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ATTRIBUTIONAL STYLE AND SOCIAL-SKILL DEFICITS AS PREDICTORS OF DYSPHORIC STATES AND RESPONSE TO TREATMENT

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Abstract. It is hypothesized that there might be two subtypes of dysphoria. Comparison of the characteristic deficits of attributional styles and social skills of adolescent dysphorics differentiated them into two subtypes. This suggested that matched treatments of the two subtypes of dysphoria might be more effective than non-matched treatments. As is predicted by the hopelessness theory of depression (Alloy, Abramson, Metalsky, & Hartlage, 1988), dysphorics characterized by the depressogenic attributional style and adequate social skills reported significantly greater numbers of negative life-events than dysphorics characterized by social-skill deficits and healthy attributional style. Treatments matched to dysphoria subtypes were more effective than non-matched treatments. The authors suggest that similar tests of dysphorics over several years might indicate that some dysphoric states intensify and that matched treatments would abort potentially severe depressions.

Keywords. Adolescent-dysphoria, social-skill, attribution-style, matched-treatment.

Introduction

The reformulated theory of learned helplessness (Abramson, Seligman, & Teasdale, 1978) led 10 years later to the hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989; Alloy et al., 1988). The authors of this model suggest that a diathesis component contributes to the development of hopelessness depression. This diathesis component is, in other words, the tendency to exhibit a style that attributes negative events to internal, stable, and global factors. This tendency is considered to be a peripheral, or ‘‘distal’’, contributory cause of this cognitive subtype of depression that operates in the presence, but not in the absence, of negative life-events (Abramson, Alloy, & Metalsky, 1988; Alloy et al., 1988).

The literature contains many reports of this tendency of depressives to exhibit the above mentioned attributional style (Peterson & Seligman, 1984; and Seligman et al., 1984, report it in children). Some works support the previously mentioned hypothesis that attributional style interacts with negative life-events to help predict depressive mood reactions (Houston, 1995; Metalsky, Halberstadt, & Abramson, 1987; Metalsky, Joiner, Hardin, & Abramson, 1993). However, other authors whose works or literature reviews did not find this tendency concluded that these attributions and negative life-events do not combine to predispose or

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to later precipitate depression (Barnett & Gotlib, 1988; Brewin, 1985; Cole & Turner, 1993; Coyne & Gotlib, 1983; Hammen, Adrian, & Hiroto, 1988; Parry & Brewin, 1988). The apparently contradictory findings of these authors might be explained in part by the hopelessness theory that postulates that the depressive attributional style favours, rather than initiates, the development of depressive symptoms (Abramson et al., 1989; Alloy et al., 1988). Other factors, in addition to attributional style, may predispose subjects to develop certain depressive symptoms. Brewin (1985) suggests that attributional analysis may only serve to differentiate certain subtypes of depression.

On the other hand, some authors who have investigated social behaviour deficits see them as factors that might stimulate the development of depression (Gotlib, 1984, 1992; Lewinsohn, 1975; Lewinsohn, Youngren, & Grosscup, 1979). This idea is supported by several studies of Lewinsohn (1974, 1975; Lewinsohn et al., 1979) and Youngren and Lewinsohn (1980) who assume that the several social-skill deficiencies of socially inadequate subjects deprive them of specific and positive functional reinforcers that would help orient them towards adequate behaviour. In addition, the interactional model predicts that depressed or depression prone individuals display involuntary inadequate social behaviours that provoke negative reactions in the persons with whom the subject interacts. This type of subtle or evident negative feedback to the subject will tend to perpetuate the subject's depressive state (Coyne, 1976; Gotlib & Hammen, 1992). However, not all researchers can corroborate that this type of negative feedback occurs (Ducharme & Bachelor, 1993; King & Heller, 1984; MacNeil, Arkowitz, & Pritchard, 1987).

The results of the works cited above stimulated this present work that aimed to determine whether attributional style and social-behaviour deficits could differentiate two subtypes of depression and whether this differentiation might improve theoretical and clinical predictions of depression.

Some authors report that not only do negative cognitions predispose subjects to depression, but depressed mood appears to increase negative cognitions (Brewin, 1985; Teasdale, 1983, 1985). If depressed mood and negative cognitions are really interdependent, this would strengthen the subject's depressive cognitions and embed them in the negative schemata that typify subjects with severe depression (Beck, 1967; Beck, Rush, Shaw, & Emery, 1979; Sacco & Beck, 1985). Consequently, we postulated that the several differential arrays of deficits (cognitive and behavioural), which might effectively differentiate different subtypes of depression, would only be found in subjects with dysphoric states or mild depressions because their particular cognitive dysfunctions would not yet have evolved into negative schemata.

This present work follows the methodology of Alloy, Lipman and Abramson (1992) and Hokanson and Butler (1992) who identify the limitations of research studies that group depressive subjects into one group and then compare this group with another of non-depressives. This suggested that if the subjects of a depressed group revealed very diverse cognitive and behavioural deficits, several large and small, positive and negative, effects associated with different cognitive or social response patterns would tend to compensate, so that the aggregate of their differences would be very small. To avoid this compensatory effect, we tested dysphoric subjects to see if they could be clearly differentiated by their low or high depressive attributional styles and their social-behaviour deficits.

The diathesis-stress prediction of the hopelessness depression model (Alloy et al., 1988) leads us to expect that the hypothesized associations of negative life-events with depressive

attributional style would serve to differentiate these two possible subtypes of dysphoria or mild depression. If valid, this model might help select more adequate treatments for both dysphorics and depressed patients. Hayes, Castonguay and Goldfried (1996), whose results highlight the importance of addressing the reality of interpersonal problems, recommend that a patient's treatment should be appropriate for the ''domains of vulnerability'' to be treated. Because the attributional style and social-behaviour deficits could differentiate two subtypes of mild depression, they might also indicate the potential effectiveness of the two types of treatment most commonly used for depressed patients.

The two studies of this work were designed to test these hypotheses. The first aimed to establish the existence of these two hypothetical subtypes of dysphoric subjects. The first part of the second study was almost a replication of the first, and the second part was designed to determine whether treatment effectiveness depended on correctly matching the treatment to the subtype of dysphoria.

Study 1

The first study was designed to identify the factors that might serve to differentiate two subtypes of dysphoria. Our general hypothesis was based on four suppositions: (a) that the set of attributional-style deficits and the arrays of social-skill deficits should help predict the degree of dysphoria; (b) that these attributional-style and social-skill deficits would very probably predict better the degree of dysphoria than negative life events, which is the multidimensional ambiental factor commonly associated with depression. Should these two suppositions be proved correct by the study results, then they would help predict (c) that relative deficits of the two most significant factors associated with dysphoria, ''attributional-style'' and ''social-skills'', would allow us to differentiate statistically two independent groups of dysphoria. Finally, the main supposition of our hypothesis was derived from the hopelessness depression model (Alloy et al., 1988) that suggested (d) that dysphoric subjects with depressive attributional style would probably report significantly higher numbers of serious negative life-events in their past than dysphorics without this attributional style.

Method

Subjects

An initial pool of 413 Spanish secondary-school student volunteers participated in the first session of the study. Of these, 388 (178 males and 210 females) participated in the later sessions of the study and all completed the questionnaires designed to test our predictions. Their average age was 16.6 (SD = 1.5).

Materials

Scales of depressive symptoms. The study used the scale of the Center for Epidemiological Studies of Depression (CES-D; Radloff, 1977). This is a 20-item self-report instrument successfully used to assess dysphoric and depressive symptoms among adolescents (Garrison, Schluchter, Schoenbach, & Kaplan, 1989; Gotlib, Lewinsohn, & Seeley, 1995; Roberts, Lewinsohn, & Seeley, 1991; Schoenbach, Kaplan, Grimson, & Wagner, 1982;

Swallow & Kuiper, 1993). The alpha-coefficients range from .84 to .90 and the validity of the CES-D scale revealed by the correlations with other scales of depression range from .50 to .70 (Radloff, 1977). Total scores range from 0 to 60. The different studies used several different cut-off points on the CES-D scale to select depressive subjects; the most frequently used was $\leq$16 (Ensel, 1986). Myers and Weissman (1980) also use the 16 cut-off point and they report 6.1% of false positives and 36.4% of false negatives. In addition, the work of Boyd, Weissman and Thompson (1982) shows that 36% of the subjects with major depression scored less than 16 and so these authors recommend lower cut-off scores to reduce the frequency of false negatives. Because this present work was designed to study mild depression, the cut-off score was lowered to 14 (the mean score of the sample) to differentiate dysphoric from non-dysphoric subjects. In this way, 139 subjects were classified as dysphoric ($\geq$14), and 249 as nondysphoric ($<$ 14).

Our volunteers also completed the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). On this 0 to 63 points scale, scores of 10 to 17 indicate dysphoric or mild depression. Scores above 17 are more closely associated with depressive states (Kendall, Hollon, Beck, Hammen, & Ingram, 1987).

Cognitive measures. Attributional style was measured by the Attributional Style Questionnaire (ASQ; Peterson et al., 1982). We only included negative events because they correlate better with depressive affect than positive events (Fennell & Campbell, 1984; Raps, Peterson, Reinhard, Abramson, & Seligman, 1982; Seligman, Abramson, Semmell, & Von Baeyer, 1979; Seligman et al., 1984; Sweeney, Anderson, & Bailey, 1986; Vinokur & Selzer, 1975). To help adapt the original adult scale to our teenage population a pilot group of 198 volunteers from a matched student population similar to our main sample was tested. These subjects reported freely those events that usually made them feel unhappy. This pilot study only took into account those situations reported by at least 30% of the subjects. These most commonly reported events were negative achievement (4) and affiliation situations (7). These were used to construct our final scale. The sample subjects were asked to suggest in their own words the probable cause of each of the 11 hypothetical events and to rate them on the 7-point scales that measured the three attributional factors in each case.

Total scores of each factor included only the answers for those events considered to be most important for each subject (Abramson et al., 1978; Alloy et al., 1988). This means that only those items of each subject that scored $\geq$ 5 on a 7-point scale that ranged from ''not important for me'' to ''very important for me'' were taken into account. The scores of each factor were totalled to give the aggregate score and the mean score of each individual was calculated (the aggregate score divided by the number of important events).

The alpha coefficients for the ASQ scale of the two samples were, respectively .77 and .76 for the overall scale, .53 and .51 for internal-external, .76 and .79 for stable-unstable, and .86 and .82 for global-specific. These coefficients are rather high, particularly in the light of the remarks of Cole and Turner (1993, p. 278) who show that those scales that assess certain attributional dimensions have relatively low reliability, especially that of the internal-external dimension (Peterson et al., 1982).

Behaviourally oriented measures. Social-skills were assessed by the Spanish adaptation of the College Self-Expression Scale (CSES) of Galassi, Deleo, Galassi and Bastien (1974). With Spanish students, this scale revealed a test-retest reliability of .87 and an alpha of .89 (Caballo & Buela, 1988a). This scale adapted for Spain also showed a significant association

with external criteria of social skills. The results of CSES evaluations correlate closely with the results of experimental simulations of diadic interactions when evaluated by external observers (Caballo, 1993; Caballo & Buela, 1988b). Specifically, they correlate positively with general social skills and several behavioural elements such as adequate eye contact and speaking time, and correlate negatively with the number of conversational pauses.

Negative life-events. The frequency of negative life-events (NLE) experienced in recent years were evaluated by a scale of 30 weighted questions from the Life-Events and Difficulties Schedule (LEDS; Brown & Harris, 1978) adapted for adolescents. This LEDS component has two parts. The first has six weighted questions that ask how many of six severely stressful life-events the subject had experienced during the last year. The second part consists of 24 weighted questions designed to determine major difficulties that the subject might have had within the previous two years. Only when the subjects' answers indicated severe stress were the 5-point frequency scores, that range from 1 (never) to 5 (continually), summed to give the final score. In this way, when we scored the first part, we included only those events to which the subjects attributed the maximum score of 5 in a 5-point scale of severity that ranges from 1 (not severe) to 5 (very severe). In the second part, we included in the final score only the scores of those major difficulties that subjects graded as ≥ 3 on the same scale of severity.

Procedure

The questionnaires were completed by the student volunteers during their normal class-time; they answered them in the same order as they are listed above.

Results and discussion

Variables that predicted dysphoria scores

To explore the usefulness of the ASQ, CSES and LEDS scores as potential predictor variables we carried out a stepped-multiple-regression analysis of the CES-D scores of the dysphorics. Firstly, the ASQ score was included in the regression equation; gave a significance of $\beta = .34$, $R = .40$, ($F(1, 145) = 27.1$, $p < .001$); the R^2 showed that it accounted for 15.8% of the variance on the CES-D scores. In Step 2, the CSES score included in the regression equation was found to be a significant predictor; $\beta = -.32$, $R = .50$, ($F(2, 144) = 23.8$, $p < .001$); and it accounted for an additional 9% of variance. In general, the dysphoria scores were predicted by the individual measures of attributional style and social skills; they accounted for 24.8% of the variance. Negative life-events did not meet the criteria for inclusion in the regression model.

Identification and differentiation of different subtypes of dysphoria

Four groups of dysphorics were identified and differentiated from the distributions of their ASQ and CSES scores. Four groups of individuals clearly emerged whose scores had standard deviations of 0.25 above and below the mean. (a) *Non-Cognitive-non-Behavioural* (nC-nB) dysphoric subjects with no deficits in either ASQ or CSES scores (23 subjects). (b) *Non-Cognitive-Behavioural* (nC-B) dysphoric subjects with positive (low) ASQ scores

and whose low CSES scores reflected social-skill deficits (42 subjects). (c) *Cognitive-non-Behavioural* (c-nB) dysphoric subjects with high ASQ scores that reflected a negative attributional style, but normal CSES scores (24 subjects). (d) *Cognitive-Behavioural* (C-B) dysphoric subjects with high ASQ scores (negative attributional style) accompanied by low CSES scores (social-skill deficits) (38 subjects). The chi-square statistical independence test of these four groups revealed the complete independence of the ASQ and CSES variables that we employ to form the groups of dysphorics (χ^2 (1, 1) = 0.4, (n.s.)). In other words, we found no dependence between the presence or absence of ASQ cognitive deficits and the presence or absence of CSES behavioural deficits.

Figure 1 shows the pattern of the differences between the mean dysphoria scores of the four dysphoric groups (nC-nB, nC-B, C-nB and CB). The significant differences between the means of the four groups revealed by the Kruskal-Wallis test were: for CES-D (H = 11.36; $p < .01$); and for BDI (H = 11.92; $p < .01$). A non-parametric a posteriori comparison test at the .05 level that used the method of Leach (1979) revealed significant differences between the nC-nB group and the other three groups (nC-B, C-nB and C-B) for CES-D. Similarly, the BDI showed significant differences of nC-nB from C-nB and from C-B (analagous to the CES-D differences). However, in this case there was no significant difference between nC-nB and nC-B, but nC-B and C-B were significantly different. The BDI scores of the nC-nB group were less than the cut-off score of 10 that is the lower limit of dysphoria or mild depression (Kendall et al., 1987).

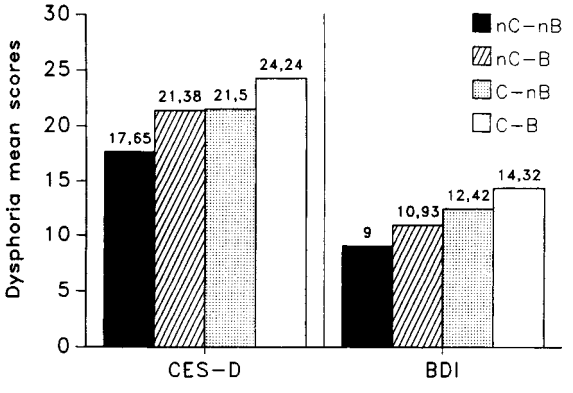

Figure 1. Mean dysphoria scores of *non-Cognitive-non-Behavioural* (nC-nB) dysphorics, *non-Cognitive-Behavioural* (nC-B) dysphorics, *Cognitive-non-Behavioural* (C-nB) dysphorics, and *Cognitive-Behavioural* (C-B) dysphorics (N = 127). (CES-D: Center for Epidemiological Studies of Depression Scale. BDI: Beck Depression Inventory)

Comparison of negative life-events of non-dysphoric and dysphoric groups

The dysphoric group nC-nB appeared to contribute little to our hypothesis that differences in negative life-events between dysphoric subjects might depend on whether or not they have a depressive attributional style. For this reason, we included the non-dysphoric group in the analysis to compare the respective levels of negative life event scores with those of the nC-B, C-nB and C-B dysphoric group. Significant differences were detected between

the negative life-events (NLE) ($H = 18.02$, $p < .01$) of all four groups: (a) the non-dysphoric group; (b) the nC-B dysphoric group; (c) the C-nB dysphoric group; and (d) the C-B dysphoric group (Figure 2). The non-parametric a posteriori test ($p < .05$) revealed a higher frequency of negative life-events in C-nB dysphorics and C-B dysphorics than in the nC-B dysphorics. It is noteworthy that this test also revealed that the nC-B group showed a similar NLE frequency to that of the non-dysphoric group. As expected, these analyses clearly revealed that severe negative life-events were found more frequently in those dysphorics with a depressive attributional style than in dysphorics with social-skill deficits and an intact attributional style.

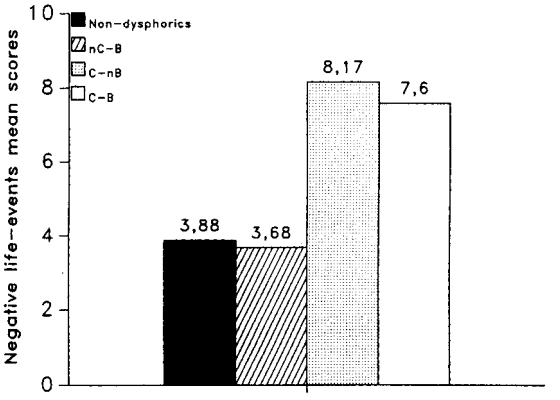

Figure 2. Mean scores of negative life-events for groups of non-dysphorics, *non-Cognitive-Behavioural* (nC-B) dysphorics, *Cognitive-non-Behavioural* (C-nB) dysphorics, and *Cognitive-Behavioural* (C-B) dysphorics ($N = 243$)

Study 2

In the first part of Study 2, we used the same methods as in Study 1 to differentiate the four dysphoric groups. We tested ASQ and CSES to find if they might again predict dysphoria scores. We also tested the independence of the four dysphoric groups differentiated earlier with these variables. In the second part of Study 2, we aimed to determine if the differentiation of two dysphoria subtypes would help choose the most effective treatment; either cognitive or behavioural.

Method

Subjects

1. Replication of Study 1. From an initial pool of 618 Spanish secondary-school student volunteers, 579 (302 boys and 277 girls) took part in the later sessions of the study and all completed the questionnaires designed to test our predictions. The mean age of this sample group was 15.2 ($SD = 1.3$). The partial replication of Study 1 used the same cut-off score of 14 on CES-D scores. This classified the subjects into 341 dysphorics and 238 non-dysphorics.

2. Treatment comparison. Of the 579 volunteers, 116 complied with the selection criteria to be assigned to either the *Cognitive-non-Behavioural* or the *non-Cognitive-Behavioural* dysphoric group. Of these 116, 19 declined to be treated or did not complete their treatment programmes so that, finally, only 31 subjects, 10 boys and 21 girls (mean age: 15.5 years; $SD = 1.74$) attended all the treatment sessions and their answers to their questionnaires satisfied the following four conditions for admission to therapy. (a) They had no panic disorder; no major depressive disorder (to ensure homogeneous treatment-groups); no obsessive-compulsive disorder; no present or past alcohol or drug dependencies, or both (criteria of American Psychiatric Association, DSM-III-R, 1987). (b) Their BDI answers contained no suicidal ideation. (c) They had no previous psychological or psychiatric treatment. (d) They had no past or present serious physical illness.

Materials

Again, all subjects were assessed by their BDI, CES-D, ASQ and CSES scores. We designed a questionnaire to identify and eliminate those subjects whose answers did not satisfy the previously mentioned conditions.

Treatment comparison procedure

Subjects received either structured group-based cognitive treatments, or structured group-based behavioural treatments in eight weekly, one-hour, sessions. To compare treatment effectiveness, the subjects of the *Cognitive-non-Behavioural* and *non-Cognitive-Behavioural* dysphoria groups were assigned to one of the four treatment subgroups (two cognitive and two behavioural) in such a way that the four treatment subgroups (two matched treatments and two non-matched treatments) were nearly equal in size.

Treatment procedures. (a) Cognitive treatment contained the main components of cognitive therapy (Beck et al., 1979), combined with the therapeutic strategies suggested by Abramson et al. (1978) and Weiner (1988) to reorient the subjects' attributions. However, we did not use the task assignments and activity schedules of the Beck method. The therapeutic sessions had three objectives: to give the subjects a cognitive understanding of their transient emotional disturbances; to seek positive evidence that the therapist might use to counter the subjects' negative attributions; and to reorientate and correct any erroneous conclusions that the subjects might have derived from their negative attributions. (b) Behavioural treatment, on the other hand, aimed to help the dysphoric subjects to develop satisfactory behavioural skills so that they might cope better with social situations and to help them adopt more assertive behaviour patterns (Antonuccio, Ward, & Tearnan, 1989; Reed, 1994). Additionally, the therapeutic sessions taught how socially inappropriate behaviour causes emotional disturbance and helped the subjects recognize the appropriate social skills for different situations. The therapists offered advice and the subject members of the therapeutic group learned to demonstrate repeatedly the appropriate social skills so that positive and negative feedback responses of individual subjects helped them and the other members of the group to deal with the different situations presented by the therapists.

Each treatment was carried out jointly by two recently qualified clinical psychologists, but approved for clinical psychology work by the University of Málaga Psychological Coun-

selling Service and specifically trained in the theory and practice of these two types of treatments. The therapists were unaware both of the aims of the study and of the clinical conditions of their assigned subjects. The therapists had to conform to a strict protocol for each treatment session. After each treatment session, the therapists met with the first author of this work to ensure that the therapists had complied with the designed treatment protocols.

Matched and non-matched treatment conditions. (a) Matched treatment. Eight subjects from the cognitive dysphoric subtype were treated with cognitive treatment and seven subjects from the behavioural-dysphoric subtype were treated with behavioural treatment. (b) Non-matched treatment. Seven subjects from the cognitive dysphoric group were treated with behavioural treatment and nine subjects from the behavioural-dysphoric group were treated with cognitive treatment.

After the eight treatment sessions of the four groups were finished, to comply with the ethics of therapy, we offered treatments appropriate to their condition to those subjects who had received the non-matched treatments.

Results and discussion

Replication procedure to identify and differentiate the two different subtypes of dysphoria

We carried out a stepped-multiple-regression analysis of the CES-D scores of dysphoric subjects, and of the ASQ and CSES scores to test their potential as predictor variables. ASQ was the first significant predictor variable; $\beta = .37$, $R = .36$, ($F(1, 329) = 50.1$, $p < .001$), and R^2 showed that it accounted for 13.2% of the variance. Social-skills entered in Step 2 and they were also significant, $\beta = -.14$, $R = .42$, ($F(3, 327) = 23$, $p < .001$). The increase in R^2 with this step was 2.1%.

The dysphoric subjects were classified again according to their ASQ and CSES scores (0.25 *SD* above and below the mean). In this way, the four dysphoric groups were identified and differentiated. As in Study 1, the scores of 239 subjects were clearly separated and formed four dysphoric groups (nC-nB group with 40 subjects; nC-B group with 65 subjects; C-nB group with 51 subjects; and C-B group with 83 subjects) completely independent ($\chi^2(1, 1) = .00$, n.s.).

The results of Study 2 were very similar to those of Study 1 and they showed clearly that the cognitive (ASQ) and behavioural (CSES) variables were significantly associated with depression; however, they were not mutually associated when used to separate the dysphoric subjects into the different subtypes of dysphoria.

Comparative effectiveness of matched and non-matched treatments

With BDI pre-treatment scores as the covariate ($F = 10.76$, $p < .001$), ANCOVAR analysis revealed that the main effects on BDI scores were non-significant for both the two inter-subject variables: dysphoric subtype (*Cognitive-non-Behavioural* vs. *non-Cognitive-Behavioural*) ($F(1, 24) = 1.76$, n.s.); and type of treatment (cognitive vs. behavioural) ($F(1, 24) = 2.75$, n.s.). The effects of the interaction between dysphoric subtype and type of treatment ($F(1, 24) = 0.93$, n.s.) were also non-significant (Figure 3a). Because covariance analysis of the CES-D scores revealed no significant ANCOVAR effects of the covariate (the CES-D pre-treatment scores), we carried out ANOVA with the following variables; the

first two as inter-subject variables and the last as an intra-subject variable: (a) dysphoria subtype (*Cognitive-non-Behavioural* vs. *non-Cognitive-Behavioural*); (b) type of treatment (cognitive vs. behavioural); and (c) the treatment phase (pre-treatment vs. post-treatment).

The only main effect that showed statistical significance was treatment-phase (F (1, 26) = 38.42, $p < .001$) and this showed that treatment decreased the dysphoria scores. None of the interactions showed statistical significance at $p < .05$ level, although the interactions between the three variables came very close to being significant (F (1, 26) = 3.95, $p = .057$). The greatest decrease in dysphoria scores occurred when appropriate treatments were given to the two dysphoria subtypes; that is to say, when the subjects with Cognitive-non-Behavioural dysphoria received cognitive treatment and the subjects with non-Cognitive-Behavioural dysphoria received behavioural treatment (Figure 3b).

The results of the differential treatment effects (2 × 2 groups) suggested that we should compare the overall effectiveness of matched versus non-matched treatments on the CES-D scores of subjects. We again carried out ANOVA with two variables; matching treatment (matched vs. non-matched) as an inter-subject variable, and treatment phase (pre- vs. post-treatment) as an intra-subject variable. Again, ANOVA analysis revealed that treatment-phase effect was significant (F (1, 28) = 40.19, $p < .001$), but matching treatment condition was non-significant (F (1, 28) = .38, n.s.). However, the interaction term (F (1, 28) = 4.09, $p < 0.05$) showed that the decreases of dysphoria scores were higher for matched than for non-matched treatments. A comparison that used Student's t test for related samples showed that the post-treatment scores of the matched treatment subjects had smaller dispersions than those of the pre-treatment phase. This suggested that matched treatments had an additional advantage, even though these smaller dispersions were not statistically significant (t (13) = 1.36, n.s.). On the other hand, the post-treatment CES-D scores of non-matched-treatment subjects were more widely dispersed than those of the pre-treatment phase (t (15) = 1.98, $p < .05$). Interestingly, the improvements shown by the subjects in the post-treatment phase of non-matched treatments were not only less than those of the matched treatment subjects, but the beneficial changes in the different subjects produced by matched treatments were much more uniform than those of the non-matched treatment subjects. It is

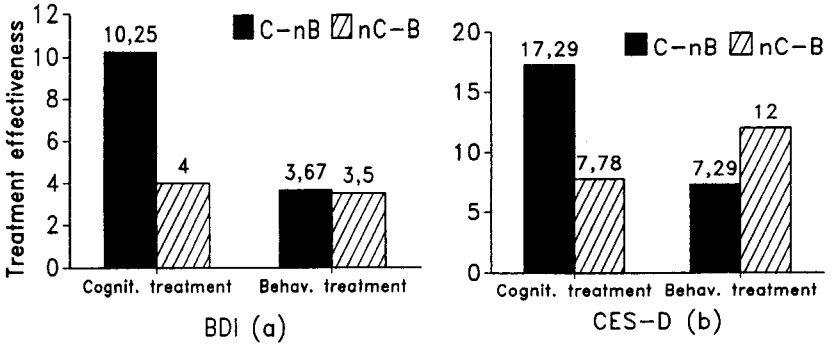

Figure 3. Treatment effectiveness. The bar heights represent the differences between the means of pre-treatment and post-treatment dysphoria scores of *Cognitive-non-Behavioural* (C-nB) dysphorics, and *non-Cognitive-Behavioural* (nC-B) dysphorics. (BDI: Beck Depression Inventory. CES-D: Center for Epidemiological Studies Depression Scale)

particularly noteworthy that the effects of non-matched treatments of individual subjects varied greatly.

General discussion

The results of Study 1, and of the first part of Study 2, showed that both cognitive and behavioural deficits predicted significantly dysphoria scores. The regression analyses revealed that attributional style best predicted depression. This result appears to conform to the attributional vulnerability hypothesis of the hopelessness theory of depression (Abramson et al., 1989; Alloy et al., 1988) and also to its predecessor, the reformulated helplessness theory (Abramson et al., 1978). Our results revealed that social skills also predicted significantly dysphoria scores, and they appear to support the approach of Lewinsohn (1975).

We postulated that these cognitive and behavioural factors would serve to differentiate two new subtypes of dysphoria and our results appear to support this prediction. In both studies, as the chi-square test indicates, there were four groups of dysphorics clearly separated by the independent scores of attributional style and social-skills. The non-Cognitive-Behavioural (nC-B) dysphorics showed social-skill deficits and the Cognitive-non-Behavioural (C-nB) dysphorics showed attributional style deficits. Subjects of the Cognitive-Behavioural (C-B) dysphoric group showed both type of deficits. The non-Cognitive-non-Behavioural dysphoric group (nC-nB) appeared to be less dysphoric than the other three because they showed the lowest dysphoric scores. Moreover, the BDI scores of nC-nB dysphoric subjects were very similar to those of the non-dysphoric subjects and the scores of both groups were less than the cut-off score of 10, the lower limit of dysphoria or mild depression suggested by Kendall et al. (1987), while the scores of the nC-B, C-nB and C-B subjects indicated unequivocally their dysphoria or mild-depression (Figure 1).

These results should be interpreted taking into account that this classification of dysphoric subjects according to the presence or absence of deficits of attributional style and social skills used the cut-off points of 0.25 *SD* above and below the mean. This might over-categorize those marginal subjects with only slight deficits, or those with absence of deficits, because the 0.25 *SD* criteria is not very selective. A stricter statistical analysis like, for example, 0.50 *SD* would help categorize more precisely the doubtful marginal subjects. Nevertheless, in spite of the low selectivity of the 0.25 *SD* criteria, the matched cognitive and behavioural treatments clearly reduced the appropriate dysphoria. Future works would aim at classifying more precisely the dysphoria subjects by adopting more critical cut-off points that might have more clinical relevance and significance.

The fact that we found very significant differences between the negative life-events' scores of non-dysphoric and dysphoric groups is noteworthy, particularly the difference between nC-B and C-nB dysphoric groups (Figure 2). Negative life-events appeared to be closely related to deficiencies in attributional style, but not to deficiencies of social skills. This finding supported the diathesis-stress hypothesis of hopelessness theory of depression that states that interaction between attributional style and negative life-events (diathesis-stress component) would predict one cognitive subtype of depression (Abramson et al., 1988; Alloy et al., 1988). In addition, this finding appears to contradict the results of Parry and Brewin (1988), who report that stressful events and cognitive vulnerability to depression might be independent and this could be explained by the fact that they worked

with depressed psychiatric ‘‘cases’’, while our subjects were only dysphorics or mildly-depressed. Brewin (1985) suggests that attributions, like several other cognitions, seem to be influenced by the depressive state and may well form part of a vicious circle of continual interactions between depressed mood and negative cognitions that progressively intensify the depressive state (Blaney, 1986; Teasdale, 1985; Teasdale & Dent, 1987). In this way, depressions could intensify even when the depressed subjects had not experienced negative life-events.

Treatment effectiveness measured by the CES-D scale revealed that matched treatments appeared to be more effective than the non-matched treatments. Because these results were very nearly statistically significant, they might have interesting theoretical and clinical implications. They appeared to support our hypothesis about cognitive and behavioural subtypes of dysphoria or mild depression. In addition, the results suggested, as expected, that it might be possible to improve the treatment effectiveness of mildly depressed subjects by taking into account those theoretically-relevant factors specifically related to one of the two subtypes of dysphoria or mild-depression. Interestingly, we found no differences between the effectiveness of cognitive and behavioural treatments when these were not related to the subtype of the dysphoric subject treated.

No significant differences were found between the BDI scores of cognitive and behavioural treatments when we compared the two subtypes of dysphoria. The fact that this sensitive scale gave such a nonsignificant result might be due to the fact that the items of the scale were not designed to detect evident improvement in post-treatment depression that is mainly characterized by social-behaviour deficits. This might explain why the BDI scores of *non-Cognitive-Behavioural* dysphoric group showed no differential improvement between the two treatment types (Figure 3a), but, on the other hand, there were significant differences between the CES-D scores (Figure 3b).

To interpret these results one must take into account the fact that the sample population of dysphoric subjects that received the treatments was necessarily small because it is always very difficult to organize groups of volunteers for treatments of what might appear to them as inconsequential and unimportant problems. In view of the small number of subjects, we decided to compare statistically the overall effectiveness of ‘‘matched’’ versus ‘‘non-matched’’ treatments because this comparison should appreciably increase the number of subjects assigned to each experimental condition. Our experience leads us to suggest that more research about differential treatments and with larger numbers of subjects is needed to produce more informative results. Furthermore, the results of future studies would be strengthened and made more meaningful if the treatments could be further evaluated by video or audio recordings of the treatment sessions to confirm that the appropriate treatment was given.

The above findings suggest interestingly that *Cognitive-non-Behavioural* and *non-Cognitive-Behavioural* dysphoric subtypes might later develop more serious depressive disorders. In other words, each dysphoria subtype might be the precursor of one of several different depressive states not yet fully differentiated. That there might be evolution towards a potentially more serious form of depression is suggested (a) by the theoretical and statistically significant influence of the several factors used to differentiate the dysphoric subtypes; (b) by the replicated statistical independence of these dysphoric subtypes; and (c) by the differential responses of CES-D scores to treatment. However, because the cross-sectional design of these studies is non-sequential, non-longitudinal, we cannot do more

than make reasonable inferences about the possible evolution of these subtypes of dysphoria that are based on knowledge of other similar conditions. We can only surmise, as Alloy et al. (1988) suggest, that there might be several depressive subtypes and that these could be differentiated by comparing their causal factors. The factors that we selected to distinguish the two subtypes of dysphoria might also serve to differentiate a number of subtypes of more severe depression. We could test this hypothesis about differential depressogenesis by extending this line of research with a series of longitudinal studies over three or more years to compare the differential evolution of the symptom profiles of the subjects of the two dysphoric groups.

In conclusion, the results of this work supported our hypothesis that two subtypes of dysphoria could be differentiated and they lend support to the hypothesis that there is a diathesis-stress component in cognitive depression. The increased frequency and seriousness of the negative life-events reported by *Cognitive-non-Behavioural* dysphorics clearly differentiated them from *non-Cognitive-Behavioural* dysphorics. In addition, when dysphoria was measured on the CES-D scale, the relative effectiveness of the treatments appeared to confirm that there are two subtypes of dysphoria. Finally, we agree with Depue and Monroe (1978), Coyne (1994), and Fechner-Bates, Coyne and Schwenk (1994), that results obtained from a population of mild depressives or dysphoric subjects are not necessarily valid for populations of more severe depressives. However, our results suggest that sequential studies of dysphoric subjects that use parameters similar to those of this present work would effectively identify the incipient phases of more intensive depressions and permit early treatment. Such sequential studies would effectively test the vulnerability hypothesis.

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Resumen: En el primer estudio, se puso a prueba la hipótesis de que podría haber dos subtipos de disforia. La comparación de las deficiencias características de los adolescentes disfóricos en estilo atribucional y en habilidades sociales permitó diferenciarlos en dos subtipos, sugiriendo que los tratamientos emparejados con cada subtipo de disforia podrían ser más efectivos que los tratamientos no emparejados. Tal como se predice en la teoría de depresión por desesperanza (Alloy, Abramson, Metalsky y Hartlage, 1988), los disfóricos caracterizados por un estilo atribucional depresogénico y habilidades sociales adecuadas informaron de un número significativamente superior de acontecimientos vitales negativos que los disfóricos caracterizados por deficiencias en habilidad social y un estilo atribucional saludable. En el segundo estudio, los tratamientos emparejados con los subtipos de disforia fueron más efectivos que los tratamientos no emparejados. Los autores sugieren que estudios longitudinales podrían indicar que algunos estados disfóricos se intensifican y que los tratamientos emparejados podrían frenar depresiones potencialmente graves.

Palabras-clave: Disforia en adolescentes, habilidad social, estilo atribucional, tratamiento emparejado.