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Journal of Psychosomatic Research 55 (2003) 553–560

Journal of Psychosomatic Research

Alexithymia in parents of daughters with eating disorders Its relationships with psychopathological and personality variables

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Received 19 December 2001; accepted 27 November 2002

Abstract

Objective: The purpose of this research was to investigate alexithymia among parents of a daughter with eating disorders (EDs) and to relate alexithymia to personality and psychopathology characteristics. **Method:** Parents of 73 women with ED (20 with anorexia nervosa, restrictive subtype (ANR), 23 with anorexia nervosa, bulimic subtype (ANB) and 30 with bulimia nervosa (BN)) and parents of 72 normal women were evaluated with the Toronto Alexithymia Scale (TAS-20), the Eysenck Personality Questionnaire, the Beck Depression Inventory and the Self-Rating Anxiety Scale. **Results:** The parents of daughters with ED show higher scores in the TAS-20 and its factors than the controls. TAS-20 scores of parents are associated with neuroticism, anxiety and depression. **Conclusion:** Alexithymia in parents of daughters with an ED could be a trait of personality, but it could also be a state due to distress. Alexithymia should be taken into account in order to help these parents express emotions.

Keywords: Alexithymia; Eating disorders; Parents; Personality; Psychopathology

Introduction

Alexithymia is characterised by: (1) difficulty identifying and describing subjective feelings; (2) difficulty distinguishing between feelings and the bodily sensations of emotional arousal; (3) lack of fantasy; and (4) an externally orientated cognitive style [1]. Several authors suggest that these features might be due to a deficit in the cognitive processing of emotions [2,3]. Alexithymia is related positively to neuroticism and depression [4–8], anxiety [9–11], psychoticism [8] and introversion [6,7], and negatively to extraversion and sociability [5,6,12,13].

With regard to the question of alexithymia being a personality trait or a state due to distress and depressive mood, some authors have suggested that alexithymia is a trait [14–18] that could strengthen depression [7,19]. Corcos et al. [20] suggested that alexithymia is a state associated with depression and serious physical illness [21]. Finally, other authors suggested that alexithymia could be both a state and a trait [4,22,23].

Alexithymia has been found in many different pathologies: somatoform disorders, alcoholism, drug addiction, posttraumatic stress, asthma, depression, eating disorders (EDs) and so on [24]. Bruch [25–27] suggested that the difficulty in distinguishing and describing feelings, as well as in recognizing and responding to emotional states and visceral sensations, constitutes the main deficit in EDs. Later studies have confirmed that alexithymia is present in EDs [10,20,22,23,28–34]. Taylor et al. [34] stated that there is a deficit in the cognitive processing of emotions in EDs.

Several authors have related alexithymia to inadequate parenting in childhood [33,35–40]. Dahlman [41] found that the mothers of daughters with ED were more alexithymic than the mothers of daughters from the group without pathology. They were less able to distinguish emotions and their families were more conflictive. Onnis and Di Genaro [42], following the description made by Minuchin et al. [43] about "psychosomatogenic families", outlined that alexithymia, more than an individual problem, is the symptom of a family that avoids conflict and emotional tensions. These

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doi:10.1016/S0022-3999(03)00016-3

authors suggested that the difficulties in expressing emotional experiences verbally are due to the blockade of emotions in these families in order to avoid conflicts and maintain a "myth of harmony". The somatic symptom would be the language of the whole family. According to the study carried out by Humphrey [44], families of bulimics, on the one hand, were hostile, detached and impulsive, and parents, on the other hand, were not empathic and presented a deficit in parenting. In families of bulimic anorexics, these features were less accused while in restrictive anorexics' parents, they were more positive.

In order to evaluate alexithymia, the most validated and reliable instrument is the Toronto Alexithymia Scale (TAS) developed by Taylor et al. [45], which has suffered several changes up to the 20-item version (TAS-20) [46–48]. The last version has three factors: (1) difficulty in identifying and distinguishing feelings from physical sensations due to emotional arousal; (2) difficulty in expressing feelings; and (3) externally orientated thinking.

The aim of this study was, on the one hand, to establish whether alexithymia is present in parents of daughters with an ED (anorexia nervosa and bulimia nervosa (BN)), comparing them with one another and with a control group with similar sociodemographic characteristics, and on the other hand, to relate alexithymia to psychopathologic and personality variables.

Method

Subjects

The sample comprised 73 married couples, parents of a woman with an ED who were sent to us by the Association Against Anorexia and Bulimia of Euskadi (ACABE), linked to the Public Health Services. The criteria for selecting the sample were: diagnosis of ED as outlined in the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) [49], age between 14 and 33 years and a minimum illness duration of 6 months. The exclusion criteria were the following: to be currently receiving psychotherapeutic treatment and/or to require hospital income. The sample was distributed as follows: 20 women with anorexia nervosa, restrictive subtype (ANR); 23 with anorexia nervosa, bulimic subtype (ANB); and 30 with purgative BN. The control group, composed of 72 married couples, was recruited from the general population and was homogenous in sociodemographic characteristics such as sex, age, environment, economical level and studies. The inclusion criteria for the control group were the following: age of women similar to that of the patients in the ED group; daughters should not have purgative behaviours, binges or diets; and they should punctuate less than 30 on the Eating Attitudes Test [50] and less than 6 on the General Health Questionnaire-28 (GHQ-28) [51]. Volunteers of the control group were excluded if there existed current or past history of severe physical or mental disorder in any of the members of the nuclear family. This study was conducted in conjunction with a larger research program investigating family characteristics in different pathologies.

From the overall sample, the majority came from an urban environment (91%), 17.9% had a low socioeconomical level, 43.4% a middle one and 38.6% a high one; 58.5% of the fathers and 75.9% of the mothers had primary or lower studies; 1.4% of the fathers and mothers did not study; 60.7% of the fathers and 19.4% of the mothers had a professional range between medium degree and qualified worker; 59.3% of the mothers were housewives.

Measures

(1) The Toronto Alexithymia Scale (TAS-20) [46], a 20-item self-report scale that has three factors [11,47]: F1, difficulty in identifying feelings; F2, difficulty in describing feelings to others; and F3, externally orientated thinking. The cut-off score of 60 reported by Taylor et al. [34] was used. The validated Spanish version of this scale was used [52,53], it showed acceptable internal consistency.

(2) The Beck Depression Inventory (BDI) [54], a 21-item self-report questionnaire.

(3) The Self-Rating Anxiety Scale (SAS) [55], a 20-item self-report questionnaire with statements on a four-point scale of severity.

(4) GHQ-28 [51], a 28 item self-report that is designed to assess the general mental health state. The cut-off score used was 6.

(5) Eysenck Personality Questionnaire-Adult (EPQ-A) [56]. On the analyses, we have used *T* scores for normal population. This questionnaire has four scales: Neuroticism (N), Extraversion (E), Psychoticism (P) and Lie (L).

Procedures

In order to request their collaboration in the study financed by the University of the Basque Country, we got in touch with ACABE, We informed them about the selection criteria and gave them information for the patients and relatives. The families that were interested were sent to us by ACABE, contacting directly with us after a first telephone call in which they were given a date to verify the diagnosis and the selection criteria. If they passed the selection criteria, then the study variables were evaluated. We offered them a diagnostic report about the pathology of the daughter and information about ED. The level of collaboration was very high.

Patients were consecutively evaluated as they were sent to us by ACABE. Four clinical psychologists, trained in the administration of the assessment measures, evaluated the individuals to gather information about the history of the illness, weight and height. The procedure of evaluation had a fixed structure. Once the family (parents and

daughter) was cited, three members of the unit presented themselves and gathered sociodemographic and family data. Afterwards, they went to different rooms, each member of the unit with a member of the family. A psychologist of the unit interviewed the patient to gather information about the history of the illness and to administer the scales of symptoms, and made a diagnosis according to the criteria of DSM-IV [49]. The questionnaires to evaluate the study variables were also administered to the parents in a separate way. Information about sociodemographic and clinical variables and the case history were also gathered from the parents.

The control group was recruited from the general population by advertising in associations linked to social and healthy activities, informing that we were performing a study in the University about the impact of the illness in the families and that we needed families without physical or psychical pathology as a control group. If they wanted to participate, they were given a date in which we could see if they passed the selection criteria, and if it they did, we proceeded to evaluate the study variables as we did with the experimental group. Written informed consent was obtained from all participants.

Table 1
Characteristics of the parents and daughters by groups

	ANR, $n=20$		ANB, $n=23$		BN $n=30$		Control $n=72$	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Daugther								
Age	17.85	3.30	19.09	5.02	19.67	3.15	19.76	3.08
Age at onset	16.05	2.48	17.04	2.74	16.53	2.26		
Months of illness	22.21	17.40	35.78	27.00	37.20	21.81		
BMI	16.31	1.57	16.74	1.21	21.96	2.82		
EAT	61.50	13.30	62.04	13.74	53.73	11.37	11.01	6.59
BDI	23.55	9.13	25.87	8.08	21.70	6.34	4.32	4.27
SAS	44.75	8.46	45.96	8.17	45.07	7.39	30.83	3.88
GHQ							1.43	1.82
Father								
Age	50.65	6.27	51.43	7.35	50.57	6.26	51.537	4.75
BDI	5.80	5.73	11.74	9.51	7.00	4.86	3.46	4.01
SAS	31.85	6.52	35.78	6.27	32.73	4.68	31.17	5.14
GHQ							1.13	2.08
TAS-20	53.55	9.86	56.13	13.08	53.50	11.63	48.22	12.28
F1	16.15	4.90	17.13	6.66	16.80	6.30	14.22	6.07
F2	12.85	3.39	14.52	4.84	13.30	4.70	12.61	4.98
F3	24.55	4.24	24.48	4.74	23.40	4.77	21.39	4.66
Mother								
Age	48.80	5.90	48.52	8.12	49.43	6.30	49.74	4.68
BDI	12.85	7.89	11.04	6.79	11.03	5.63	5.08	4.81
SAS	40.00	6.17	40.13	7.84	38.03	6.15	32.28	5.91
GHQ							2.56	3.27
TAS-20	56.40	12.53	58.83	13.37	56.43	12.19	48.44	11.09
F1	16.90	6.35	19.13	5.89	17.67	7.38	15.10	6.22
F2	14.20	4.79	15.04	5.28	15.27	4.40	12.96	4.23
F3	25.25	5.50	24.61	5.21	23.50	5.18	20.39	4.54

ANR = anorexia nervosa, restrictive subtype; ANB = anorexia nervosa, bulimic subtype; BN = bulimia nervosa; EAT = Eating Attitude Test; BMI = body mass index; TAS-20 = Toronto Alexithymia Scale-20; F1 = factor 1; F2 = factor 2; F3 = factor 3; SAS = Self-Rating Anxiety Scale; BDI = Beck Depression Inventory; GHQ = Goldberg Health Questionnaire.

Table 2
Comparisons in TAS-20 and its factors between ED and control groups

	Group	n	Mean	S.D.	$t(df=143)$	P
FF1	ED	73	16.73	6.00		
	Control	72	14.22	6.07	2.497	.014
FF2	ED	73	13.56	4.42		
	Control	72	12.61	4.98	1.216	.226
FF3	ED	73	24.05	4.59		
	Control	72	21.39	4.66	3.473	.001
FTAS	ED	73	54.34	11.57		
	Control	72	48.22	12.28	3.089	.002
MF1	ED	73	17.92	6.63		
	Control	72	15.10	6.22	2.642	.009
MF2	ED	73	14.90	4.75		
	Control	72	12.96	4.23	2.603	.010
MF3	ED	73	24.33	5.26		
	Control	72	20.39	4.54	4.827	.000
MTAS	ED	73	57.18	12.54		
	Control	72	48.44	11.09	4.440	.000

ED = Eating disorders; FTAS = Toronto Alexithymia Scale-20, fathers; FF1 = factor 1, fathers; FF2 = factor 2, fathers; FF3 = factor 3, fathers; MTAS = Toronto Alexithymia Scale-20, mothers; MF1 = factor 1, mothers; MF2 = factor 2, mothers; MF3 = factor 3, mothers.

For the statistical analysis, the sample was divided in three ways: (a) Into two groups: couples with a daughter with an ED (ED group; $n=73$) and couples with daughters without pathology (control group; $n=72$). (b) Into four groups: couples with a daughter with ANR (ANR group; $n=20$); couples with a daughter with ANB (ANB group; $n=23$); couples with a daughter with BN (BN group; $n=30$); and the control group ($n=72$). (c) Into a group of alexithymic (TAS-20 $\geq$ 61) vs. a group of nonalexithymic (TAS-20 $<$ 61) parents, to compare ED and control groups in alexithymic/nonalexithymic parents. The analysis were performed separately for fathers and mothers.

The statistical analyses used were: multivariate analysis of variance (MANOVA), univariate analysis of variance (ANOVA) with Scheffé's multiple comparisons "post hoc", analysis of covariance (ANCOVA) with Scheffé's multiple comparisons "post hoc" with Bonferroni's interval adjustment, Student's t test, χ^2 test, Fisher's exact test for 2×2 tables, stepwise multiple linear regression, multinomial logistical regression and Pearson's correlations, performed with the Statistical Package for the Social Sciences (SPSS) V. 10.

Results

Clinical and sociodemographic characteristics are shown in Table 1.

We compared the three ED groups in the TAS-20 and its factors in fathers and mothers separately, and we found no statistically significant differences.

Table 3
Comparisons between ED and control groups in alexithymics/non-alexithymics (fathers and mothers)

	ED group		Control group			
	n	%	*n*	%	χ^2 (*df* = 1)	*P*
Fathers						
TAS-20 ≥ 61	21	28.8	15	20.8		
TAS-20 < 61	52	71.2	57	79.2		
Total	73	100	72	100	1.223	.181
Mothers						
TAS-20 ≥ 61	31	42.5	13	18.1		
TAS-20 < 61	42	57.5	59	81.9		
Total	73	100	72	100	10.219	.001

TAS-20 = Toronto Alexithymia Scale-20.

Comparison between two groups: ED and control

We compared the ED and the control groups in the TAS-20 and its factors, and we found statistically significant differences in fathers and mothers, with lower scores in the control group. (See Table 2.)

We compared the ED and the control groups in the presence (TAS-20 ≥ 61) or absence (TAS-20 < 61) of alexithymia, and we did not find statistically significant differences in fathers. However, we found statistically significant differences between the two groups in mothers ($\chi^2 = 10.219$, $df = 1$, $P = .001$), with lower rates of alexithymia in the control group. (See Table 3.)

Comparisons among four groups (ANR, ANB, BN and control)

A multivariate analysis of variance (MANOVA) was conducted on the TAS-20, F1, F2 and F3 with fathers and mothers in a separate way. Overall significant group differences were observed when introducing the group variable as an intergroup factor, both in fathers [Wilks' Lambda = 0.883, $F(9,338.440) = 1.980$, $P = .041$] and in mothers [Wilks' Lambda = 0.794, $F(12,365.405) = 2.773$, $P = .001$].

A univariate analysis of variance (ANOVA) was performed in order to study if there were differences among the four groups on the TAS-20 and its factors. In fathers, differences were found on scores of the TAS-20 [$F(3) = 3.403$, $P = .020$] and F3 [$F(3) = 4.331$, $P = .006$] and the groups. When performing multiple comparisons with the Scheffé's "post hoc" test, no significant differences were found in fathers. In mothers, significant differences were found on the TAS-20 [$F(3) = 6.725$, $P < .0001$], F1 [$F(3) = 2.769$, $P = .044$] and F3 [$F(3) = 8.289$, $P < .0001$] and the groups. When performing multiple comparisons with the Scheffé's "post hoc" test, the significant differences on the TAS-20 were found between the ANB vs. the CN groups ($P = .005$) and the BN vs. the CN groups ($P = .026$). On the F3, the significant differences were found between the ANR vs. the CN groups ($P = .002$), the ANB vs. the CN groups ($P = .006$) and the BN vs. the CN groups ($P = .041$).

Since the literature [57] suggests that depression can influence personality dimensions, we performed an analysis of covariance (ANCOVA) to examine how the BDI influenced on the TAS-20 and its factors, using Group as an independent variable and BDI as a covariate. Once we verified that the interaction effect between Group × Covari-Covariate was not significant, the interaction term was eliminated. Following covariate adjustment, the results indicated that there are significant differences on the F3 in fathers, between the ANR vs. the control groups ($P = .013$) [$F(3) = 2.790$, $P = .043$, size effect = 0.056]. In mothers, there are significant differences on the F3 between the ANR vs. the control groups ($P = .005$) and between the ANB vs. the control groups ($P = .009$), with higher means in the ED groups than in the control one [$F(3) = 5.713$, $P = .001$, size effect = 0.109].

When we performed an analysis of covariance including SAS and BDI together as covariants, there only appeared statistically significant differences on the F3 in mothers between the ANR vs. the CN groups ($P = .006$) and between

Table 4
Intercorrelations among the TAS-20, its factors, scales of the EPQ, SAS and BDI in fathers ($n = 145$)

	TAS	F1	F2	F3	N	E	P	L	SAS
F1	.843**								
F2	.815**	.584**							
F3	.678**	.301**	.355**						
N	.370**	.338**	.362**	.157					
E	−.109	−.075	−.161	−.026	−.134				
P	.157	.209*	.088	.048	.220**	−.141			
L	.032	.052	.049	−.033	.013	−.002	.063		
SAS	.249**	.185*	.176*	.228**	.367**	−.205*	.221**	.012	
BDI	.280**	.214**	.245**	.200*	.351**	−.164*	.286**	−.099	.569**

TAS-20 = Toronto Alexithymia Scale-20; F1 = factor 1; F2 = factor 2; F3 = factor 3; SAS = Self-Rating Anxiety Scale; BDI = Beck Depression Inventory; N = neuroticism; E = extraversion; P = psychoticism; L = lie.

* $P < .05$.

** $P < .01$.

Table 5
Intercorrelations among the TAS-20, its factors, scales of the EPQ, SAS and BDI in mothers ($n = 145$)

	TAS	F1	F2	F3	N	E	P	L	SAS
F1	.822**								
F2	.782**	.524**							
F3	.680**	.259**	.341**						
N	.282**	.260**	.234**	.145					
E	− .079	− .032	− .110	− .051	− .085				
P	.096	.090	.082	.044	.143	.002			
L	− .163	− .116	.002	− .246**	− .043	.199*	.028		
SAS	.381**	.424**	.204*	.203*	.448**	− .112	.334**	− .093	
BDI	.379**	.402**	.211*	.217**	.557**	− .145	.250**	− .190*	.747**

TAS = Toronto Alexithymia Scale-20; F1 = factor 1; F2 = factor 2; F3 = factor 3; SAS = Self-Rating Anxiety Scale; BDI = Beck Depression Inventory; N = neuroticism, E = extraversion; P = psychoticism; L = lie.

* $p < .05$.

** $P < .01$.

the ANB vs. the CN groups ($P = .012$) [$F(3) = 5.467$, $P = .001$, size effect = 0.106], with higher means in mothers of the ANR and ANB groups.

Correlations

Correlations among the different variables were performed with fathers and mothers in a separate way. In fathers, the positive correlations between the total TAS-20 scores and its factors, among them and with the SAS and the BDI, and the positive correlations between the total TAS-20, F1 and F2 with the N scale of the EPQ and the F1 with the P scale, can be pointed out. (See Table 4.)

In mothers, positive correlations could be highlighted between the TAS-20 and its factors, among them and with the SAS and the BDI. The TAS-20, F1 and F2 correlated positively with the N scale, and the L scale correlated negatively with the F3. (See Table 5.)

Comparisons between alexithymic and nonalexithymic parents in the total sample

After dividing the sample, fathers and mothers separately, into two groups: parents with alexithymia (TAS-20 $\geq$ 61) and without alexithymia (TAS-20 < 61), both groups were compared on the BDI, SAS and EPQ scales by two-tailed t tests, with a significance level set at $P < .0083$ (0.05/6, Bonferroni correction). No statistical differences were found in fathers. Whereas the alexithymic mothers present higher means, statistically significant, on the SAS, BDI and N scales. (See Table 6.)

Regressions

After carrying out a logistic regression considering alexithymia as a dependent variable (yes/no), and SAS, BDI, N, E, P and L scores as independent variables, the results in the fathers are the following: Alexithymia is influenced by neuroticism; in fathers, low scores on the N scale are significantly related to not suffering alexithymia ($B = -0.179$, $P = .035$), predicting in a correct way 100% of the nonalexithymic fathers and 0% of the alexithymic ones. In mothers, there appears a tendency to significance in the same way ($B = -0.767$, $P = .062$), predicting in a correct way 89.1% of the alexithymic mothers and 29.5% of the nonalexithymic ones.

Finally, a series of stepwise multiple linear regressions was performed to predict the TAS-20 and its factors based on the independent variables N, E, P, L, BDI, and SAS. The results in the fathers on the TAS-20 are: $R^2 = .162$, for the N scale and BDI; for the N scale, $\beta = 0.310$, $t(142) = 3.776$, $P < .0001$; for the BDI, $\beta = 0.171$, $t(142) = 2.082$, $P = .039$.

With regard to the factors of the TAS-20 in the fathers, the results for F1 are: $R^2 = .114$, for the N scale, $\beta = .338$, $t(143) = 4.289$, $P < .0001$. For F2, the results are: $R^2 = .131$, for the N scale, $\beta = 0.362$, $t(143) = 4.646$, $P < .0001$. For F3, the results are: $R^2 = .052$, for the SAS, $\beta = 0.228$, $t(143) = 2.807$, $P = .006$. Therefore, in the fathers, the BDI and N scale were predictors of global TAS-20 scores; the N scale predicted the F1 and F2, and the SAS predicted the F3.

Table 6
Comparison between mothers with and without alexithymia on EPQ, SAS and BDI scales

	TAS-20	n	Mean	S.D.	$t(df = 143)$	P
N	≥ 61	101	31.35	26.52		
	< 61	44	50.41	30.34	− 3.806	.000
E	≥ 61	101	44.46	25.14		
	< 61	44	35.09	21.82	2.143	.034
P	≥ 61	101	49.95	26.09		
	< 61	44	54.77	22.28	− 1.068	.288
L	≥ 61	101	34.44	27.27		
	< 61	44	26.09	24.74	1.741	.084
SAS	≥ 61	101	34.43	7.38		
	< 61	44	38.89	5.76	− 3.564	.000
BDI	≥ 61	101	6.93	6.22		
	< 61	44	11.55	6.46	− 4.060	.000

TAS-20 = Toronto Alexithymia Scale-20; SAS = Self-Rating Anxiety Scale; BDI = Beck Depression Inventory; N = neuroticism; E = extraversion; P = psychoticism; L = lie.

In the mothers, the results on the TAS-20 are: R^2=.145, for the SAS, $\beta = 0.381$, $t(143) = 4{,}9836$, $P < .0001$. Regarding the factors of the TAS-20 in the mothers, the results on the F1 are: R^2=.180, for the SAS, $\beta = .424$, $t(143) = 5.597$, $P < .0001$. On the F2, the results are: $R^2 = .055$, for the N scale, $\beta = 0.234$, $t(143) = 2.873$, $P = .005$. On the F3, the results are: $R^2 = .093$, for the S scale and SAS; for the S, $\beta = -0.229$, $t(142) = -2.848$, $P = .005$; for the SAS, $\beta = 0.182$, $t(142) = 2.266$, $P = .025$. This means that in the mothers, the SAS predicts the TAS-20 and the F1, whereas the N scale predicts the F2, and the S scale and the SAS predict the F3.

Discussion

Our results showed a higher rate of alexithymia in mothers of daughters with an ED than in mothers of controls, which confirms Dahlman's [41] findings. The high scores found in the TAS-20 and its factors in parents of ED group suggest that alexithymia is related to these families, like some authors affirmed [42]. The other aspect to be considered is that the externally orientated thinking could be a characteristic of anorexics parent's.

Positive correlations of the TAS-20 with anxiety in fathers and in mothers confirm previous works [9–11,58], as well as the association with depression and neuroticism [4,12,58,59]. Parker et al. [19] stated that alexithymia differed from cognitive distortion measured by the BDI, but Wise et al. [7] suggested that depression and anxiety might favour alexithymia. Positive correlations between F1 and F2 with neuroticism support the validity of factors directly associated with emotions, whereas the association found in fathers between the F1 and P suggests that their psychoticism is related to the difficulty in identifying feelings.

The fact that BDI, SAS and N scores predict TAS-20 and its factors confirms the importance of depression, anxiety and neuroticism in alexithymia. In mothers, anxiety predicts more aspects of alexithymia; in fathers, it is neuroticism that does it.

Focusing on the relationship between alexithymia and neuroticism, Wise et al. [7] highlighted the difference between alexithymics and patients with high neuroticism: Alexithymics cannot distinguish and express their feelings, while neuroticism denotes the disposition for an individual to be quickly aroused and able to identify depression, anxiety, and hostility. The relationship between TAS-20 and neuroticism could be explained by the feeling of vulnerability and distress suffered by both types of patients. The association with the SAS would go in the same direction. Pandey and Mandal [6] suggested that alexithymia is a construct associated to neuroticism, introversion, anxiety and autonomic arousal; these authors pointed out that alexithymics and neurotics have a hypersensibility towards autonomic arousal and a susceptibility for negative emotions. Our results are similar. The relationship between social desirability and the F3 in mothers could be due to the importance given to the external world in people with an externally orientated way of thinking.

Our results, coinciding with previous reports, showed that alexithymia is closely related to anxiety and depression. On the question about alexithymia as an aspect of anxiety and depression instead of a differentiated feature of them, Hendryx et al. [4] suggested that alexithymia is a multidimensional feature. They also stated that some dimensions correspond to a state, specially factors 1 and 2 of the TAS, because they are related to a widespread anxiety response or stress in which depression would be a manifestation. These authors proposed that alexithymia can be an attempt to blockade negative emotions associated with stress. Other authors [7,19,22] indicated that alexithymics would be more vulnerable to suffer from depressive and anxious syndromes because they do not manage their emotions in interpersonal relationships. Sexton et al. [23] proposed that alexithymia could be both a state and a trait in EDs. Porcelli et al. [18] have confirmed in patients with inflammatory bowel disease that anxiety and depression are state phenomena that are influenced by the level of disease activity, whereas alexithymia is stable. Salminen et al. [17] found similar data with general psychiatric outpatients. However, neuroticism is not a state, and our findings suggest that neuroticism is strongly associated with alexithymia.

It is possible that some parents from our sample could resort to an externally orientated thinking as a way to fight stress because their difficulties with their daughters led them to block the emotions. Alexithymia might be, in this case, a reactive state to stress (secondary alexithymia), as proposed by Freyberger [60]. Another possibility could be that the parents, who were already alexithymic, having to face the family burden associated with the pathology of the daughter, are more vulnerable to suffer anxiety and depression as they cannot understand and share their emotional world. People with alexithymia cannot process cognitively emotions, which prevent them from discriminating their feelings and expressing them, orientating their thinking towards the external world. If the parents suffer an alexithymia-trait, the difficulties in the parenting would be the rule since they cannot be empathic nor help their children know the world of emotions. These assertions might be related to an origin of alexithymia based on a deficit on the parenting, as suggested by several authors [35,37,40]. Parents with primary or secondary alexithymia could have more difficulties to face their daughter's problem.

It could be convenient to evaluate alexithymia with anxiety, depression and personality variables, and to explore its possible existence previous to the ED. The differentiation of cases with primary and secondary alexithymia would be very important because cognitive therapies could be more indicated than dynamic ones on the primary form of alexithymia, as suggested by several authors [22,23,34], whereas the secondary one could be modified with a wider range of therapies. On the family

level, the existence of alexithymia in the parents of daughters with ED should be taken into account in order to help these parents expressing emotions.

Finally, limitations of this study include the absence of a group with other types of pathology and the small size of ED subgroups, suggesting that we must be cautious when interpreting these results. Future research with bigger samples, other groups of comparison and longitudinal designs studying a large population at risk before the onset of disease could help clarify the questions approached in this study.

Acknowledgments

This project was supported by a grant from the University of the Basque Country, 1/UPV 00006.231-H-13710/2001.

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