)	1,64(1,87)	0,54(1,19)
Degree of performance reduction of menstrual symptoms	4,38(3,15)	34,582**	2,93(2,19)	6,27(2,95)	1,08(1,65)
Number of days to recover acceptable performance	4,14(14,91)	30,340**	4,93(14,62)	4,67(18,51)	0,30(0,63)
Degree of extra effort to carry out tasks	4,46(2,88)	33,809**	6,11(1,90)	3,46(2,74)	1,00(1,68)
Degree of interference with relationships with people	4,87(2,88)	39,562**	6,59(1,78)	4,07(2,59)	0,77(1,09)
Degree of avoidance of social situations	2,87(2,94)	28,217**	4,41(2,93)	1,68(2,09)	0,23(0,59)
Degree of confrontation with others	3,69(2,76)	26,162**	4,70(2,46)	3,64(2,55)	0,38(1,12)

(N = 85) SIGNIFICANCE. * p < 0,05; ** p < 0,01

Note: Significant scores obtained with post-hoc analyses (t test) are highlighted in bold

Table 4. Kruskal-Wallis's GROUP analysis (one-way ANOVA) of the intensity of the Criterion B's indicators for the diagnosis of Premenstrual Dysphoric Syndrome (retrospective)

As for Criterion B (Chart 4), differences were found among the three groups in the majority of the aspects considered. The *ad hoc* test showed

statistically significant differences, and with higher values in the case of the premenstrual group as far as interference with daily life is concerned (t = -2.85; p =

0.006); in the specific case of change in carrying out their job ($t = -8.24$; $p = 0.0001$) and as regards to the number of days when they did not carry out their job due to premenstrual symptoms ($t = -3.89$; $p = 0.001$). Once again it can be noticed that the premenstrual group reaches higher levels in these criteria, in this case, in interference with carrying job activities in general. However, it is surprising that the main disturbance takes place during menstrual, and not during premenstrual days

When the degree of reduction in performance that each participant estimates is analysed, the premenstrual group is significant in the homonymous period ($t = -5.60$; $p = 0.0001$) and, at the premenstrual

time, the subsyndromic group ($t = -5.15$; $p = 0.0001$). Complementarily, the premenstrual group stands out in the degree of extra effort required to carry out tasks ($t = -4.47$; $p = 0.001$), in the degree of interference with relationships with people ($t = -4.50$; $p = 0.001$) and in the tendency to avoid social situations ($t = 4.60$; $p = 0.001$).

Finally, from an economic point of view, the principal piece of information about the analyses centres on the pharmaceutical expenses (analgesics) that these women need to cover. This result does not point out differences between the two groups in the study, but it does in relation to the comparison group (Table 5).

	Total Average (t.d.)	K-W's H	Premenstrual Average (t.d.)	Subsyndromic Average (t.d.)	control Media (t.d.)
Yearly cost of medicines	11,65(19,06)	6,952*	14,34(22,71)	10,69(15,89)	4,61(6,63)
Number of visits to a public health doctor	0,18(0,58)	1,429	0,20(0,50)	0,18(0,77)	0,08(0,27)
Number of visits to a private doctor	0,13(0,37)	2,493	0,18(0,44)	0,11(0,31)	0,00(0,00)
Yearly cost of medical visits	8,00(22,13)	3,206	12,05(27,32)	5,36(16,43)	0,00(0,00)

(N = 85) SIGNIFICANCE* $p < 0,05$; ** $p < 0,01$

Table 5. Kruskal-Wallis's GROUP analysis (one-way ANOVA) of the variables related to the socio-sanitary cost of Premenstrual Dysphoric Syndrome

A later statistical transformation done with the data of the study consisted in revising the specific number of Criterion A's indicators of the DSM-IV with an intensity equal or higher than five (moderate-intensity category). In other words, the interest was not in the type, presence or lack of symptoms, but in which of them had sufficient intensity to be regarded as relevant. The somatic indicators were transformed into one indicator (by applying the average of their measure). As expected when the variable was made discreet, Kolmogorov-Smirnov's test proves that data distribution does not follow normal distribution ($p < 0.05$).

Kruskal-Wallis's test suggests statistically significant differences among the groups ($\text{Chi} = 39.009$; $p < 0.05$). It points out that the premenstrual group shows a minimum of up to seven moderate-intensity indicators or symptoms (average 7.22; t.d. 2.30) versus the subsyndromic group (average 5.42; t.d. 1.85) and the comparison group (average 0.61; t.d. 1.12). Nevertheless, no statistically significant differences were found between the two groups studied ($\text{Chi} = 12.249$; $p > 0.05$), probably because the degree of rate variation in the premenstrual group is rather heterogeneous. One can observe, in any case, that at least as a group-scale symptom average, both groups studied meet the DSM's minimum requirements to make reference to the presence of the syndrome (Criterion A).

When only the average intensity of all of Criterion A's indicators are analysed, instead of the average number of symptoms, as has been said before, does the distribution prove to be normal. The variance analysis suggests statistically significant differences ($F = 37.285$; $p = 0.0001$). The premenstrual group stands out (average 5.35; t.d.1.22) over the subsyndromic (average 4.33; t.d. 2.05) or the comparison (average 1.24; t.d. de 0.84) groups. It is worth highlighting that intragroup differences seem to be greater than

intergroup differences, which makes reference to an important variability in each group in these aspects. The importance of this result lies in the justification of the little repercussion in the person's functioning; in other words, the symptom array is great, but the average intensity is not, and, consequently, Criterion B will be affected only partially. The *ad hoc* analysis suggests that the differences keep being statistically valid in favour of the premenstrual group ($t = -2.66$; d.f. 70; $p = 0.010$).

The same procedure was applied to the different ways in which Criterion B is detailed. One has to remember that the DSM only discusses in general terms the discomfort or the interference that the symptoms may bring about. However, the analyses were carried out by averaging the different ways in which the degree of influence or interference may take place. When the number of indicators with intensity equal to or higher than five is counted (K-S suggested lack of normality, $p < 0.05$), differences are observed among groups (K-W $\text{Chi} = 51.86$; $p < 0.05$) which remain between the two study groups (K-W $\text{Chi} = 34.77$; $p < 0.05$). This result suggests that the women in the premenstrual group had an average frequency of almost six influence or interference indicators with at least minimum intensity (average 5.86; t.d. 1.85), versus the subsyndromic group (average 2.03; t.d. 2.02) and the comparison group (average 0.23; t.d. 0.59).

When global intensity is exclusively analysed, once again the premenstrual group turns out to be statistically significant against the other groups ($F = 54.456$; $p = 0.0001$); in this case, the intergroup differences are higher than the intragroup differences, and the *post hoc* differences between the two groups studied favour the premenstrual group ($t = -7.000$; d.f. 70; $p = 0.0001$). The average intensity in relation to interference is almost six points in the premenstrual group (average 5.91; t.d. 2.08) against the almost three

points of the subsyndromic group (average 2.73; t.d. 1.51) and the control group (average 0.74; t.d. 0.97). As argued above, one of the keys of the results reached from this analysis, in which the degree of interference or general influence has to be considered to be modest even for the main group of the study.

Repeated measures

Although belonging to the prospective register (Phase 3) of those participants who stayed in the study, the test rates of mood and vulnerability have

been shown in order to prove whether or not they underwent changes (taken as repeated measures), and in relation to their placement in the follicular or premenstrual phase. Since the size of the sample was very small (12 subjects), non-parametric contrasts were applied (Friedman's chi-square). The results obtained can be seen in Table 6. It is worth mentioning that, in relation to the BDI depression measure, there are not any statistically significant differences between the follicular and premenstrual measures in any of the three consecutive cycles registered.

BDI	Follicular Phase Average (t.d.)	Premenstrual Phase Average (t.d.)	X ²
Ciclo 1	2,90 (3,41)	2,90 (1,82)	0,667
Ciclo 2	2,60 (3,80)	2,60 (4,83)	0,333
Ciclo 3	4,57 (5,88)	3,29 (2,49)	0,200
DAS-Total	Follicular Phase Average (t.d.)	Premenstrual Phase Average (t.d.)	X ²
Ciclo 1	111,70 (28,63)	114,70 (26,25)	0,400
Ciclo 2	110,88 (28,66)	115,77 (29,55)	0,111
Ciclo 3	122,14 (27,41)	118,42 (25,40)	0,000
DAS-Dependency			
Ciclo 1	29,70 (9,78)	32,00 (9,22)	4,50*
Ciclo 2	29,80 (7,88)	29,70 (7,40)	0,143
Ciclo 3	31,12 (6,70)	30,87 (6,28)	0,000
DAS-Achievement			
Ciclo 1	28,70 (13,70)	30,30 (9,09)	0,111
Ciclo 2	28,10 (11,27)	30,40 (9,96)	0,500
Ciclo 3	30,50 (8,33)	31,00 (7,23)	0,000
DAS-Autonomy			
Ciclo 1	15,30 (4,90)	17,50 (4,11)	4,50*
Ciclo 2	17,80 (5,75)	18,00 (4,69)	0,111
Ciclo 3	16,75 (4,94)	17,12 (4,99)	0,333

(N = 12) SIGNIFICANCE. * p < 0,05; ** p < 0,01

Table 6. Friedman's contrast for the follicular and premenstrual phases of three consecutive cycles in relation to the measurement of depression (BDI), cognitive vulnerability (DAS-A) and other factors

In relation to the DAS rate, in general terms, the results do not endorse the thesis that cognitive vulnerability to depression may change (in the expected sense that they may increase) in a statistically significant way during the premenstrual period. Nevertheless, practically all the averages are more marked in the premenstrual phase. The dependency factor (in only one cycle) and the autonomy factor (in the same cycle) prove to be significant. In consequence, this does not seem sufficient to support the idea that women may be more vulnerable to depression as a consequence of the changes that take place towards the end of the cycle.

Prospective Analyses

Following are the phase 3 or prospective findings about the daily self-report follow-up of the 12 participants who stayed until the end of the study (and who from now onwards appear with the number assigned to them in the study). This means the establishment of three time series per participant which cover a total of 90 days (three menstrual cycles) for each symptom. The findings are summarized in Table 7. Those symptoms in which a premenstrual pattern is evident have been considered, and, as the table shows, in no case has it been confirmed that at least five symptoms plus Criterion B appear in at least two consecutive cycles. The DSM-IV requires, moreover, some specificity for at least one symptom

of depression, anxiety, emotional lability, or irritability (dysphoria) or anger. As can be seen, out of the five women who were retrospectively qualified as premenstrual (or SDP is present), the subsyndromic condition was established in four women (one of cases was doubtful), and the possibility of having the syndrome was ruled out in one woman. Out of the four cases initially catalogued as subsyndromic, three kept such condition (one of them doubtful), and the fourth case was ruled out. Two out of the three women considered witnesses were confirmed as truly negative, and one case was switched to the subsyndromic condition.

A third cycle has been considered to observe the maintenance of the indicators between cycles. This information shows important variability between consecutive and alternate cycles. As can be seen in Table 7, physical symptoms, dysphoria-related symptoms (irritability, being at the limit, emotional lability, being out of control), depressive symptoms (hopelessness, dissatisfaction or self-disdain), energy, and appetite changes (mainly whims and hunger fluctuation), in this order, stood out. However, others also stood out which do not appear in the DSM diagnosed criteria, such as tendency to hyperactivity or expansiveness, dissociative symptoms, euphoria and reference ideas.

Finally, the fulfilment of the DSM criteria has been included in Table 7, but for the follicular phase

of the three cycles. This data is relevant because it shows a good presence of symptoms before the premenstrual cycle, and because it includes significant

discomfort in many cases, and a source of variation which affects women in any of the groups, both prospective and retrospective.

Case	consecutive cycles DSM criteria	alternate cycles DSM Criteria	follicular phase DSM Criteria	Significant premenstrual symptoms (consecutive and alternate)	Initial and Final Category
1	A ₁ = 3 A ₂ = 5	A ₃ = 2 y B	A ₁ = 3 y B A ₃ = 1	Anergy, "at the limit", appetite, dysphoria, hypersomnia, physical	Premenstrual Subsyndromic
11	A ₁ = 1 A ₂ = 1	A ₃ = 4	A ₁ = 5 y B A ₂ = 1 A ₃ = 1	"At the limit", hopelessness, physical	Control Absent
17	A ₁ = 2 A ₂ = 1	A ₃ = 3	A ₁ = 4 A ₂ = 4 y B A ₃ = 1 y B	"At the limit", impulsiveness, lack of interest, physical	Subsyndromic ¿Subsyndromic?
19	A ₁ = 2 A ₂ = 1	A ₃ = 3 y B	A ₁ = 1 A ₂ = 2 A ₃ = 1	Lability, anergy, dissatisfaction, physical	Premenstrual Subsyndromic
30	A ₁ = 5 A ₂ = 5	A ₃ = 5	A ₁ = 4 y B A ₂ = 2 A ₃ = 1	Tension, anergy, sadness, dissatisfaction, lability, lack of control, insomnia, appetite, physical	Premenstrual Subsyndromic
42	A ₁ = 3 A ₂ = 3 y B		A ₁ = 3 A ₂ = 1	Anergy, physical, sleepiness	Subsyndromic
49	A ₁ = 3 y B A ₂ = 5 y B	A ₃ = 1	A ₃ = 1	Lability, dysphoria, tension, sadness, lack of interest, physical	Control Subsyndromic
55	A ₁ = 2		A ₁ = 1	"At the limit", physical	Subsyndromic Absent
63	A ₁ = 4 y B A ₂ = 2	A ₃ = 1	A ₂ = 3 y B A ₃ = 2	"At the limit", appetite, impulsiveness, physical	Subsyndromic Subsyndromic
65					Control Absent
74	A ₁ = 2		A ₁ = 3 y B	Appetite, physical	Premenstrual Absent
78	A ₁ = 7			Tension, dissatisfaction, lability, lack of interest, dysphoria, impulsiveness, physical	Premenstrual ¿Subsyndromic?

Table 7. Summary of the retrospective and prospective diagnoses in relation to consecutive and alternate cycles. Statistical verification of premenstrual Criterion A and B is indicated. (Young's C < 0.05)

In order to illustrate the prospective findings summarized in Table 7, and given the huge amount of

resulting information, some charts have been selected which show score distribution.

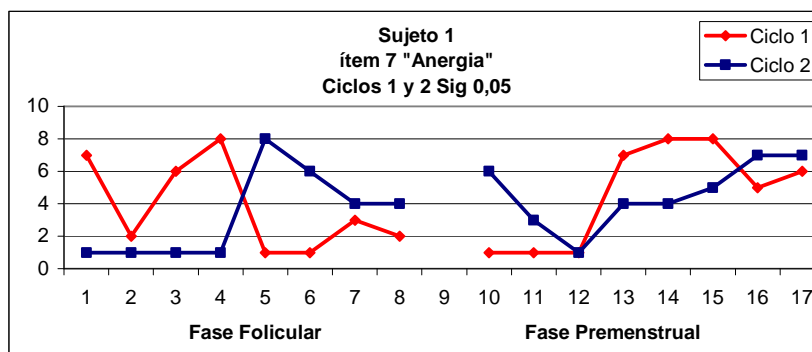


Chart 1: Case 1, ítem 7: anergia.

In the case of chart 1(case 1), focused on anergy, it is interesting to notice that there is no lack of manifestations in the follicular phase; however, the clearest and most statistically significant tendency is to be found in the premenstrual period in the form of symptomatology increase relative to lack or loss of energy or vitality in two consecutive cycles. (global C = 1.82 and 2.15, respectively, attributable to

premenstrual changes; p < 0.05). In contrast, in chart 2, in which depressive type symptoms are addressed, changes in trends are not to be found in a statistically significant way (the indicators appear in only one cycle). Visual analysis suggests the expected increase in symptom pattern on the arrival of the premenstrual phase. However, Young's C analysis does not indicate any change in trends attributable to increase in the

premenstrual phase (or at least not exclusively): sadness, hopelessness, lability, and lack of interest (global C = 0.217; 0.108; 0.43 and 1.55, respectively; $p > 0.05$). In chart 3, correspondent to case 1, mentioned above, dysphoric-type mood alterations with variations (annoyance, bad mood) can be seen during two consecutive cycles. The time-series analysis supports the premenstrual pattern attributed to the change of trend in both cycles (C = 1.31 and 1.74, respectively, $p < 0.05$). In spite of the pattern observed in some of the symptoms of this participant, the

minimum of five clinical indicators (Criterion A) and disturbance in the functioning of some areas (Criterion B) is not obtained in two consecutive cycles in order to confirm syndrome presence from the diagnostic focus of the DSM. Besides, it is worth highlighting that, while the pattern seemed to manifest itself, to a great extent, during the two first consecutive cycles, in the third cycle a smaller number of symptomatic indicators were evident, but accompanied by significant disturbance (Criterion B).

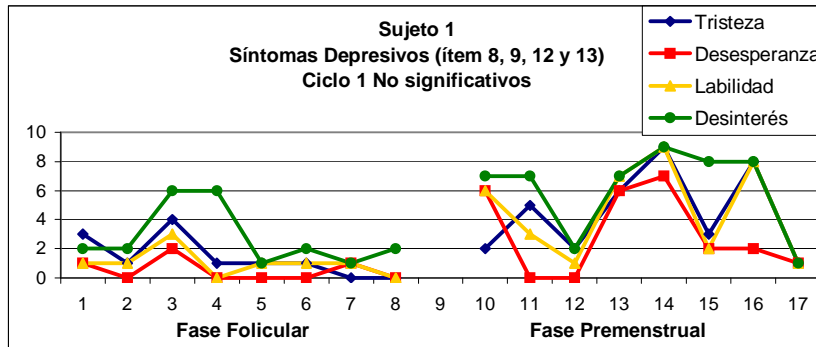


Chart 2: Case 1, items of depressive symptoms: sadness, hopelessness, lability and lack of interest.

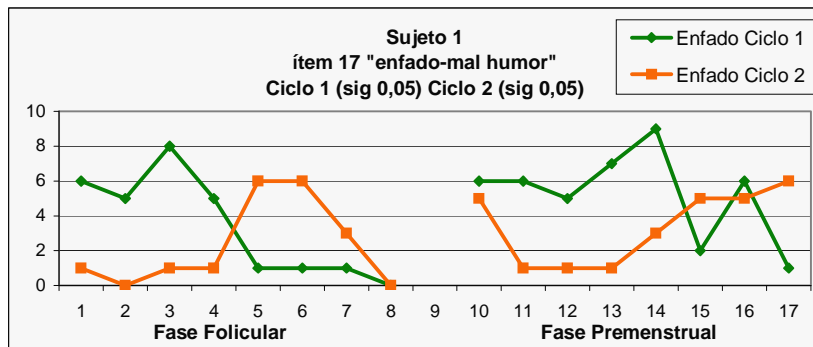


Chart 3: Case 1, mood symptoms: annoyance or bad mood

In case 19 a relatively limited presence of symptoms can be seen meeting premenstrual dominance. However, some clearly premenstrual symptoms take place in the third cycle (Criterion A, energy: 2.59; dissatisfaction: 2.85, and physical symptoms: 3.46; $p < 0.05$), together with Criterion B

general disturbance (2.65; $p < 0.01$) and some other indicators of Criterion B (extra effort: 2.65; avoidance: 2.45, and confrontation with other people: 2.45; $p < 0.01$) (chart 4).

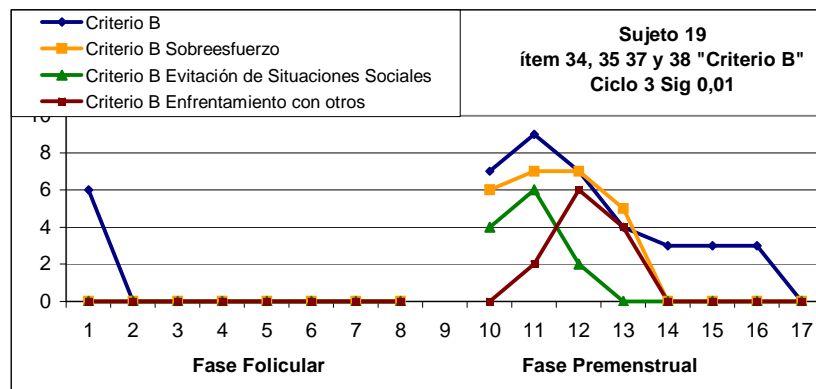


Chart 4: Case 19. Criterion B indicators

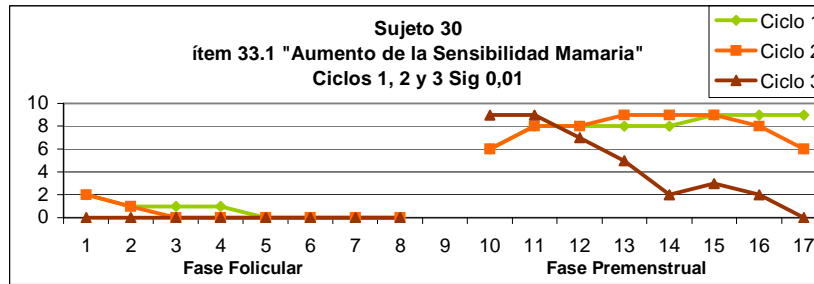


Chart 5: Case 30, physical symptoms. Increase of breast sensitivity

One more example of premenstrual distribution can be illustrated in Chart 5, for participant 30; in this case, concerning physical symptoms such as increase of breast sensitivity in the three consecutive cycles ($C = 3.87; 3.84$ and $2.94; p < 0.01$). This woman showed

the minimum amount of global premenstrual symptoms in the three consecutive cycles, but Criterion B did not prove significant for the diagnosis of the syndrome, (but which did prove significant in the follicular phase).

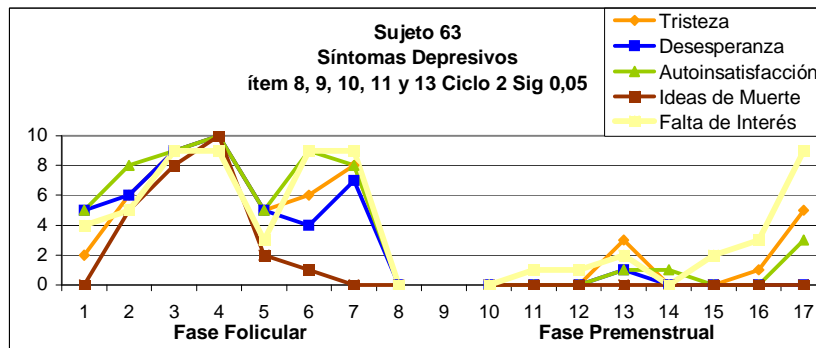


Chart 6: Case 63. Depressive symptoms and follicular pattern

In the case of participant 63, a diversity of premenstrual symptomatic indicators are observed in the first cycle (being surpassed, to be at the limit: $C = 2.04$; impulsiveness: $C = 2.07$; appetite: $C = 2.56$, and physical symptoms: $C = 4.08; p < 0.05$) plus fulfilment of Criterion B; however, graph 6 illustrates fulfilment

of the follicular pattern for the second cycle (sadness, hopelessness, dissatisfaction, ideas of death, and lack of interest; $C = 2.54; -0.46; 3.09; 2.80$, and 1.97 , respectively; $p < 0.05$).

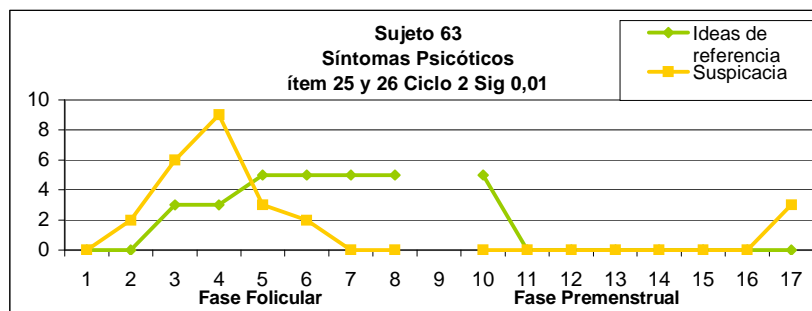


Chart 7: Case 63, psychotic symptoms and follicular pattern.

Graph 7 sets out psychotic symptoms present in case 63, but with low clinical relevance (reference ideas and mistrust). These are symptoms which do not appear in the DSM-diagnosed criteria, but which can be found in some participants. In this case they are also used to illustrate the follicular, not premenstrual pattern ($C = 3.29$ and $2.64; p < 0.01$), although this patient also showed significant mistrust in the premenstrual period in cycle 1 ($C = 1.82; p < 0.05$).

Finally, because there were not any women with prospectively confirmed Premenstrual Dysphoric Syndrome, and if only undoubtable subsyndromic cases by means of this procedure are to be considered, one can refer to an incidence of seven percent of cases with premenstrual symptomatology needs to be pointed out (six cases out of 85, the doubtful ones being excluded). This suggests quite a small incidence of really premenstrual dysphoric cases such as specified by the DSM-IV.

DISCUSSION

This research study consisted of three phases in which a cross method was complemented by a prospective method. This procedure entailed an important loss of cases due to the rigour used to select the population sample, who, in the last step, were subject to a prospective follow-up study. In this way there was up consecutive information available for up to three months; consecutive and alternate cycles could be reliably analysed; and in the case of the loss of the last cycle for any circumstance, it was possible to maintain the scores of at least two consecutive cycles (which was fundamental in following DSM criteria) and to carry out repeated rates for the psychopathological criteria. In order to apply this procedure, it was necessary to count on really motivated participants prepared to continue with such a long process, and although to carry it out was not exactly complicated, it did require great perseverance.

A good amount of the work dealing with this topic highlights the loss of cases that take place when the premenstrual symptomatology analysis is addressed from a prospective methodology and requires the use of self-reports (Marván and Cortés-Iniestra, 2001; Schnurr, 1989). Furthermore, a number of cases were ruled out in this research in order to avoid, on one hand, the scores of people with some mood (!!!) alteration, which might confuse the results (as happened in the study by Chawla *et al.*, 2002), and on the other, that the scores might suggest loss of rigour, or for a tendency to exaggerate the manifestations during some part of the menstrual cycle (Alteration Scale of the MCMI-II). We think that this entailed the absolute elimination of false positives, which was important to us precisely because one of the main limitations of the studies on this pathology is bias in the real indication of symptoms and their gravity in face of what is expected. (Marván and Escobedo, 1999).

Moreover, this study provides a procedure of exhaustive statistical analysis which does not just come down to comparing scores, but analyses the changes in trends in the observations and whether or not it can be attributed to the premenstrual phase or to the follicular phase. Schnurr (1989) did not observe any differences among three statistical analysis procedures with diverse advantages for clinical and research application (percentage of change, size of effect, and analysis of trends). However, we believe that interrupted time series analysis adds greater accuracy than those estimations exclusively based on percentages, averages, or variances, given the fact that it makes it possible to work with a small amount of data per series, and makes the analysis feasible by means of the stability and instability of each phase (even though sharp changes in the values may take place).

As for the presence of Premenstrual Dysphoric Syndrome in this work, those cases detected retrospectively represent practically 52% of the total number of participants. This figure is much higher than expected (APA, 2000; Halbreich, 2003; Halbreich, Borenstein, Pearlstein and Kahn, 2003; Kahn and Halbreich, 2003; Rivera-Tovar and Frank, 1990), and it has to be realistically classified as women with significant complaints and discomfort

(Marván and Cortés-Iniestra, 2001). On the other hand, if only prospectively analysed cases are considered, even though they are catalogued as subsyndromic, the incidence rate to bear in mind is 7%. We have to keep in mind that these are subsyndromic cases, therefore the real incidence can be very small, considering that they deal with the general population and pure cases, that is, without any other associated psychopathology. At the same time, the findings have been based on the perseverance of the intensity of the indicators, and on the type of indicators and cycles, both consecutive and alternate, so that, necessarily, they have not been overestimated. Because syndromic cases were not found, it can be asserted that, besides eliminating false positives, this procedure has established an lower limit for the general population, which guarantees the control of a good deal of the distortions in the answers in this type of studies.

From a descriptive (retrospective) point of view, as regards the delimitation of the analysed symptomatology, it is worth highlighting that the group which was retrospectively characterised as premenstrual stands out for the intensity in the symptoms of anxiety, impulsiveness, mood, irritability and appetite change. This aspect coincides totally with what was expected. The intensity of the symptomatology seemed to follow a continuous line across the groups, the premenstrual group having a greater range and intensity of symptoms, which has a logical repercussion on criterion B. In consequence, the comparison group showed fewer indicators and with less seriousness, except for the physical symptoms. As expected, the physical symptoms do not seem to be those which best separate the three groups, that is to say, they are the most common ones in general terms. In spite of the fact that the physical symptoms were unspecific, some of these upsets contributed to differentiate the two main groups in the study: increase in breast size and discomfort or pain in muscles and joints.

The contrasts between the scores reached in the premenstrual and subsyndromic groups gave rise to few differences, both as regards psychopathological measures and with menstruation related retrospective variables. The premenstrual group was different to the subsyndromic group in cognitive and motivational indicators (loss of interest and concentration). Therefore, the four main symptoms in DSM (mood, anxiety, lability, and irritability) did not permit the separation of the borderline cases of the most clearly premenstrual cases, but they did of the control cases. This fact lends support to hypothesis 1 of continuity among the clinical characteristics of both groups, with influence in more diverse areas for the premenstrual group (evidence of greater influence). In this sense, not only mood symptoms, but also those influencing cognitive motivational symptoms represent a difficulty for the realisation of highly qualified professional work and intellectual activity (there was a large number of university women in the sample). It is interesting to note that, according to some studies, this alteration of cognitive manifestations is subjective, since the analysis of these psychological functions have not verified that performance ability is lost in learning, memory, or attention; a slight psychomotor

decrease is always pointed out (Resnick, Perry, Parry, Mostofi *et al.*, 1998).

As set out in hypothesis 1, the differences between the two study groups would be based on the fulfilment of criteria A and B. This can be observed mainly in the criterion B contrasts, which implies for the premenstrual group, greater influence or disturbance in the functioning of these women, who are, evidently, different from those of the comparison group. Likewise, the global intensity of all the symptoms differentiated the two groups in the study, but it did not in relation to the number of criteria with minimum intensity. Therefore, there is a continuity between the premenstrual and the subsyndromic groups, which needs to be resolved by the presence of some indicators of a serious nature plus criterion B. This is probably more important than the mere counting of symptoms.

This aspect can be used to go into another objective, namely the repercussions of these manifestations on the women who have them. The women of the premenstrual group stood out significantly for a greater degree of interference in general, in their jobs, in their relationships with others, and even with the tendency to avoid social situations. Some repercussions are objective (though retrospective), such as absenteeism that reaches a maximum of up to two and a half days in this group; other repercussions are subjective, such as their estimation of performance and the extra effort they make to compensate for their difficulties. These variables that suppose an appraisal do not lack importance. For example, in the specific case of depression, Stewart, Ricci, Chee, Hahn *et al.* (2003) observed that the reduction in execution or performance at work explained the variance of up to 85%, although the objective of this study was to establish the loss of productive time (5.6 hours per week, versus 1.5 hours in the comparison group).

There is a result which requires further analysis as it is the greater menstrual than premenstrual degree of repercussion on some aspects evaluated, such as performance, absenteeism, or days off work (although only performance significantly differentiates the groups). This result, apparently opposite to what was expected, can be due to a usual division of the periods to observe, which is too strict, namely the appearance of the first bleeding, which completes the premenstrual observation. In this sense, the DSM-IV-TR (APA, 2000) regards as a basic symptomatic pattern its appearance in the week before menstruation and its full remission on the second day of its commencement. In his analysis of different classical studies, Palmero (1987) points out that the indicators must be absent four days at the most after the beginning of the menstrual flow. Halbreich (2003) merely states that the premenstrual symptoms should not appear in the middle of the follicular phase. In consequence, he may be rather strict especially concerning objective variables, such as days off or absenteeism, to the limit of the first day of menstruation. The data collected may indicate that some manifestations do not stop immediately but progressively, even though they do so rapidly. It might be advisable to establish the length of the premenstrual phase, whether it is variable between cycles, and whether it is different in each woman: some profiles

clearly suggest a sharp decrease in symptomatology decrease, and some others less than sharp. Some of the differences found among investigations may lie in this aspect.

Generally speaking, if days on sick leave, pharmaceutical cost, and visits to the doctor are specifically considered, the manifestations of these repercussions on these women do not seem to be important in group terms. As Halbreich *et al.* (2003) point out; it is a common statement that the greatest influence lies in the family circle. However, these authors also emphasize that many of the calculations may be undervalued, since borderline or subsyndromic cases should be borne in mind, too. As a matter of fact, the pharmaceutical cost (analgesics) does not differentiate the two groups in the study, but it does with regards to the comparison group.

The work by Chawla *et al.* (2002), who detected 4.7% of cases that met the diagnostic criteria (plus three other groups with smaller symptomatic levels), coincides with the findings of this study in relation to the decrease in productivity at work, more than as far as direct costs are concerned. Only the severe cases estimated that activity had been limited for one day. The authors point out that economic repercussions and working rigidity may have been responsible for these figures. In this sense, it needs to be kept in mind that the sample make-up of this study had a large representation of students and freelance professionals. As a consequence, the numbers on sick leave and absent from work found in this study may be more realistic, since they show these people's real needs, without work or economic pressures. Possibly, as Chawla *et al.* (2002) argue, with samples of women working freelance or with less labour flexibility, more modest findings may be obtained than the ones found in their study. These authors also coincide in the idea that productivity might be affected around menstruation and at the beginning of the follicular phase.

In short, hypothesis 2 is partially fulfilled because the women in the subsyndromic group also show social, work, economic, and relational repercussions (although at a lower degree than the premenstrual group). Extrapolation with population data needs to be carried out in order to observe the importance and implication of the aspects analysed, as much in the economic cost (medicines, private medical attention) as in the labour cost (absenteeism, days on sick leave). However, other subjective variables are important for their repercussion on relationships with other people, performance, and job satisfaction: the degree of extra effort necessary to compensate for the symptoms (which differentiated the groups of the study), the days necessary to recover normal functioning (marked but without differences in the two groups of the study) and the degree of confrontation with others.

As for the objective of verifying the role of cognitive vulnerability with the prediction that it would coincide with Depressive Disorders, the hypothesis cannot be initially accepted. On the one hand, it is the depressive group that clearly has the highest scores in these measures. The analysis of its factors indicates that it is the achievement component that clearly differentiates the depressive group from the three other groups, coinciding with another study and different sample from this one (Catalán,

Rodríguez-Testal, León, Benítez *et al.*, 1999). But the most interesting and important finding comes from the comparison in relation to the DAS autonomy factor, since no differences were found between the two menstruation related groups of women versus the group of women with depressive disorders. The *post hoc* test brought the premenstrual group closer to the group of depressive women. In consequence, this retrospectively formed group does provide a characteristic of a tendency or vulnerability to depression. Because some subjects suffering from present disorders were eliminated in phase II before initiating the prospective phase, the source of confusion might lie there. In any case, as Kirkby (1994) argues, thought distortions do not cause the syndrome. It is rather a result of the disturbance caused by premenstrual tension, that is to say, a mood dependent product. Nevertheless, as Teasdale (1996; Teasdale, Segal and Williams, 1995) pointed out, the cognitive components should be better considered as processes that give continuous feedback to depressive patterns and as contributors to the perpetuation of depression, rather than attributing to them a strictly causal sense.

On the other hand, the analyses of repeated measurements did not reveal any data of interest about these criteria. At this point only the women submitted to the prospective study remained. We think that this line of thought should continue being investigated more deeply for two reasons. Firstly, because even though the findings are not significant, there are premenstrual score changes (two specific results appeared, but they were considered insufficient). However, the sample with which we have been able to work is small, so a greater representation may definitely clarify this proposal. Secondly, there aren't any definitely premenstrual cases (prospectively defined), which means that the cognitive vulnerability component may play its role in the sense expected, is not definitely excluded.

The groups of the study were clearly separated from the criteria of the groups of women diagnosed with depressive disorders in the measures of physical and cognitive anxiety, and mood, so that including the vulnerability test (total and the achievement factor, which, as stated above, best characterises depressive people), the profile came to be clearly differentiated. The prospective analysis stressed different aspects. In general terms, the expected pattern of premenstrual symptom increase and follicular decrease could be verified, even if in the definitive and refined sample, there were distributions in which follicular increase systematically stood out. As a consequence, diagnostic criteria DSM-IV-TR (APA, 2000) valid as for the number of symptoms (criterion A plus symptomatic specificity) and significant discomfort (criterion B) prospectively verified in at least two consecutive cycles, turns out to be very exacting. The differences between the initial premenstrual and subsyndromic groups should not restrict themselves to the retrospective indicators such as loss of interest or concentration, sleep alterations, lack of control, and physical indicators, as stated at the beginning in relation to the cross study. Prospectively, the dysphoric symptoms (irritability, bad mood, being out of control, being at the limit, emotional lability) stand out more than those characterised by depressive,

hopeless, or self depreciation moods (which put them among the most important symptoms for diagnosis, according to the DSM criteria). In any case, in general, these symptoms can generically be classified as dysphoria, which is the precise term for the syndrome. For this reason, it makes sense that these are the most pronounced indicators, instead of the classical depressed mood. For all these reasons, hypothesis 4 is, partially, confirmed. Symptoms such as anergy and appetite alterations (mainly whims and hunger oscillations) stand out, as well as other indicators which are not considered diagnostic criteria. Among them, we can highlight the tendency to hyperactivity or expansiveness, dissociative symptoms, euphoria, and reference ideas.

Another of the results obtained indicates that there are noticeable symptomatic inter-cycle variations in the same woman (consecutive or alternate) even when the set of resulting indicators may actually coincide (criterion A). This fact confirms hypothesis 5 and is in agreement with the idea that inter-cycle agreement is commonly low, above all in relation to symptom severity and, particularly, in symptoms of an emotional nature (Schnurr, 1989; Sternfeld *et al.*, 2002).

As it is widely known from the literature and, in consequence, was expected (hypothesis 6), there is no relevant equivalence between retrospective and prospective information (except for the physical symptoms). This is evident not only from the lack of an evident case of Premenstrual Dysphoric Syndrome, but also in the overvaluation of the retrospective information (DeJong *et al.*, 1985). Some authors have clearly shown this phenomenon. McFarland *et al.*, (1989), for example, pointed out that women fundamentally remember the negativity of the symptoms and the ideas consistent with the discomfort brought about by menstruation. It has been considered that menstruation stereotypes and expectations play a large role, by amplifying premenstrual changes. This finding is valid both for women (Marván and Cortés-Iniestra, 2001; Marván and Escobedo, 1999; Van Tilburg, Becht, Vingerhoets, 2003) and for the professionals who, in their daily life, do not carry out prospective evaluation, they limit medical exploration to physical symptoms, and overvalue socio-cultural indicators in the diagnosis (Gottheil, Steinberg, Granger, 1999). In an explanatory sense, Marván and Cortés-Iniestra (2001) emphasise the importance of the socialisation process for the negative expectations related to menstruation. This gives rise to a negative focus of attention on menstruation which interferes with and alters the experiences of the menstrual cycle. Complementarily, as McGuire and Troisi (1998) state, the woman with this type of manifestation uses the social atmosphere as a way that contributes to regulate them physiologically.

This study has a number of limitations that have to be borne in mind. First of all, the size of the sample. A greater number of participants, both in the retrospective and in the prospective phases would have clarified many aspects. However, such an exhaustive follow-up requires especially motivated people and, as has been stated above, these participants were not patients looking for some type of treatment, but women from the general population. Secondly, for the calculation of variables on social, job and health

repercussions, a wide sample that reduces type-II error against the wide variance that is typically found in this type of information, would have been required. On the other hand, the level of commitment needed to stay in the study was high, which provides great reliability to the findings. One more limitation is derived from the former, namely, it would have been useful to count on a broader group of Mood-Disorder patients in order to endorse the findings and to itemize the role played by cognitive vulnerability to depression.

To finish, we have observed some issues which we consider of interest for future studies. First of all and coinciding with the opinion of several authors, limiting the study or the interventions to women with confirmed Premenstrual Dysphoric Syndrome obviates all and any kind of consequence really suffered by women considered as being subsyndromic. Secondly, we recommend that a prospective study of this alteration should take into account consecutive and alternate cycles, which would amplify the observation period to at least three cycles. Thirdly, the symptomatology in the follicular phase should be more deeply analysed in order to discern its relevance, since repercussions on functioning can be seen. Fourthly, the premenstrual phase should be analysed, and the limit in days from the moment menstruation starts should be verified, instead of making categorical divisions at the observation stage. Fifthly and finally, on the basis of the data obtained, we find it very important to delimit criterion B into several independent and hierarchal facets. This is due to the fact that many women complain about the interference that the symptomatology brings them. However, as even capacities at work, in dealing with the family and other occupations or interests are affected, women may choose to put a limit themselves, on their activities. When they reduce their capacity for action instead of asking for help, there is an apparently smaller repercussion on their health.

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