The Pros and Cons of Change in Individuals with Eating Disorders: A Broader Perspective

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ABSTRACT

Objective: The goals of the current study were to develop a questionnaire measuring the pros and cons of eating disorder symptoms and to explore the themes endorsed by different eating disorder groups.

Method: Participants recruited from an eating disorder volunteer register and an outpatient clinic completed the Pros and Cons of Eating Disorders scale (P-CED). Principal components analyses (PCA) were performed to validate the factorial structure of the original items and to explore the factorial structure of the new items. Planned comparisons were used to compare P-CED scores between diagnostic groups.

Results: PCA indicated a 10-factor solution for the original Pros and Cons of Anorexia Nervosa scale (P-CAN) items and a 4-factor solution for the new items. Participants with anorexia nervosa (AN) scored significantly higher than participants with bulimia nervosa (BN) on five of the P-CED subscales but there were no significant differences between the two AN subtypes.

Conclusion: The P-CED is a useful tool for identifying the positive and negative aspects of eating disorders that can be targeted in treatment or used as an outcome measure in research. © 2006 by Wiley Periodicals, Inc.

Keywords: Pros and Cons of Eating Disorders; principal components analyses; P-CAN; motivation; ambivalence

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Introduction

Individuals with eating disorders are frequently ambivalent about changing their illness behavior and often only attend treatment services due to pressure from family or friends.[1] Once individuals enter treatment, resistance commonly occurs, increasing the probability of drop-out and reducing the chance of a positive health outcome.[2] In fact, fewer than one half of those who begin treatment for eating disorders actually complete it.[3,4] Ambivalence is quite different to a neutral attitude; it is the presence of both positive and negative evaluations of the same behavior, with stronger attitudes being more predictive of behavior.[5] In view of this, it seems plausible that ambivalent attitudes can be seen as two independent components.[6] This has been encapsulated in a formula, based on the Griffin calculation, which incorporates both positive and negative attitudes towards a behavior.[7] Studies using this calculation have found that ambivalence is inversely related to the intention to carry out a particular behavior,[5] but is also more susceptible to persuasion.[8]

Therefore, it is important to consider both the perceived positive and negative aspects of an eating disorder. The positive aspects of an eating disorder are particularly important as they may explain the poor motivation to change and contribute to the maintenance of the disorder.[9] Supporting this assertion, there is evidence from several studies that poor motivation to change at the beginning of treatment is predictive of an unfavorable treatment outcome. For instance, in patients with anorexia nervosa (AN), readiness to change a variety of symptoms at the beginning of treatment predicted anticipated difficulty of recovery activities, and subsequent completion of these activities (e.g., enrollment in, and drop-out from, treatment programs[10] and weight gain[11]). Similarly, patients with bulimia nervosa (BN) who are more motivated to

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change show greater improvements in binge eating than those who are more ambivalent about change[12] and may be less likely to relapse after treatment.[13] Intention to change binge eating and purging behaviors at the beginning of treatment of BN has been found to predict remission status[14] and frequency of binge eating[15] at the end of treatment.

A number of therapeutic approaches have been applied to the treatment of individuals with eating disorders, with the aim of addressing ambivalent feelings about behavior change and increasing motivation.[9] One such approach is the use of motivational interviewing. A key feature of this approach is to encourage individuals to explore the positive (maintaining) and negative (change-promoting) aspects of their current behavior, with the aim of shifting the positive-negative balance in favor of change. Therapeutic letter writing has been advocated as a useful tool in this process[16] and has led to a greater understanding of the positive and negative aspects of eating disorders experienced by patients.[17,18]

Considering the potential importance of the positive and negative perceptions held by individuals about their eating disorder in determining the uptake and outcome of treatment, several authors have developed questionnaire-based measures to assess these attributes.[19–21] Using "friend" and "enemy" letters written by patients to their eating disorder during therapy, Serpell et al.[17] generated themes, which were used to develop the Pros and Cons of Anorexia Nervosa scale (P-CAN), a 50-item self-report measure designed specifically to assess positive and negative views about AN. The scale items were factor analyzed, resulting in 10 subscales: Safe/Structured, Appearance, Fertility/Sexuality, Fitness, Communicate Emotions/Distress, Special/Skill, Guilt, Hatred, Trapped, and Stifles Emotions.[21] Separate analysis of the themes generated from letters written by individuals with BN[18] suggested some differences between AN and BN in the positive and negative values associated with the eating disorder. In that study, four new themes were identified. These included two pro themes, that is, Boredom (binging and purging as a way to deal with boredom) and Eat but Stay Slim (BN as a way to eat but not gain weight) and two con themes—Negative Self-Image (disliking BN because it led to negative self-image, lack of confidence, and self-hatred) and Weight and Shape (disliking BN because it was associated with constant thoughts about one's weight and/or shape). This suggested that a version of the P-CAN that also addressed the pros and cons relevant to individuals with BN would require the addition of new subscales to cover these themes.

Given the diversity of eating disorder symptoms and the potential utility of the P-CAN in everyday clinical practice and outcome prediction, we conducted the current study with two aims. The principal aim was to develop a broader scale that measures the pros and cons of symptoms relevant to both AN and BN. To meet this aim, we modified the original P-CAN, adding 20 new items to tap the 4 additional themes endorsed by individuals with BN,[18] and distributed the new measure to a large sample of individuals with mixed eating disorder diagnoses. Principal components analysis (PCA) was then used to replicate the factorial structure of the original P-CAN items and to explore the structure of the new items. The secondary aim of the study was to compare the pros and cons, and to examine ambivalence towards the various positive and negative values of the eating disorder, between the diagnostic groups.

Method

Participants

Participants with an eating disorder were recruited from two sources. First, participants were recruited from a register of individuals with a current or past eating disorder maintained by the Eating Disorders Research Unit at the Institute of Psychiatry in London. The register is composed of individuals from clinical populations and user group organizations in the United Kingdom who have expressed an interest in the work of the unit, and may have taken part in previous research studies. All members of the register were sent a questionnaire pack and were invited to take part if they considered themselves to have a current eating disorder (it is estimated that this applies to approximately one half of the database members). One hundred thirty-six individuals responded and returned the questionnaire pack. No significant differences were found in age, ethnicity, employment status, educational status, marital status, age of onset, eating disorder duration (years), and history of hospitalization (admissions $>$ 1 month) between responders and nonresponders (a response rate of 30%). An additional 66 participants were recruited from a consecutive series of outpatients from the Eating Disorders Unit of the South London and Maudsley (SLAM) NHS Trust, London, a tertiary referral center. Participants were invited to complete the questionnaire pack while waiting to attend their assessment appointment. Ethical approval for the study was obtained from the SLAM research ethics committee. After complete description of the study to the participants, written informed consent was obtained from all participants.

Diagnosis

All participants completed the Eating Disorders Examination-Questionnaire (EDE-Q[22]), which was extended to encompass a lifetime history of eating behavior. Diagnoses were made on the basis of behavioral symptoms of AN and BN in accordance with the frequencies and durations specified in the 4th ed. of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV[23]). Some of the individuals on the register who responded ($n = 30$) were in a state of partial recovery and no longer fulfilled DSM-IV criteria for AN or BN, having done so in the past. These individuals were categorized according to their most recent DSM-IV diagnosis. Based on this classification, the sample comprised 202 participants with a current or past eating disorder diagnosis (199 females, 3 males). One hundred forty had a current or past diagnosis of AN (93 with the restricting subtype [RAN] and 47 with the binge eating/purging subtype [BPAN]). Sixty-two had a current or past diagnosis of BN.

A subsample of the register participants ($n = 39$) also completed a clinical interview, the EATATE, as part of a separate study, which allowed for a check of the diagnosis provided by the EDE-Q on this subsample of participants. The EATATE was developed for a collaborative European study of risk factors for eating disorders and is an adaptation of the Longitudinal Interval Follow-Up Evaluation (LIFE)[24] combined with the Eating Disorders Examination (EDE).[25] In previous research, the EATATE has demonstrated good interrater reliability for diagnosing eating disorders ($\kappa = .82$–1.0), illness history variables ($\kappa = .80$–.99), and diagnostic validity, compared with clinical notes ($\kappa = .77$–1.0)[26] (also Anderluh et al., unpublished observations). The EATATE was used to substantiate the self-reported diagnoses of this subset using the EDE-Q. All 39 participants in the current study who completed the EATATE received the same diagnosis using this measure as they had received according to the EDE-Q, providing good evidence for the accuracy of EDE-Q diagnoses in the remaining participants.

Measures

Pros and Cons of Eating Disorders Scale (P-CED). Participants were asked to complete the modified and expanded version of the P-CAN. Given that the modified P-CAN contained items relevant to both AN and BN, we renamed the new measure the Pros and Cons of Eating Disorders scale. The original P-CAN had good psychometric properties, with good internal and test-retest reliability.[21] The scale was modified in two ways. First, the word "anorexia" in each of the 50 items was replaced by "anorexia/bulimia." Second, for each of the four additional themes that were identified from letters written by individuals with BN,[18] five new items were generated. The new scale contained 70 items, worded in the form of statements answered on a 5-point Likert scale (*agree strongly* to *disagree strongly*). Items were scored from −2 (*disagree strongly*) to +2 (*agree strongly*).

Ambivalence. Participants were asked how positively they felt towards remaining with their illness as well as how negatively they felt towards remaining with their illness: Considering only the positive things about remaining with your anorexia/bulimia in the future and ignoring the negative things, how positive are those things? Considering only the negative things about remaining with your anorexia/bulimia in the future and ignoring the positive things, how negative are those things?

Answers were rated on a 7-point Likert scale (1, *not at all positive/negative* to 7, *extremely positive/negative*) and were used to calculate a measure of attitudinal ambivalence towards change based on the Griffin calculation[7] according to the following formula:

$$\text{Ambivalence} = (\text{positive} + \text{negative})/2 - \boxed{v}\ \text{positive} - \text{negative}\ \boxed{v}$$

Data Analysis

PCA was used to verify the factorial structure of the original 50-item P-CAN in a mixed eating disorder sample and to explore the factorial structure of the 20 new BN items. Given the differences in the current sample compared with those in Serpell et al.,[17] as well as the changes in the wording of items from anorexia to anorexia/bulimia, confirmatory factor analysis was not appropriate. For each analysis, the number of factors was determined using a combination of Eigenvalues > 1 and an examination of the Scree plot. An oblique rotation was used and items were retained if they loaded above .50 on a single factor and below .50 on all other factors.

Subscale scores on the 10 original subscales and the 4 new subscales were derived by computing the mean for the items in that scale. Subscale scores were then compared using two planned orthogonal contrasts in an analysis of variance (ANOVA) model: participants with BN versus participants with AN, and participants with RAN versus participants with BPAN. Bonferroni corrections were used to adjust for multiple tests. The adjusted significance level was .0033. To calculate effect sizes, group differences were divided by the pooled estimate of the standard deviation. Two-tailed tests were used throughout.

Results

Sample Characteristics

The 3 diagnostic groups (RAN, BPAN, and BN) showed no significant difference in age and body mass index (BMI) variables differed as expected

TABLE 1. Comparisons of age and BMI between subjects with restricting (RAN) or binge-purging anorexia nervosa (BPAN) and bulimia nervosa (BN)

	RAN ($N = 93$)	BPAN ($N = 47$)	BN ($N = 62$)	F Statistic	p Value
Current age	34.2 (12.2)	31.9 (12.2)	32.8 (9.8)	0.647	.525
BMI current	16.56 (2.58)	17.38 (3.41)	22.47 (5.67)	33.79	<.001
BMI lowest ever	13.19 (2.45)	13.60 (2.13)	17.14 (3.86)	33.20	<.001
BMI highest ever	22.25 (4.00)	22.77 (4.61)	26.94 (6.64)	15.26	<.001

Note: Mean values are shown with standard deviations in parentheses. BMI = body mass index.

(Table 1). The 2 subgroups of AN (RAN and BPAN) did not differ in terms of their current, lowest, and highest reported BMI (all ps $> .050$). A comparison of the participants recruited from the volunteer register and from the outpatient clinic showed that individuals on the volunteer register were significantly older (median age = 34 years, interquartile range [IQR] = 16–69) than the outpatient sample (median age = 27 years, IQR = 16–53) ($U = 2918.5$, $p < .001$). They also had a significantly longer duration of illness ($M = 13.5$ years, IQR = 1–45) compared with the outpatient sample ($M = 4$ years, IQR = 1–17) ($U = 209.5$, $p < .001$), which is probably due to the differences in the age of the samples. The volunteer register sample reported a significantly lower lifetime BMI compared with the outpatient sample ($M = 13.89$, $SD = 3.25$ and $M = 16.48$, $SD = 3.00$; $t = 4.63$, $df = 200$, $p < .001$), although this is likely to be due to the fact that individuals with AN were overrepresented in the register sample (76%) compared with the outpatient sample (56%).

PCA of the Original P-CAN

Eleven factors had Eigenvalues > 1 and examination of the Scree plot also suggested that 11 factors represented a feasible solution. However, when an 11-factor solution was forced, the 11th factor was trivial with only 1 item loading above .50. Therefore, a forced 10-factor solution was examined (Table 2), which accounted for a total of 65.6% of the variance.

This 10-factor solution was almost identical to that identified by Serpell et al.[21] Where items loaded above .50 they fell onto the factor on which they were expected to load according to the previous study. There were, however, 4 factors where 1 expected item failed to load (Factors 1, 5, 9, and 10). Generally, the inclusion of these items in their expected factors led to a reduction in internal reliability. Hence, for Factors 1, 5, and 9, they were excluded from the final subscales. For Factor 10, 1 item, "My anorexia/bulimia makes me depressed," loaded at .31 although its inclusion on this factor increased the internal reliability of the factor from .70 to .72. In addition, because this factor would contain only three items if the item in question were excluded, it was decided to retain this item. The final factor solution therefore closely replicated that identified by Serpell et al.,[21] despite the inclusion of participants with BN as well as with AN in the sample.

PCA of the New BN Items

PCA of the 20 new items generated 5 factors that had Eigenvalues > 1, although the Scree plot was rather more ambiguous. Forcing a five-factor solution using oblique rotation showed that only two items loaded on the fifth factor and that these two items also crossloaded onto the third factor. Thus, a forced four-factor solution was used, accounting for 61.2% of the variance. This solution is shown in Table 3. In the forced 4-factor solution, all 20 items loaded onto the expected factors above .50 except for 1 item on Factor 4, "My anorexia/bulimia has made me so obsessed with food and weight, I don't feel I could ever eat normally again." However, this item only just failed to reach the .50 cutoff, loading at .47. Because the internal reliability of this subscale including this item was .76 (compared with .75 if the item was deleted), and as this is the first time this subscale has been explored, it was decided to retain this item on Factor 4 pending future development and refinement of these subscales.

Planned Comparisons of the P-CED

The P-CED measure was revised in accordance with the results of the factor analysis, resulting in a 66-item measure consisting of 14 subscales. The distribution of 12 of the 14 subscales appeared normal. The two exceptions were the subscales Guilt and Hatred, which were positively skewed. Transformation of these subscales did not improve the distribution. Therefore, Kruskal–Wallis tests and post-hoc Mann–Whitney U tests were used to compare groups on these two subscales. Planned comparisons were made between individuals with a diagnosis of AN versus individuals with BN and between individuals with the RAN and BPAN subtypes of AN (Table 4).

Overall, both AN and BN groups positively endorsed all the con themes although the results were rather more mixed for the pro themes. For example, groups were neutral on some themes (e.g., Boredom), positive on others (e.g., Stifles Emotions), and negative on yet others (e.g., Appearance). For the pro themes, individuals with AN agreed most

TABLE 2. Principal components analysis of the original P-CAN items

	1. Safe/ Structured	2. Hatred	3. Guilt[a]	4. Appearance	5. Stifles Emotions[a]	6. Communication Emotions/ Distress[a]	7. Fertility/ Sexuality	8. Fitness	9. Special/ Skill	10. Trapped[a]
I value my anorexia/bulimia because it makes me feel safe	.74	−.05	−.07	.04	−.01	.02	.14	−.01	.06	−.16
My anorexia/bulimia gives structure to my life	.74	−.00	.02	−.07	.03	.15	.05	.09	.17	−.19
My anorexia/bulimia helps me to keep control	.79	.09	−.13	.13	−.07	.10	.02	−.01	.03	.02
My anorexia/bulimia helps me organize my world	.75	.12	−.04	−.01	−.03	.12	.07	.15	.11	.06
My anorexia/bulimia gives purpose to my life	.42	−.14	−.02	−.11	−.07	−.00	.03	.34	.20	−.14
I feel protected by my anorexia/ bulimia	.66	−.13	−.10	.05	.00	−.07	.10	.04	.09	−.03
My anorexia/bulimia makes me feel secure	.72	−.12	.07	.03	−.03	−.17	.01	.06	−.06	.04
My anorexia/bulimia helps me get through life	.64	−.14	.09	.18	−.09	−.23	−.05	−.05	−.04	.10
I see my anorexia/bulimia as being dependable and consistent	.51	−.06	−.03	.00	−.01	−.22	−.01	.03	.05	.09
I am sick and tired of anorexia/ bulimia	.05	.78	.02	−.17	.01	.09	.04	−.03	.06	−.05
I am fed up with thinking constantly about food	.07	.65	.07	−.01	.05	.01	.02	.02	.03	−.35
I hate having anorexia/bulimia	−.20	.73	−.05	−.06	−.11	−.08	.02	−.02	−.04	.08
I hate the way that my anorexia/ bulimia controls my life	−.13	.63	−.01	−.02	−.04	−.18	−.01	−.12	−.06	−.29
I am fighting against my anorexia/ bulimia	−.04	.59	−.14	.11	−.05	−.13	−.10	−.02	−.20	.30
I wish my anorexia/bulimia would go away and leave me alone!	−.10	.70	−.12	−.14	−.14	−.00	−.22	.04	.03	.02
I often feel sorry for the effect my anorexia/bulimia has had on my family	−.02	−.08	−.78	−.01	−.09	.01	.08	.02	−.06	−.12
I hate the fact that my parents worry about me because of my anorexia/ bulimia	−.10	−.07	−.75	−.03	−.01	.01	−.00	−.06	.07	00
I feel bad that my anorexia/bulimia is a concern to others	.10	.13	−.77	.06	.05	.03	.01	−.09	.04	.19
I feel guilty for the worry my anorexia/bulimia has caused to my friends	.12	.07	−.80	−.02	.02	.01	.02	.07	−.03	.03
I have hurt those close to me because of my anorexia/bulimia	.02	−.06	−.70	00	.13	−.06	.08	−.05	.10	−.14
I feel that I am more attractive to others as a result of my anorexia/ bulimia	.06	−.13	.06	.67	.00	−.04	.12	.03	.10	.05
I like the way my anorexia/bulimia makes me look	.16	−.03	−.04	.68	.04	−.00	−.03	.27	−.06	−.10
I feel better about my appearance because of my anorexia/bulimia	.20	−.10	−.03	.69	.00	.00	.09	.12	−.08	−.08
Having anorexia/bulimia means I can wear the clothes I want	−.14	−.07	.01	.78	.06	.12	−.02	.13	.15	−.01
My anorexia/bulimia has numbed my emotions	.04	−.03	.07	−.02	−.80	.08	.09	−.03	.03	−.08
I feel that my anorexia/bulimia has numbed my natural emotions	.09	.09	−.03	−.02	−.86	.06	−.08	−.04	.12	−.02
My anorexia/bulimia helps me control my emotions	.37	.05	.12	−.02	−.39	−.32	.14	−.02	.02	.36
My anorexia/bulimia limits my emotional expression	−.04	−.06	−.07	−.08	−.78	−.14	.01	.09	−.07	.03
My anorexia/bulimia has left me unable to feel	−.04	.05	−.13	.04	−.76	.11	.09	.04	−.00	−.03
My anorexia/bulimia is my cry for help when things go wrong	−.08	.17	.06	.09	.05	−.63	.07	−.10	.13	−.12
I use my anorexia/bulimia to communicate my distress/ unhappiness to others	.16	−.08	−.15	−.18	−.07	−.62	.01	.14	−.01	−.10

TABLE 2. continued

	1. Safe/ Structured	2. Hatred	3. Guilt[a]	4. Appearance	5. Stifles Emotions[a]	6. Communication Emotions/ Distress[a]	7. Fertility/ Sexuality	8. Fitness	9. Special/ Skill	10. Trapped[a]
I can show my emotions through my anorexia/bulimia	.13	−.16	−.01	−.11	.00	−.72	.10	.14	.03	.01
My anorexia/bulimia expresses my inner anguish	−.00	.18	−.00	.10	−.03	−.58	−.06	−.01	.32	.03
Having anorexia/bulimia stops my monthly period pains	.04	.09	−.08	−.03	.10	−.10	.85	.00	.05	.02
My anorexia/bulimia allows me to avoid the disruption of having periods	.02	−.05	−.05	−.02	−.01	.04	.82	.14	−.00	−.10
My anorexia/bulimia means I no longer have PMT/PMS	.03	.07	−.07	.09	−.09	.08	.84	−.04	−.04	.07
Because of my anorexia/bulimia I do not have to worry about becoming pregnant	−.09	−.13	.08	−.00	−.20	−.08	.70	.00	.03	.01
I feel fitter as a result of my anorexia/ bulimia	.05	.14	.09	.16	.02	.13	.18	.69	.03	.13
Having anorexia/bulimia makes my body work better	−.04	−.13	.04	.09	−.11	.11	.09	.78	.11	.05
Because of my anorexia/bulimia I can push my body further than I used to	.15	.04	−.14	.06	.10	−.14	.07	.58	−.02	−.10
I am in better physical shape as a result of my anorexia/bulimia	−.05	.05	.09	.17	−.02	−.05	.03	.76	−.06	.05
My anorexia/bulimia lifts me above others	.16	−.24	.02	−.01	−.08	−.04	−.08	.40	.26	−.18
My anorexia/bulimia is something I am good at	.08	−.01	.03	.26	.01	−.15	.06	−.18	.73	.02
My anorexia/bulimia shows I can do at least one thing better than other people	.33	.00	−.09	.01	.09	−.04	.12	.10	.53	−.13
My anorexia/bulimia is a skill	.06	−.03	.03	−.15	−.07	.02	.04	.16	.75	.01
In my anorexia/bulimia, I am an expert	−.04	.02	−.22	.11	−.06	−.11	.00	.01	.76	.12
My anorexia/bulimia has made me depressed	−.09	.28	−.13	.14	.22	−.15	−.12	−.07	−.04	−.31
I feel unable to escape from my anorexia/bulimia	.11	.15	.15	.17	.23	.01	−.02	−.16	.00	−.50
My anorexia/bulimia has taken over my personality	.07	.15	−.24	.06	.21	−.21	.07	−.02	−.04	−.54
My anorexia/bulimia takes up all my time	−.05	.10	−.16	−.02	.11	−.29	.08	.04	−.03	−.55
Eigenvalue	11.6	6.6	2.7	2.4	2.2	1.7	1.5	1.4	1.3	1.2
Percent variance	23.2	13.2	5.3	4.9	4.5	3.4	3.0	2.9	2.7	2.5
Internal reliability	.92	.85	.85	.84	.83	.75	.86	.81	.82	.72

Note: P-CAN = Pros and Cons of Anorexia Nervosa Scale; PMT/PMS = Premenstrual tension/Premenstrual syndrome.
[a]Items that load on these factors all load negatively. However, because all items load in the same direction, items are simply summed to create a total score.

strongly with the Stifles Emotions theme but disagreed most strongly with the Eat but Stay Slim theme (particularly the RAN rather than the BPAN group), whereas individuals with BN also agreed most strongly with the Stifles Emotion theme but disagreed most strongly with the Fertility/Sexuality and Fitness themes.

AN and BN groups differed significantly on five of the pro themes and on one of the con themes. Specifically, in terms of the pro themes, individuals with AN positively endorsed the Safe/Structured and Special/Skill themes whereas individuals with BN negatively endorsed these themes. Conversely, individuals with AN negatively endorsed the Eat but Stay Slim theme whereas individuals with BN positively endorsed this theme. Both individuals with BN and AN negatively endorsed the Fitness theme although individuals with BN were more negative than individuals with AN. Individuals with BN also negatively endorsed the Fertility/Sexuality theme although individuals with AN were neutral on this theme. In terms of the con themes, both individuals with AN and BN positively endorsed the Guilt theme but individuals with AN agreed more strongly than individuals with BN with items on the Guilt theme. The planned comparisons be-

TABLE 3. Principal components analysis of the bulimia items

	1. Eat but Stay Slim	2. Negative Self-Image	3. Boredom	4. Weight and Shape
I can "have my cake and eat it" because of my anorexia/bulimia	.75	−.07	−.14	−.14
My anorexia/bulimia gives me the best of both worlds—unlimited food and no drastic weight change	.85	.03	.00	.05
My anorexia/bulimia allows me to comfort myself with food but retain control over how I look	.78	−.11	−.14	.18
I can eat lots of forbidden foods and still control my weight because of my anorexia/bulimia	.84	.13	.00	.00
My anorexia/bulimia allows me to get pleasure out of food without fear of the consequences	.89	−.04	.07	−.07
My anorexia/bulimia makes me feel disgusted with myself	.13	.75	.29	.13
My anorexia/bulimia means I don't allow people to get close because I fear they will discover my guilty secret	.10	.56	−.22	−.09
My anorexia/bulimia makes me lack confidence in myself	−.03	.70	.03	.09
My anorexia/bulimia makes me feel ugly inside and out	−.11	.80	−.08	.02
My anorexia/bulimia makes me feel like I'm not worth anything	−.04	.81	−.06	.04
My anorexia/bulimia gives me something to do with my life	−.09	−.03	−.74	.05
My anorexia/bulimia fills up the emptiness of my life	.03	.10	−.80	−.07
My anorexia/bulimia gives me pleasure when confronted with boredom and loneliness	.27	−.12	−.66	.12
My anorexia/bulimia partly fills the empty void which is my life	.08	.12	−.73	.11
My anorexia/bulimia helps me deal with boredom or unreleased energy	.15	.09	−.61	.00
I hate being constantly obsessed with my appearance because of my anorexia/bulimia	.06	.21	.25	.69
My anorexia/bulimia has made me so obsessed with food and weight I don't feel I could ever eat normally again	−.03	.05	−.20	.47
Thinking about food and weight all the time makes it difficult to concentrate on anything else	−.17	.07	−.23	.67
My anorexia/bulimia makes it impossible for me to relax as I am always thinking about how I look	−.04	.00	−.20	.81
I am sick and tired of worrying about whether I will put on weight	.13	−.02	.19	.70
Eigenvalue	5.2	3.6	2.1	1.4
Percent variance	25.9	17.8	10.6	6.9
Internal reliability	.90	.77	.82	.76

TABLE 4. Planned comparisons of P-CED scales

Factor	BN Group ($n = 62$)	AN Group ($n = 140$)	Effect Size	RAN Group ($n = 93$)	BPAN Group ($n = 47$)	Effect Size
Pro themes						
Safe structured appearance	− 0.39 (1.08)	0.52 (1.07)	.85*	0.57 (0.97)	0.4 (1.26)	.16
	−0.56 (1.25)	−0.26 (1.21)	.25	−0.32 (1.18)	−0.15 (1.27)	−.14
Fertility sexuality fitness	−1.16 (0.99)	−0.07 (1.19)	.96*	−0.02 (1.16)	−0.18 (1.24)	.13
	−1.16 (0.85)	−0.62 (1.06)	.54*	−0.57 (1.07)	−0.71 (1.05)	.13
Communicate emotions special/skill	0.15 (0.94)	0.54 (1.03)	.39	0.47 (0.99)	0.67 (1.11)	−.19
	−0.36 (1.18)	0.43 (1.10)	.70*	0.42 (1.03)	0.45 (1.23)	−.03
Stifles emotions boredom	0.34 (1.13)	0.59 (1.06)	.23	0.53 (1.09)	0.73 (0.97)	−.19
	0.19 (1.04)	0.07 (1.15)	−.11	−0.03 (1.11)	0.27 (1.20)	−.26
Eat but stay slim	0.29 (1.35)	−0.68 (1.19)	−.78*	−0.85 (1.02)	−0.32 (1.44)	−.45
Con themes						
Guilt[a]	0.69 (1.02)	1.18 (0.94)	.51*	1.17 (0.97)	1.20 (0.88)	−.03
Hatred[a]	1.51 (0.70)	1.31 (0.83)	−.29	1.24 (0.88)	1.45 (0.69)	−.20
Trapped	1.22 (0.76)	1.16 (0.79)	−.08	1.08 (0.80)	1.32 (0.74)	−.31
Negative self-image	1.04 (0.86)	0.64 (1.00)	−.42	0.52 (1.02)	0.88 (0.91)	−.37
Weight and shape	1.42 (0.59)	1.22 (0.80)	−.27	1.18 (0.80)	1.31 (0.79)	−.16

Note: Mean values are shown with standard deviations in parentheses. P-CED = Pros and Cons of Eating Disorders; BN = bulimia nervosa; AN = anorexia nervosa; RAN = restricting anorexia nervosa; BPAN = binge-purging anorexia nervosa.

[a] These scales were analyzed using nonparametric tests.

* $p \leq .0033$.

tween the RAN and BPAN groups showed no significant differences on any of the subscales.

Ratings of Positives and Negatives

As demonstrated in Table 5, in general, the degree to which participants feel positive about remaining with their eating disorder is positively correlated with the pros and negatively correlated with the cons of the original P-CAN scale.; five of these correlations are significant. Conversely, the degree to which participants feel negative about remaining with their eating disorder is negatively correlated with the pros and positively correlated with the cons; seven of these correlations are signif-

TABLE 5. Correlations between positive and negative feelings towards the illness and ambivalence with the Pros and Cons of Eating Disorders

	Positive	Negative	Ambivalence
Pro scales			
Safe/Structured	.36**	−.45***	.23
Appearance	.60***	−.47***	.47***
Fertility/Sexuality	.23	−.18	.18
Fitness	.48***	−.43**	.34**
Communicate Emotions	.22	−.31*	.12
Special/Skill	.26*	−.28*	.15
Stifles Emotions	−.24	.16	−.21
Boredom	.32*	−.27*	.28*
Eat but Stay Slim	.40**	−.27*	.35**
Con scales			
Guilt	−.11	.14	−.15
Hatred	−.36**	.57***	−.33*
Trapped	−.04	.29*	−.03
Negative Self Image	−.14	.36**	−.19
Weight and Shape	.10	.01	.04
Totals			
Pros	.62***	−.53***	.48***
Cons	−.16	.36**	−.19
Ratio of Pros/Cons	.26	−.25	.22

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

icant. Even where the correlations are not significant they are still in the expected direction. One exception to this is the Stifles Emotions subscale. Although they are not significant, the correlations are in the opposite direction to that expected, suggesting that in this group the stifling of emotions is not necessarily perceived to be a pro. For the new BN subscales, the Boredom and Eat but Stay Slim subscales are positively correlated with feeling positively about remaining with the illness and negatively correlated with negative feelings, whereas the reverse is true for the Negative Self-Image subscale.

The pattern of these correlations is supported by the correlations between feeling positively and negatively towards remaining with the illness and the global pro and global con scores. Feeling positive is positively and significantly correlated with the sum of Pro subscales and is negatively (although non-significantly) correlated with the sum of the Con subscales. Feeling negative is negatively and significantly correlated with the sum of Pro subscales and is positively and significantly correlated with the sum of the Con subscales.

Ambivalence

Ambivalence is not a measure of positive or negative attitudes per se. High levels of ambivalence mean that participants perceive equal numbers of pros and cons whereas low levels of ambivalence mean that participants perceive their eating disorder to be either mainly negative or mainly positive. Thus, ambivalence refers to the strength of attitude rather than a direction. No predictions were made, therefore, as to whether ambivalence should correlate with either the pro themes or the con themes. However, the significant correlations do suggest that the more strongly pro themes are endorsed, the more ambivalent participants are about changing their eating disorder. Overall, this pattern of correlations provides good evidence of the convergent validity of the P-CED.

Conclusion

The aim of the current study was to develop a measure of the perceived advantages and disadvantages (the pros and cons) of both AN and BN. This was achieved by adding items relating to BN to the existing P-CAN.[21] The current study replicated almost exactly the factor structure of the original P-CAN identified in the article by Serpell et al.[21] It is encouraging that the original findings were replicated with a more diverse sample, including participants with BN, and with changes to items referring to eating disorders more generally rather than specifically AN. The factor structure of the new items pertaining to BN was also consistent with the subscales that were rationally determined by an earlier qualitative analysis,[18] indicating that the items generated here had good construct validity.

Individuals with AN tended to agree with statements that their illness provided safety and structure and indicated specialness whereas individuals with BN disagreed with these statements. Individuals with BN did, however, perceive that their illness allowed them to eat but stay slim whereas individuals with AN (especially those with RAN) disagreed with this statement. Both groups disagreed with statements that an advantage of the illness was increased fitness although this was more strongly felt by individuals with BN. Individuals with BN disagreed that issues concerning fertility and sexuality were a positive aspect of their illness whereas individuals with AN were neutral with regards to the perceived benefits of this issue. Individuals with AN and BN agreed with all five con themes, indicating that they perceived several negative aspects to their illness. However, individuals with AN perceived their feelings of guilt to be a greater disadvantage than did individuals with BN. Overall, individuals with BN positively endorsed four of the pro themes and negatively endorsed five. Individuals with AN also positively endorsed four of the pro themes, negatively endorsed three, and were neutral on two. It is noteworthy, however, that it was

the degree to which individuals endorsed pro themes, rather than Cons, that was most consistently correlated with their attitude towards the illness including positive attitude, negative attitude, and overall ambivalence.

Women with eating disorders perceive both pros and cons to having an eating disorder but the precise nature of the advantages that are perceived are different for individuals with AN and BN. The perceived advantages of the illness for individuals with AN are safety, structure, specialness, and the communication of emotions whereas the perceived advantage of the illness for individuals with BN is the ability to eat and still stay slim. Both groups rated the stifling of emotions highly, although it remains rather ambiguous whether this is perceived as a pro or a con. Ambivalence towards the illness seems to be related directly to the degree to which pro themes are endorsed, although the effect of the questions themselves on the individual should be considered. The pro questions outnumber the con questions and it is a possibility that this influences their attitude towards the illness when responding to the questions in the current study, by making them more aware of the pros. However, this is a difficult question to answer retrospectively and in future research should be addressed as part of the research study.

Strengths and Limitations

The current study has some limitations. For example, the number of participants was not sufficient to conduct a single-factor analysis of all 70 proposed items for the P-CED and two separate analyses had to be conducted, one for the original 50 items from the P-CAN and one for the additional 20 items generated for BN. It is possible that, with a larger sample, a single-factor analysis may have combined some of the new subscales with some of the original subscales. Nevertheless, it is a strength of the current study that we were able to develop the P-CED on a diverse sample of individuals with eating disorders including patients presenting for treatment as well as a wider sample of people from a volunteer register. In addition, the range of diagnoses in the current study was broader than that included in the development of the original P-CAN. It is likely, therefore, that the current sample is representative of individuals with eating disorders more generally.

Another possible limitation is that the majority of the eating disorder diagnoses were based on a self-report questionnaire. However, the subset of participants interviewed using the EATATE verified the diagnoses from the self-report questionnaire (EDE-Q), allowing us to be optimistic about the validity of these self-report diagnoses. An important point here is the significant difference between the two sources of participants on age and duration of illness. The volunteer register sample was significantly older with a longer duration of illness than the outpatient sample. Although it was not within the scope of the current article, future research could examine the differences between these two groups and whether these variables affect the perception of pros and cons.

Implications

Notwithstanding these limitations, there are a number of implications. Some of these relate to the development of models of maintenance of eating disorders and, hence, to treatment whereas others relate to the uses to which the P-CED could be put. The factors that were most strongly endorsed by women with AN, and which differentiated these women from women with BN, are relevant for an AN-specific maintenance model. For example, AN makes those with the disorder feel safe and special, that their lives are structured, and helps them to communicate their emotions. The implications for therapy would be to increase self-efficacy in domains other than weight and shape and also to work on the perfectionism and compulsiveness that means that the goal of specialness is less important—that is, to be able to accept being "good enough." It may be that these changes to this small group of themes account for the effectiveness of a disparate range of therapeutic approaches to AN, including cognitive, analytic, and family approaches, and for the inability to differentiate between them in terms of their effectiveness.[27]

For people with BN, it would first be important to address the view that BN allows the individual to eat and stay slim. This inaccurate belief is addressed in cognitive-behavioral approaches to BN,[28] in which psychoeducational components address the binge-purge cycle and aid the patient's understanding of how binging and purging maintain one another. Second, treatment of BN may need to address alleviating boredom in ways other than binging and purging for those in whom this is perceived as a benefit. An aspect of both types of eating disorder is that they stifle emotions, although this may have positive as well as negative elements. Therefore, an important feature of treatment for both conditions would be to find ways of processing and managing difficult emotions rather than using binging, starving, or purging as avoidance and/or distraction.

In terms of the relevance of the current study to the use of motivational techniques in the treatment of eating disorders,[9,29] because it appears to be pros rather than cons that are related to ambivalence, another key implication is that in confronting ambivalence in treatment, reducing perceived benefits should be more effective than increasing perceived costs. The use of the P-CED could enable clinicians to understand the pros and cons specific to the patient and so treatment could be tailored around these. The overall pattern of pros and cons could also be used to measure the effectiveness of motivational techniques in the treatment of eating disorders as well as in establishing their precise roles in the process of recovery.

The current study validated and expanded the P-CAN so that it can also be applied to patients with BN. The resulting P-CED is potentially useful for a range of eating disorder diagnoses and stages of illness and has a number of clinical and research implications.

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