Eva Saldaña[1]
Yolanda Quiles[2]
Nuria Martín[1]
Mª del Pilar Salorio[1]

Anger as comorbid factor for interpersonal problems and emotional dysregulation in patients with eating disorders

[1]Hospital Reina Sofia de Murcia
[2]Universidad Miguel Hernández de Elche. Alicante

This work was undertaken to analyze general levels of anger in patients with eating disorders (ED) compared to a normative group, diagnosis-dependent differences in expressing anger, and the relation between anger dimensions and specific items of the *Eating Disorder Inventory*, third revision (EDI-3) (emotional dysregulation, interpersonal deficit, low self-esteem, and asceticism) and body mass index (BMI).

Methods. The study participants were 58 women with a diagnosis of ED hospitalized at the Reina Sofia General University Hospital in Murcia. The women had a mean age of 25.68 (*SD*=7.00) years. The distribution of ED diagnoses was 27.58% anorexia nervosa with food restriction (AN-R), 15.51% anorexia nervosa with purging (AN-P), 41.37% bulimia nervosa (BN), and 15.51% eating disorder not otherwise specified (EDNOS). ED was evaluated using the EDI-3 and anger was assessed with the *State-Trait Anxiety Inventory-2* (STAXI-2).

Results. The general anger levels of the patients with ED were higher than those of the normative group compared. Patients diagnosed of AN-R had significantly higher scores than patients diagnosed of BN on the internal control of anger scale. The emotional dysregulation, interpersonal deficit, low self-esteem, and asceticism scales correlated significantly with different anger dimensions. No significant relation was found between body mass index (BMI) and anger.

Conclusions. These results show the importance of including anger management in any therapeutic approach to EDs.

Keywords: Eating disorders (ED), Anger, Emotional dysregulation, Interpersonal deficit, Low self-esteem, Asceticism

Actas Esp Psiquiatr 2014;42(5):228-33

Correspondence:
Yolanda Quiles Marcos
Dpto. Psicología de la Salud
Universidad Miguel Hernández
Avda. de la Universidad s/n
03202 Elche (Alicante), Spain

La ira como factor comórbido a los problemas interpersonales y de desajuste emocional en pacientes con un trastorno de la conducta alimentaria

Los objetivos de este trabajo fueron analizar el nivel general de ira que presentan las pacientes con un Trastorno de la Conducta Alimentaria (TCA) en relación a un grupo normativo; analizar las diferencias en el control de la ira en función del diagnóstico; explorar la relación entre las dimensiones de la ira y escalas específicas del EDI-3 (desajuste emocional, déficit interpersonal, baja autoestima y ascetismo); y con el Índice de Masa Corporal (IMC).

Metodología. Participaron 58 mujeres diagnosticadas de un TCA, que eran atendidas en régimen de hospitalización en el Hospital General Universitario Reina Sofía de Murcia. La edad media fue de 25,68 años (*dt*=7,00). Un 27,58% estaban diagnosticadas de ANR; un 15,51% de ANP. Un 41,37% de BN, y el 15,51% restante de un TCANE. Para la evaluación del TCA se empleó el Inventario EDI-3 y para el estudio de la ira se aplicó el Inventario STAXI-2.

Resultados. Los análisis mostraron que los niveles generales de ira de estas pacientes eran más elevados que los de la población normativa con la que se comparó. Las pacientes diagnosticadas de ANR presentaban puntuaciones significativamente superiores que las pacientes diagnosticadas de BN en la escala control interno de la ira. Las escalas desajuste emocional, déficit interpersonal, baja autoestima y ascetismo presentaron correlaciones significativas con diferentes dimensiones de la ira. No se encontró una relación significativa entre IMC e ira.

Conclusiones. Estos resultados manifiestan la importancia de incluir en cualquier abordaje terapéutico de los TCA el manejo de la ira.

Palabras clave: Trastorno de la Conducta Alimentaria (TCA), Ira, Desajuste emocional, Déficit interpersonal, Baja autoestima, Ascetismo

INTRODUCTION

Eating disorders (EDs) consist of a set of symptoms differentiated into anorexia nervosa (AN), bulimia nervosa (BN) and eating disorder not otherwise specified (EDNOS) according to the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition, text revision (DSM-IV-TR). Eating disorders are characterized by the patient's refusal to keep body weight within minimally normal values in the case of AN, and by the existence of recurrent episodes of voracious appetite followed by inappropriate compensatory behaviors, such as vomiting or laxative use, in the case of BN. Both disorders share an altered perception of body shape and weight. The EDNOS include clinical conditions similar to anorexia and bulimia, where some criterion for considering the syndrome as complete is lacking.

These disorders have high comorbidity, which makes recovery even more difficult because other psychological, physical, and social problems develop along with the eating disorder. Among these problems is the frequent comorbidity of EDs with alcohol use, drug abuse, suicide attempts, and personality disorders.[1,2] Several authors have pointed out that patients diagnosed with ED have low self-esteem accompanied by feelings of uselessness, worthlessness, and insecurity that interfere with their adaptation and management of relationships with others, in addition to severe deficits in independence and initiative.[3-5] Most patients have symptoms of alexithymia, which can influence the severity of symptoms.[6] They also exhibit deficits in assertive behavior, which hinder their intimate, family, social, and work relationships,[7] as well as difficulties in perceiving social support.[8] These difficulties, together with severe emotional dysregulation and interpersonal deficits, can lead to angry outbursts directed by patients against others or themselves.[9]

In studies in which the mode of expression of anger in patients with ED has been analyzed, the results usually suggest a clear differentiation between patients with restrictive type AN, who often internalize the expression of anger by focusing it against themselves,[10] whereas patients with purgative type AN and BN often externalize the expression of their feelings through binge eating and recurrent induction of vomiting.[11-13] An exception to these findings is found in the study by Fassino, Abbate, Piraeus, Leombruni, and Giacomo (2001),[14] in which the differences between these groups of patients in the expression of anger, personality variables, and ED diagnosis were analyzed. The results showed that patients diagnosed of BN had higher trait anger scores, as assessed by the *State-Trait Anxiety Inventory-2* (STAXI-2), whereas patients with AN (both restrictive and purgative) had scores no higher than those of the control group. However, the authors noted that these results could be explained by the fact that the patients in the AN group might have expressed their anger by giving contradictory answers to questionnaire items. Another interesting result is found in the study by Harrison, Genders, Davies, Treasure and Tchanturia (2010),[15] in which body mass index (BMI) was correlated with anger expression; BMI showed a positive relation with external expression of anger (directed against others) and a negative relation with the internal expression of anger (directed against themselves). The internal expression of anger has been related in the literature with asceticism, which is associated with more spiritual and self-sacrificing aspects. In the study by Fassino et al (2006),[16] asceticism was significantly related with levels of anger, aggressiveness, self-destructive impulses, more frequent purging behavior, and other personality facets such as perfectionism and fear of maturity.

A review of the literature highlights the need for further studies to clarify the role of anger in these disorders in order to design effective interventions for addressing these problems. Consequently, the objectives of this work were: a) to analyze the general level of anger in patients with ED in relation to a normative group; b) to analyze differences in the control of anger in relation to diagnosis; c) to explore the relation between anger dimensions and specific scales of the *Eating Disorder Inventory*, third edition (EDI-3) (emotional dysregulation, interpersonal deficit, low self-esteem, and asceticism), and finally, d) to study the relation between body mass index (BMI) and anger dimensions.

The working hypotheses of our work were:

- If anger is a feature of EDs, then patients will score higher on different anger dimensions in relation to the normative group with which they are compared.
- If anger differs depending on the ED diagnosis, then patients with AN-R will present significantly higher mean scores on the internal control of anger than patients with BN.
- If patients' physical deterioration is related to the level of anger they experience, then BMI will show a significant negative relation with anger dimensions.

METHODS

Participants

The study participants were 58 women diagnosed of ED during hospitalization in the Eating Disorders Unit of the Reina Sofía General University Hospital of Murcia. Their age range was 18 to 42 years (M=25.68 years, SD=7.00) and their age range at onset of the ED 12 to 24 years (M=15.81, SD=2.21). The diagnoses were AN-R in 27.58%, AN-P in 15.51%, bulimia nervosa in 41.37%, and EDNOS in 15.51%.

The duration of the condition ranged from 1 year to 28 years, with a mean duration of 9.86 years (*SD*=6.92).

With regard to BMI, 36.20% of patients had severe malnutrition, 20.68% serious malnutrition, 25.86% moderate malnutrition, and 17.24% normal BMI.

As for sociodemographic characteristics, the educational level was elementary school in 17.24% (N=10), high school in 50% (N=29), college in 29.31% (N=17), and vocational training in 3.44% (N=2). As regards social and occupational situation, 25.86% (N=15) of the participants were employed, 31.03% (N=18) unemployed, 39.65% (N=23) studying at the time of enrollment, and only 3.44% (N=2) in another situation.

Instruments

State-Trait Anger: anger expression was assessed using the Spanish version of STAXI-2, *State-Trait Anger Expression Inventory-2,* by Miguel-Tobal, Casado, Cano-Vindel and Spielberg (2001).[16] This self-report assesses specific components of anger (Experience, Expression, and Control) and facets such as state and trait. It consists of 49 items divided into 6 scales (state anger, trait anger, external expression of anger, internal expression of anger, external control of anger, and internal control of anger), and 5 subscales (feelings, physical expression, verbal expression, anger temperament, and anger reaction). These subscales are divided into two groups, with the first three forming the *state anger* scale and the last two forming the *trait anger* scale.

The internal consistency indices of the various subscales are acceptable, ranging from 0.67 to 0.89.

Eating disorders and related variables: The EDI-3[17] was used to assess the type of ED in each patient. This inventory consists of 91 items grouped into three specific ED risk scales (*Drive for Thinness, Bulimia,* and *Body Dissatisfaction*) and nine general psychological scales. It yields 6 composite indices: one specific to ED (Eating Disorder Risk), and five general integrated psychological constructs (Ineffectiveness, Interpersonal Problems, Affective Problems, Overcontrol, and General Psychological Maladjustment). In accordance with the work objectives, we used the scales *interpersonal distrust, emotional dysregulation, low self-esteem,* and *asceticism*. This instrument has high internal consistency, ranging from 0.75 to 0.95.

Procedure

The persons responsible for the Eating Disorders Unit of the Reina Sofía General University Hospital of Murcia were contacted and the study objectives were explained to them. The study participants included female patients over 18 years admitted to the hospital Eating Disorders Unit for treatment and diagnosed with an eating disorder. Men, minors, patients with severe personality disorder, patients with organic symptoms, and patients not satisfying criteria for anorexia nervosa or bulimia nervosa were excluded.

Informed consent was obtained before the patient was evaluated. The evaluation was conducted during admission by qualified professionals.

Statistical Analyses

The SPSS statistical application (version 19) was used for data analysis. Descriptive analyses of the study variables were made. Differences in anger in relation to diagnosis were studied using the Kruskal-Wallis statistic as a nonparametric test. Correlations between variables were analyzed using the Spearman correlation index.

RESULTS

Description of Anger and Diagnosis-related Differences in Anger

When the scores of the patient group were compared with the scores of the normative population provided by the questionnaire, the patients obtained higher scores on the dimensions *anger temperament* (*M*=11.50, *SD*=4.13), *anger reaction* (*M*=13.98, *SD*=4.63), *external expression of anger* (*M*=13.36, *SD*=4.36), and *internal expression of anger* (*M*=14.60, *SD*=4.30).

The scales *external control of anger* (*M*=13.65, *SD*=4.66) and *internal control of anger* (*M*=11.89, *SD*=4.68) yielded scores below the mean values of the normative population.

As for *state anger,* in this dimension and in the other component subscales the patient group obtained lower scores than the normative population with which it was compared (Table 1).

As for diagnosis-related differences in the various subscales of anger, significant differences were found on the scale of *internal control of anger* in patients with AN-R (*M*=14.56, *SD*=3.93), who presented higher mean scores than patients with BN (*M*=10.58, *SD*=4.53) *(k*=0.027, $p<0.05$). No differences were observed among the other diagnoses.

Relation between Variables

The relation between the anger questionnaire scales and the EDI-3 scales of *low self-esteem, emotional dysregulation, interpersonal deficit,* and *asceticism* was analyzed. *Emotional dysregulation* showed a relation with almost all the

Table 1 Description of Anger in Total Patient Group and Normative Data

	Patient Mean	Range	Patient Standard Deviation	Normative Population Mean	Normative Population Standard Deviation
Anger Temperament	11.50	0-19	4.13	9.11	2.95
Anger Reaction	13.98	0-22	4.63	12.84	3.28
External Expression of Anger	13.36	0-21	4.36	12.67	3.34
Internal Expression of Anger	14.60	0-24	4.30	12.30	3.71
External Control of Anger	13.65	0-24	4.66	14.69	4.52
Internal Control of Anger	11.89	0-24	4.68	13.29	4.22
State Anger	3.01	0-4	0.88	18.12	5.00
Angry Feelings	3.12	0-4	0.88	6.67	2.68
Physical Expression of Anger	3.39	0-4	0.95	5.26	0.93
Verbal Expression of Anger	3.10	0-4	0.91	6.20	2.08

anger dimensions. The strongest correlations were obtained with the scales of *anger temperament* (r=0.492, p<0.01), *external expression of anger* (r=0.459, p<0.01), *internal expression of anger* (r=0.281 p<0.05), *external control of anger* (r=-0.356, p<0.01), *state anger* (r=-0.409, p<0.01), *feelings of anger* (r=-0.344 p<0.01), *physical expression of anger* (r=-0.336, p<0.05), and *verbal expression of anger* (r=-0.452, p<0.01).

Interpersonal distrust was also associated with different anger dimensions. The strongest correlations were found with the dimensions *external expression of anger* (r=0.342, p<0.05), *internal expression of anger* (r=0.342, p<0.01), *external control of anger* (r=-0.464, p<0.01), *state anger* (r=-0.313, p<0.05), *physical expression of anger* (r=-0.314, p<0.05), and *verbal expression of anger* (r=-0.429, p<0.01).

The *asceticism* scale was related to different anger dimensions, with the strongest correlations with the scales of *anger temperament* (r=0.365, p<0.01), *external expression of anger* (r=0.407, p<0.01), *internal expression of anger* (r=0.439, p<0.01), and *verbal expression of anger* (r=-0.302, p<0.05).

The *low self-esteem* scale also was associated with different anger dimensions, with the strongest correlations being with the scales of *anger temperament* (r=0.369, p<0.01) and *internal expression of anger* (r=0.421, p<0.01).

The correlation coefficients between the EDI-3 and STAXI-2 scales are given in Table 2.

Relation between BMI and Levels of Anger

No significant correlations were found between BMI and level of anger (Table 2).

DISCUSSION

In the present study, we attempted to answer a number of questions that emerged after a review of the literature examining the relation between EDs and emotional traits, particularly anger. We analyzed the general level of anger of patients with ED compared to a normative group, expecting to find higher scores on different anger dimensions in patients with ED compared to the normative group. This hypothesis was confirmed for the subscales of the *trait anger* construct (temperament and reaction), as well as for the scales of *internal* and *external expression of anger*. The scales of both *internal* and *external control of anger* yielded scores below the mean for the normative population. This could be explained by referring to study results showing that these patients have frequent outbursts of anger due to poor self-control.[9] By contrast, the general scale of *state anger* and its component subscales (*feelings, physical expression,* and *verbal expression*) yielded lower values than the mean for the normative population. This result could be attributed to the fact that patients were hospitalized when the evaluation was conducted because their lower values for state anger could be due to medication, control of daily routines, or a reduction of interpersonal relationships in these contexts.[19]

Subsequently, differences in the expression of anger in relation to diagnosis were analyzed. These results allowed us to confirm our second hypothesis, since patients with AN-R had higher scores than patients with BN on the *internal control of anger* dimension. This finding is consistent with the literature reviewed.[10,13] This is relevant for planning possible treatments because poor management of anger of patients with ED, who direct anger against themselves, leads to self-injurious behaviors that may further hinder recovery from the disorder.[20]

Table 2 Correlations between STAXI-2 and EDI-3 Scales

	Self-Esteem	Interpersonal Distrust	Emotional Dysregulation	Asceticism
Anger Temperament	0.369**	0.256	0.492**	0.365**
Anger Reaction	0.227	0.106	0.186	0.266*
External Expression of Anger	0.294*	0.331*	0.459**	0.407**
Internal Expression of Anger	0.421**	0.342**	0.281*	0.439**
External Control of Anger	-0.215	-0.464**	-0.356**	-0.292*
Internal Control of Anger	-0.250	-0.294*	-0.152	-0.172
State Anger	-0.224	-0.313*	-0.409**	-0.190
Angry Feelings	-0.220	-0.233	-0.344**	-0.166
Physical Expression of Anger	-0.263*	-0.314*	-0.336*	-0.191
Verbal Expression	-0.288*	-0.429**	-0.452**	-0.302*
BMI	0.167	0.051	0.184	0.085

*p<0.05 **p<0.01

We also studied the relation between anger dimensions and specific EDI-3 scales with which we expected to find a relation based on the literature reviewed. These subscales were *interpersonal distrust, emotional dysregulation, asceticism,* and *low self-esteem*. All the scales showed significant correlations with different anger dimensions. Thus, *interpersonal distrust* correlated with seven dimensions of anger. Interpersonal difficulties may lead these patients into isolation, which interferes with patients' seeking out help and favors the disorder becoming chronic. This may also be related to *emotional dysregulation.* The *emotional dysregulation* scale showed positive relations with the dimensions *anger temperament* and *internal* and *external expression of anger*, and negative relations with the dimensions *external control of anger, state anger, feelings of anger,* and *physical* and *verbal expression of anger.* Several authors have noted that this imbalance can lead to feelings of uselessness, alexithymia, and even depression.

Low self-esteem also showed significant positive relations with *anger temperament* and the *internal* and *external expression of anger*, and negative relations with *physical* and *verbal expression of anger.* Considering these results, one possible area for further research could be to determine whether improvement in levels of anger might increase self-esteem in patients diagnosed with ED. This might lead to modifying the therapeutic approaches now used.

The *asceticism* scale showed positive relations with *anger temperament, anger reaction,* and *internal* and *external expression of anger,* and negative relations with *external control of anger* and *verbal expression of anger,* as has been reported in the literature.[16,21] The study of this construct could help guide treatment toward controlling beliefs about purity and virtuousness in an attempt to reduce the frequency of purging behavior since it has been shown that high scores on this scale and the association of high scores with anger are negatively related with improvement in ED pathology after six months of multimodal treatment.[22]

Finally, the relation between BMI and anger levels was explored, but the results did not confirm our third hypothesis that BMI would be expected to show significant negative relations with anger. These results are inconsistent with previous literature indicating that lower BMI is positively related to external expression of anger (directed against others) and negatively related to internal expression of anger (directed against themselves).[15] Similarly, the results do not support the biological hypothesis that low BMI can cause brain damage, specifically low medial prefrontal perfusion, which leads to impaired cognitive flexibility, impulsivity, anger, problem-solving difficulties, perseveration, and difficulty in changing opinion.[23]

The results of this study provide evidence of the anger management difficulties that these patients present. They support the need for including approaches to anger in the treatment of these patients, not only from the pharmacological vantage point, as has been the case to date, but to expand the therapeutic approach to other psychological aspects, such as emotional dysregulation, interpersonal deficit, low self-esteem, and asceticism. This approach could be implemented using traditional breathing and relaxation techniques, thought-stopping, timeout exercises, or mentally rehearsing anger situations, as well as new emotion and solution-focused therapeutic techniques.

When interpreting these results, we must not overlook the limitations of the study, such as the cross-sectional study design, which meant that measures of the anger variable were obtained only once and any possible developments that patients may have experienced with treatment were not taken into consideration, as well as the fact that causal relations cannot be established. We propose the design of longitudinal studies to examine the evolution of anger dimensions in patients with EDs. Another limitation was the study sample obtained from a single center, the Reina Sofía General University Hospital of Murcia. This may limit the validity of the data to the catchment population of this center, as patients treated at other centers or patients not admitted to any nutritional rehabilitation program were not taken into account.

REFERENCES

1. Echeburúa E, Marañón I. Comorbilidad de las alteraciones de la conducta alimentaria con los trastornos de personalidad. Psicología Conductual. 2001;9:513-25.
2. Varela-Casal P, Maldonado MJ, Ferre F. Estudio de los perfiles clínicos de los pacientes con trastornos de la conducta alimentaria en dispositivos específicos. Actas Esp Psiquiatr. 2011;39(1):12-9.
3. Bruch H. Developmental considerations of anorexia nervosa and obesity. Can J Psychiat. 1981;26:212-7.
4. González L, Hidalgo M, Hurtado M, Nova C, Venegas M. Relación entre factores individuales y familiares de riesgo para desordenes alimenticios en alumnos de enseñanza media. Revista de Psicología. 2002;11:91-116.
5. Levine P. Loneliness and eating disorders. J Psychol. 2012;146:245-57.
6. Meroño F, Font M, Pérez-Salomero M, Toro J. Alexithymia ratings in anorexia nervosa. Revista de Psiquiatria Infanto-Juvenil. 1998;4:225-30.
7. Behar A, Manzo G, Casanova Z. Trastornos de la conducta alimentaria y Asertividad. Revista Médica de Chile. 2006;134:312-9.
8. Quiles Y, Terol C. Evaluación de las dimensiones del apoyo social en pacientes con un trastorno del comportamiento alimentario. Span J Psychol. 2009;12:226-35.
9. Fava M, Rappe M, West J, Herzog B. Anger attacks in eating disorders. Psychiat Res. 1995;56;205-12.
10. Brytek-Matera A. Anorexia nervosa among French adolescent females in relation to self-steem, coping strategies, anger expression and anger control. Arch Psychiat Pshycother. 2007;4:53-7.
11. Ahren-Moonga J, Holmgren S, Korring L, Klienteberg B. Personality traits and self- injurious behavior in patients with eating disorders. Europ Eat Disorder Rev. 2008;16:268-75.
12. Krug I, Bulik M, Vall-Llovera N, Granero R, Agüera Z, Villarejo C, et al. Anger expresion in eating disorders: Clinical, Psychopathological and personality correlates. Psychiat Res. 2008;161:195-205.
13. Miotto P, Pollini B, Restaneo A, Favaretto G, Preti A. Aggresiveness, anger and hostility in eating disorders. Comp Psychiat. 2008;49:364-73.
14. Fassino S, Abbate G, Amianto F, Leombruni P, Garzaro L, Rovera G. Nonresponder anorectic patients after 6 months of multimodal treatment: Predictors of outcome. Europ Psychiat. 2001;16:466-73.
15. Harrison A, Genders R, Davies H, Treasure J, Tchanturia K. Experimental measurement of the regulation of anger and aggression in women with anorexia nervosa. Clinic Psychol Psychother. 2010;18:445-52.
16. Fassino S, Peiró A, Gramaglia C, Abbate G, Gandione M, Giacomo G, et al. Clinical, psychological, and personality correlates of ascetism in anorexia nervosa: form saint anorexia to pathologic perfectionism. Transcul Psychiat. 2006;4:600-14.
17. Miguel-Tobal J, Casado I, Cano-Vindel A, Spielberger D. Versión Española del STAXI-2. Madrid: TEA Ediciones, 2001.
18. Garner M. EDI-3. Inventario de los trastornos de conducta alimentaria. Madrid: TEA Ediciones, 2001.
19. Salorio P, Soler F, García M, Martínez M, Pagán G, López I. Ira e impulsividad en los trastornos de la conducta alimentaria. Un estudio preliminar. Comunicación presentada en Interpsiquis. 11º Congreso virtual de psiquiatría, 2010.
20. Salorio P, Martínez C, Martí J, Oñate C, López I, Pagán G. Valoración de la ira en los trastornos de la conducta alimentaria. Un estudio con el test de Rorschach. Interpsiquis. Comunicación presentada en 10º Congreso virtual de psiquiatría, 2009.
21. López-Ibor JJ, Ortiz T, López-Ibor M. Percepción, vivencia e identidad corporales. Actas Esp Psiquiatr. 2011;39(Supl 3):3-118.
22. Fassino S, Abbate G, Pireo A, Leombruni P, Giacomo G. Anger and personality in eating disorders. J Psychosom Res. 2001;51:757-64.
23. Oltra J, Espert, Rojo L. Neuropsicología y anorexia nerviosa. Hallazgos cognitivos y radiológicos. Neurología. 2011. doi:10.1016/j.nrl.2011.08.003.