Behaviour Research and Therapy 77 (2016) 1–6

Contents lists available at ScienceDirect

Behaviour Research and Therapy

journal homepage: www.elsevier.com/locate/brat

CBT for eating disorders: The impact of early changes in eating pathology on later changes in personality pathology, anxiety and depression

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ARTICLE INFO

Article history:
Received 9 July 2015
Received in revised form
22 October 2015
Accepted 23 November 2015
Available online 1 December 2015

Keywords:
Eating disorders
Cognitive-behavioural therapy
Early change
Personality disorder cognitions
Comorbidity

ABSTRACT

Whilst studies have consistently identified early symptom reduction as an important predictor of treatment outcome, the impact of early change on common comorbid features has not been investigated. This study of CBT for eating disorders explored patterns of early change in eating pathology and longer-term change in personality pathology, anxiety and depression. It also explored the impact of early change in eating pathology on overall change in personality pathology, anxiety and depression. Participants were 179 adults diagnosed with eating disorders who were offered a course of CBT in an out-patient community eating disorders service in the UK. Patients completed a measure of eating disorder psychopathology at the start of treatment and following the 6th session. They also completed measures of personality disorder cognitions, anxiety and depression at the start and end of treatment. There were significant changes in eating pathology over the first six sessions of treatment. Significant improvements were also seen in personality disorder pathology, anxiety and depression by the end of therapy. Effect sizes were medium to large for both completer and intention to treat analyses. Early changes in eating pathology were associated with later changes in common comorbid features, with early reduction in restraint being a key predictor. These findings demonstrate that early symptom change can be achieved in CBT for eating disorders when delivered in routine clinical practice. Such change has long-term benefits that go beyond the domain of eating pathology, enhancing change in personality pathology, anxiety and depression.

Studies investigating patterns of change in psychological treatments have consistently identified early symptom reduction as an important predictor of treatment outcome. This effect has been demonstrated across a range of psychiatric disorders, including depression, generalised anxiety disorder and panic disorder (e.g., Lutz et al., 2014; Lutz, Stulz, & Köck, 2009; Tang & DeRubeis, 1999). The impact of early response has been demonstrated across different age groups (e.g., Bradford et al., 2011; Gunlicks-Stoessel & Mufson, 2011) and types of psychological therapy (e.g., Gunlicks-Stoessel & Mufson, 2011; Haas, Hill, Lambert, & Morrell, 2002; Lutz et al., 2009). Preliminary findings suggest that early change is predictive of treatment outcome over and above baseline patient characteristics (Lutz et al., 2014).

A similar pattern of findings has emerged in the eating disorders. For example, early reduction in binge eating and/or purging predict outcome in cognitive-behavioural therapy for bulimia nervosa (e.g., Agras et al., 2000; Wilson et al., 1999). Similarly, in the treatment of anorexia nervosa, early weight gain predicts completion and outcome (Brown, Mountford, & Waller, 2013; Doyle, Le Grange, Loeb, Doyle, & Crosby, 2010; Le Grange, Accurso, Lock, Agras, & Bryson, 2014). In a transdiagnostic sample, Raykos, Watson, Fursland, Byrne, and Nathan (2013) found that those who responded rapidly to enhanced cognitive-behavioural therapy had better treatment outcomes, achieving lower scores on the global EDE-Q post treatment and being twice as likely to achieve full remission compared to slower responders (53% vs.

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http://dx.doi.org/10.1016/j.brat.2015.11.011
0005-7967/

23%). Similar findings have been reported by Turner, Bryant-Waugh, and Marshall (2015), who found that early symptom change (but *not* the therapeutic alliance) significantly predicted later change in eating pathology in CBT for eating disorders. However, we do not know whether the impact of early change in eating pathology is confined to predicting later outcome in eating pathology, or whether it has broader effects on axis 1 and axis 2 pathologies.

There is certainly evidence that CBT for eating disorders has positive effects by the end of treatment on comorbid problems that have not been directly addressed by the treatment, including alcohol use (e.g., Karačić et al., 2011) and personality characteristics, such as harm avoidance (e.g., Anderson Joyce, Carter, McIntosh, & Bulik, 2002; Dalle Grave et al., 2007). There is some evidence that those personality-level changes are associated with the level of reduction in eating pathology by the end of CBT (Agüera et al., 2012). However, no studies to date have explored the impact of *early* change in eating on overall change in comorbid features commonly seen in eating disorder patients, such as personality pathology, anxiety and depression. It is also unclear as to whether early eating change is a positive or negative influence on later change in those comorbid conditions. It could be argued that an early focus on eating change detracts from the wider focus needed to address those comorbid pathologies. Alternatively, it is possible that the initial focus on treating the core features of an eating disorder (e.g., moving to regular eating, increasing carbohydrate intake) will help to stabilise mood and reduce emotional distress. In short, does early eating change in therapy for eating disorders predict change in axis 1 and 2 pathology by the end of therapy, and is that association positive or negative?

This effectiveness study, based in a routine clinical setting, had three aims. First, it aimed to determine whether CBT in such a setting can result in a positive change in eating pathology during the early phase of treatment. Second, it assessed the longer term pattern of change in personality disorder pathology, anxiety and depression across the course of the whole therapy. Finally, it explored the impact of early change in eating disorder pathology on overall change in personality disorder pathology, anxiety and depression. The study used a transdiagnostic sample of patients who received a course of out-patient CBT. The treatment delivered has been demonstrated to be effective and has been described in an earlier paper (Turner, Marshall, Stopa, & Waller, 2015), which shares some of the data that are used in the current analyses.

1. Method

1.1. Ethical clearance

This study was approved by the University of Southampton Ethics Committee.

1.2. Participants

The sample consisted of 179 patients (166 women and 13 men) who had been offered a course of out-patient CBT between 2010 and 2013, delivered in a specialist National Health Service eating disorder service in the UK. Each patient was assessed using the Eating Disorders Examination (Fairburn, Cooper, & O'Connor, 2008) and was diagnosed using DSM-IV criteria (American Psychiatric Association, 1994). Of the 179 patients, 52 (29.1%) had a diagnosis of anorexia nervosa, 51 (28.5%) bulimia nervosa, and 76 (42.4%) eating disorder not otherwise specified. The mean age of the sample was 27.7 years ($SD = 9.1$, range = 17–53 years).

1.3. Measures

Patients completed the Eating Disorders Examination (EDE, Fairburn, Cooper & O'Connor, 2008) at initial assessment, and measures of eating disorder pathology at the start of treatment, following the sixth session, and at the end of treatment. Personality disorder cognitions, anxiety and depression were measured at the start and on completion of CBT. These measures are administered routinely at the clinic for all patients receiving out-patient psychological therapy. As is common in routine settings, a small proportion of the data were not collected, and therefore the numbers vary across some analyses (see Tables).

Eating Disorder Examination (EDE, version 16, Fairburn et al., 2008). In this study, the EDE was used to generate DSM-IV diagnoses.

Eating Disorders Examination–Questionnaire (EDE-Q, version 6; Fairburn & Beglin, 2008). The EDE-Q is a self–report questionnaire assessing key cognitive and behavioural aspects of eating disorders. It generates frequency ratings for key eating disorder behaviours (over the past 28 days) as well as the following attitudinal subscales: restraint, weight concerns, shape concerns, and eating concerns. A global attitudinal score can be calculated by averaging the four subscales. The EDE-Q has good psychometric properties and validity (e.g., Mond, Hay, Rodgers, Owen, & Beumont, 2004).

Personality Belief Questionnaire – Short Form (PBQ-SF; Butler, Beck, & Cohen, 2007). The PBQ-SF is a 65-item questionnaire used to identify the cognitions underlying ten elements of axis II personality pathology. Respondents are asked to record the extent to which they believe each statement on a five-point Likert scale (0 = not at all; 4 = totally). A total score for each subscale is then calculated by summing the relevant seven items (ranging 0–28). Higher scores reflect a greater level of beliefs underpinning that specific personality disorder, although the PBQ-SF is not designed to be a diagnostic tool. The short form is based on the earlier 126-item PBQ (Beck & Beck, 1991), and has been used with eating-disordered patients (Connan et al., 2009).

Hospital Anxiety and Depression Scale (HADS, Zigmond & Snaith, 1983). The HADS has two subscales, measuring anxiety and depression. Respondents are required to rate the frequency of emotions experienced over the past week on a four-point Likert scale (0–3). The HADS is suitable for use with eating disorder populations (e.g., Padierna, Quintana, Arostegui, Gonzalez, & Horcajo, 2000; Seed et al., 2004).

1.4. Procedure

The therapy delivered in this study is detailed elsewhere (Turner, Bryant-Waugh, et al., 2015; Turner, Marshall, et al., 2015). Treatment length was typically 20 sessions, but that was shortened in the event of rapid change (to a minimum of 10 sessions) and extended for those patients with more significant comorbidity or a restrictive presentation (up to 40 sessions). Participants completed the EDE-Q, PBQ-SF and HADS at the start and end of therapy. They also completed the EDE-Q after the sixth treatment session. All patients gave consent for data collected as part of routine service evaluation to be used to monitor progress and change in therapy.

1.5. Data analysis

Completer and intention to treat (ITT) analyses are presented, with the latter involving the carrying forward of the last available data point. In 11 cases, the participant completed treatment, but the end of treatment measures were not completed. These individuals were included in the 'Completer' group, carrying forward their last

available data point. Early change in eating disorder presentation (aim 1) was determined by comparing scores at baseline and session six. Change in other features (HADS, PBQ-SF) was measured from baseline to end of treatment (aim 2). The clinical significance of these changes in the early part of therapy and by the end of therapy was assessed using Jacobson and Truax's (1991) criteria, and based on a reliable change with 95% confidence. The calculations for clinical significance were based on existing Cronbach's alphas for the EDE-Q, PBQ-SF and HADS (Butler et al., 2007; Mykletun, Stordal, & Dahl, 2001; Peterson et al., 2007). As Kolmogorov–Smirnov tests showed that not all data were normally distributed, changes in symptoms were tested using non-parametric tests (Wilcoxon), including effect sizes (*tau*). To address aim 3, a series of linear regression analyses were conducted to explore the impact of early change in eating disorder pathology (the four individual EDE-Q scales; body mass index [BMI]; frequency of bingeing; frequency of vomiting) on change in personality disorder cognitions, anxiety and depression over the course of treatment.

2. Results

2.1. Level of early change in eating pathology

Table 1 shows the group's mean EDE-Q scores at the beginning of therapy and after the sixth session. It also shows the result of the completer and ITT analyses, and the associated effect sizes. The pattern of significant differences was almost identical for each form of analysis, with slightly lower effect sizes for ITT analysis, as would be expected.

There were significant improvements in eating attitudes by session six, with generally large effect sizes for both completer and ITT analyses. None of the changes in EDE-Q scores over these six sessions achieved clinical significance, apart from the EDE-Q Global scale in the completer analysis. There were similar improvements in eating behaviours, although the objective binge frequency was not significant in the completer analysis. The effect sizes for the behaviours over the first six sessions were in the small to medium range. Finally, there was a small but significant increase in BMI after six sessions (medium effect size).

2.2. Change in personality disorder cognitions and emotions across therapy

Table 2 shows the group's mean PBQ-SF and HADS scores at the beginning and end of therapy, compared using both completer and ITT analyses, and the associated effect sizes. The pattern of significant differences was identical for each form of analysis. There were significant improvements in all PBQ-SF scales. Generally, the effect sizes were large for the completers, and medium for the ITT analysis. There were also significant improvements in HADS anxiety and depression scores across the course of therapy, with mostly large effect sizes. However, none of the PBQ-SF of HADS scales achieved clinical significance within either the completer or ITT analyses.

2.3. Early change in eating pathology as a predictor of later personality pathology change in CBT

Having demonstrated that there is early change in eating pathology and longer-term change in mood and personality, the final stage in the analysis was a set of regression analyses. In each of these, early changes in eating variables and BMI (calculated by subtracting the session six score from the initial score) were used as the predictor variables, and changes in PBQ-SF and HADS scores (final score subtracted from the initial score) were used as the outcome variables. Tables 3 and 4 show the results of the regression analyses for the PBQ-SF scores, using completer and ITT analyses, respectively. The two sets of analyses yielded broadly comparable results, with predictable differences in strengths of relationships (greater amounts of variance explained in the completer analysis).

In the completer analysis, Table 3 shows that changes in specific EDE-Q scores were associated with changes in six personality disorder cognitions. Early reductions in EDE-Q restraint were the strongest predictor of later changes in personality pathology, predicting significant reductions in the PBQ-SF scores for borderline personality ($t = 2.11$; *Beta* = .264), paranoid personality ($t = 2.06$; *Beta* = .264), histrionic personality ($t = 2.26$; *Beta* = .264), and obsessive-compulsive personality ($t = 3.92$; *Beta* = .449). Early reductions in EDE-Q eating concern predicted significant improvements in histrionic and dependent personality (respectively: $t = 2.08$; *Beta* = .304; $t = 2.72$; *Beta* = .378), while such positive changes in EDE-Q weight concern were associated with reductions

Table 1
Early change in eating disorder psychopathology (from the beginning of treatment to session six), using completer analysis (CA) and intention to treat analysis (ITT).

		Measurement point		Wilcoxon test			Clinically Significant Difference
		Session 1	Session 6	*Z*	*P*	Effect size	
	Analysis[a]	*M* (*SD*)	*M* (*SD*)			(*tau*)	
EDE-Q							
Restraint	CA	3.87 (1.51)	2.33 (1.48)	6.87	.001	.76	No
	ITT	3.87 (1.65)	2.91 (1.67)	7.58	.001	.59	No
Eating concern	CA	3.73 (1.31)	2.86 (1.46)	5.89	.001	.67	No
	ITT	3.71 (1.39)	3.13 (1.49)	6.01	.001	.47	No
Shape concern	CA	4.79 (1.28)	4.08 (1.59)	4.76	.001	.53	No
	ITT	4.74 (1.37)	4.34 (1.56)	4.74	.001	.37	No
Weight concern	CA	4.39 (1.40)	3.46 (1.71)	4.87	.001	.54	No
	ITT	4.32 (1.58)	3.74 (1.69)	5.62	.001	.44	No
Global	CA	4.19 (1.11)	3.17 (1.38)	6.84	.001	.76	Yes
	ITT	4.17 (1.29)	3.53 (1.42)	7.52	.001	.59	No
Objective binges	CA	8.20 (12.1)	6.32 (11.2)	1.86	*NS*	–	–
	ITT	8.94 (13.8)	7.50 (12.8)	2.01	.05	.16	–
Vomiting	CA	7.23 (14.2)	5.26 (13.0)	2.44	.02	.27	–
	ITT	9.59 (18.0)	7.10 (14.4)	2.39	.02	.19	–
Body mass index	CA	21.0 (7.05)	21.7 (7.69)	3.59	.001	.40	–
	ITT	21.0 (7.05)	21.4 (7.05)	3.77	.001	.29	–

[a] CA – *N* = 78–81; ITT – N = 164–167. *N*s vary due to missed measures.

Table 2
Change in personality pathology (PBQ-SF scores) from the beginning to end of CBT for eating disorders, using completer analysis (CA) and intention to treat analysis (ITT).

		Measurement point		Wilcoxon test			Clinically Significant Difference
		Session 1	End of therapy	*Z*	*P*	Effect Size	
	Analysis[a]	*M* (*SD*)	*M* (*SD*)			(*tau*)	
PBQ							
Avoidant	CA	14.8 (6.09)	10.9 (6.44)	4.95	.001	.58	No
	ITT	14.6 (6.53)	12.9 (6.65)	4.66	.001	.37	No
Dependant	CA	9.36 (6.47)	6.63 (6.25)	3.63	.001	.42	No
	ITT	9.85 (6.57)	8.60 (6.72)	3.11	.002	.25	No
Passive-aggressive	CA	7.15 (5.38)	5.16 (4.84)	3.75	.001	.44	No
	ITT	7.56 (5.40)	6.44 (5.00)	3.81	.001	.30	No
Obsessive-compulsive	CA	15.9 (6.64)	10.6 (6.93)	5.77	.001	.66	No
	ITT	15.9 (7.34)	13.6 (7.85)	5.58	.001	.44	No
Antisocial	CA	4.37 (5.18)	3.08 (4.11)	2.58	.01	.30	No
	ITT	4.57 (4.58)	3.84 (3.92)	2.63	.01	.21	No
Narcissistic	CA	2.72 (3.81)	1.75 (2.85)	2.66	.008	.31	No
	ITT	2.39 (3.20)	1.93 (2.71)	2.57	.01	.20	No
Histrionic	CA	7.91 (6.16)	5.20 (4.75)	4.09	.001	.48	No
	ITT	7.83 (5.85)	6.73 (5.40)	3.75	.001	.30	No
Schizoid	CA	10.8 (6.28)	8.47 (5.61)	4.27	.001	.49	No
	ITT	10.5 (6.27)	9.46 (5.81)	4.05	.001	.32	No
Paranoid	CA	10.9 (8.49)	6.87 (6.60)	4.72	.001	.54	No
	ITT	10.2 (8.42)	8.36 (7.58)	4.45	.001	.35	No
Borderline	CA	11.3 (7.12)	7.32 (7.12)	4.57	.001	.53	No
	ITT	11.4 (7.01)	9.70 (7.29)	3.91	.001	.31	No
HADS							
Anxiety	CA	12.6 (4.09)	9.25 (3.88)	6.10	.001	.67	No
	ITT	12.9 (4.18)	11.2 (4.51)	5.75	.001	.44	No
Depression	CA	9.12 (4.39)	4.43 (3.80)	7.17	.001	.78	No
	ITT	9.19 (4.32)	6.79 (4.73)	6.87	.001	.53	No

[a] CA − $N = 73–75$ for PBQ and $N = 84$ for HADS; ITT − $N = 158–162$ for PBQ and $N = 170$ for HADS. *Ns* vary due to missed measures.

Table 3
Predictors of change in personality disorder cognitions over the course of treatment (completer analysis: $N = 73–75$).

Dependent variable − PBQ change pre-post treatment	Overall *F*	*P*	% Variance explained	Significant independent variables − EDE-Q & BMI	*t*	*P*	*Beta*
Borderline	3.29	.005	19.3%	Restraint	2.11	.04	.264
Paranoid	2.84	.013	16.1%	Restraint	2.06	.05	.264
Histrionic	3.53	.04	12.4%	Restraint	2.26	.03	.295
				Eating concern	2.08	.05	.304
Obsessive-compulsive	5.65	.001	32.7%	Restraint	3.92	.001	.449
				Weight concern	2.17	.04	.469
				Shape concern	2.14	.04	−.488
Dependent	3.36	.004	20.0%	Eating concern	2.72	.001	.378
				Shape concern	2.03	.05	−.514
Passive-aggressive	2.28	.04	11.8%	Objective binge episodes	3.02	.005	−.456
Avoidant	2.79	.02	15.7%	–	–	–	–
Schizoid	1.81	*NS*	7.9%	–	–	–	–
Narcissistic	.54	*NS*	.0%	–	–	–	–
Antisocial	1.00	*NS*	.0%	–	–	–	–

Table 4
Predictors of change in personality disorder cognitions over the course of treatment (intention to treat analysis: $N = 158–162$).

Dependent variable − PBQ change pre-post treatment	Overall *F*	*P*	% Variance explained	Significant independent variables − EDE-Q & BMI	*T*	*P*	*Beta*
Borderline	4.22	.001	14.2%	Restraint	2.51	.02	.255
Paranoid	3.45	.002	11.2%	Restraint	2.38	.02	.246
Histrionic	3.08	.005	9.7%	Restraint	3.05	.005	.319
Obsessive-compulsive	7.02	.001	23.6%	Restraint	4.66	.001	.447
				Weight concern	2.77	.01	.435
				Shape concern	2.53	.02	−.400
Dependent	4.15	.001	14.0%	Restraint	2.45	.001	.378
				Weight concern	1.99	.05	.333
				Shape concern	1.99	.05	−.335
Passive-aggressive	2.08	.051	5.4%	Objective binge episodes	2.04	.05	−.259
Avoidant	4.65	.001	15.8%	Restraint	2.08	.04	.209
Schizoid	2.69	.02	8.0%	Restraint	3.07	.005	.323
Narcissistic	.74	*NS*	.0%	–	–	–	–
Antisocial	1.42	*NS*	2.1%	–	–	–	–

in obsessive-compulsive personality ($t = 2.17$; *Beta* = .469). Change in BMI was not associated with change in PBQ-SF scores. However, early changes in eating pathology were not always associated with later reductions in personality disorder cognitions. Reduction in objective binge frequency predicted later increase in passive-aggressive personality ($t = 3.02$; *Beta* = .378), and reduction in shape concern was associated with later worsening of obsessive-compulsive and dependent personality (respectively: $t = 2.14$; *Beta* = −.488; $t = 2.03$; *Beta* = −.514).

Table 4 shows similar findings in the ITT analysis, with early EDE-Q changes predicting later changes in seven PBQ-SF scales. Early reductions in EDE-Q restraint were associated with reductions in borderline personality ($t = 2.51$; *Beta* = .255), paranoid personality ($t = 2.38$; *Beta* = .246), histrionic personality ($t = 3.05$; *Beta* = .319), obsessive-compulsive personality ($t = 4.66$; *Beta* = .447), dependent personality ($t = 2.45$; *Beta* = .378), avoidant personality ($t = 2.08$; *Beta* = .209), and schizoid personality ($t = 3.07$; *Beta* = .323). Positive changes in EDE-Q weight concern were associated with reductions in obsessive-compulsive and dependent personality (respectively: $t = 2.77$; *Beta* = .435; $t = 1.99$; *Beta* = .333). Changes in eating concern, BMI and eating behaviours did not predict changes in personality in these analyses. Again, early positive changes in shape concern were associated with later *worsening* of obsessive-compulsive and dependent personality (respectively: $t = 2.53$; *Beta* = −.400; $t = 1.99$; *Beta* = −.335).

2.4. Early change in eating pathology as a predictor of later mood and anxiety change in CBT

There was a broadly consistent pattern in the equivalent regression analyses testing changes across therapy in the HADS scales' scores. For long-term changes in the Depression scale, there was an overall significant effect of early changes in EDE-Q scales (completer analysis – overall $F(7,75) = 4.70$, $P < .001$, variance explained = 37.4%; ITT analysis – overall $F(7,145) = 3.82$, $P < .001$, variance explained = 12.0%). Similarly, for long-term changes in the Anxiety scale, there was an overall significant effect of early changes in EDE-Q scales (completer analysis – overall $F(7,75) = 3.33$, $P < .005$, variance explained = 17.9%; ITT analysis – overall $F(7,145) = 2.86$, $P < .01$, variance explained = 8.2%). In three of those analyses, early change in EDE-Q restraint was the sole predictive factor ($P < .02$ in all cases) of changes in depression (both completer and ITT analyses) and anxiety (ITT analysis). In the fourth analysis (anxiety, completer analysis), there were no significant individual predictors. In short, reduction in restriction was the best predictor of later improvement in mood.

2.5. Summary

There were consistent changes in eating pathology over the first six sessions of CBT for eating disorders, as would be expected. However, there were also changes in personality disorder pathology, anxiety and depression by the end of therapy. The regression analyses have demonstrated that these two are linked, with early changes in eating pathology being associated with later changes in these common comorbid features. Early reduction in restraint was the most impactful predictor of later change in comorbidity.

3. Discussion

This study has examined the association of early change in eating pathology with longer-term patterns of change in personality disorder pathology, anxiety and depression, following CBT for eating disorders. The early change in core pathology over the first six sessions reflects that found in previous studies related to depression and panic disorder (e.g., Lutz et al., 2009; 2014), as well as eating disorders (e.g., Agras et al., 2000; Doyle et al., 2010; Raykos et al., 2013; Wilson et al., 1999). The personality disorder cognitions were similar to those shown in other studies of individuals with eating disorders (Connan et al., 2009), with a particularly strong representation of DSM (American Psychiatric Association, 1994) Cluster C personality disorders, including avoidant, obsessive-compulsive and dependent features. Whilst no previous outcome studies have used the PBQ-SF, the finding of personality-level changes as a result of CBT for eating disorders is compatible with other studies (Agüera et al., 2012; Anderson, Joyce, Carter, McIntosh, & Bulik, 2002; Dalle Grave et al., 2007). The improvements in anxiety and depression noted in the present study also mirror the positive changes found in other studies of CBT for eating disorders (Byrne, Fursland, Allen, & Watson, 2011; Knotts, Woodward, Hoefkens & Limbert, 2015). The effect sizes generally indicated medium to strong changes in eating attitudes, personality disorder cognitions, anxiety and depression at the relevant time points. While there was only one clinically significant change, this pattern might be explained by the fact that the changes in eating pathology were being measured well before the end of treatment, and the other changes did not reflect overt targets of the therapy being used here. Furthermore, the scores on the HAD and PBQ-SF were not in the clinical range that would be found in anxiety and mood disorders or in personality disorders, allowing less room for clinically significant change.

The association of early eating changes with overall personality disorder cognition changes is of particular interest. The strongest pattern was that early reductions in restraint were associated with PBQ-SF subscales reflecting both cluster B (borderline, histrionic) and C (avoidant, obsessive-compulsive, dependent) personality features, suggesting that improving dietary intake can have a positive impact on a wide range of personality traits, as well as anxiety and depression. It is important to note the negative associations between early changes in shape concerns and later changes in some elements of personality pathology. It is possible that this finding indicates that an early focus on improving body image reduces clinicians' emphasis on improving eating in the first few sessions, which is recommended in evidence-based CBT (e.g., Fairburn, 2008; Waller et al., 2007). Such an initial focus away from working on eating might mean that the early (relatively small – see Table 1) improvement on shape concerns is achieved at the cost of less of a change in eating patterns, and that this is the process that impairs longer-term changes in comorbidity. This hypothesis should be addressed in future research.

These findings have clear clinical implications when delivering CBT for out-patients with eating disorders, regardless of diagnosis. As suggested by previous authors (e.g., Brown et al., 2013; Raykos et al., 2014), clinicians should not delay in actively engaging patients in early change, particularly addressing their restrictive behaviours. The initial phase of evidence-based CBT for eating disorders (e.g. Fairburn, 2008; Waller et al., 2007) recommends a number of early tasks that aim to support patients to normalise their eating and improve their carbohydrate intake (and to gain weight, if necessary). The findings from the current study suggest that rather than having a negative impact on the likelihood of changing comorbid conditions, focussing on these core components of treatment can have a significant positive impact on broader cognitive and emotional functioning. However, the findings also support the clinical argument that work on body image is better carried out later in CBT, as represented in existing protocols (Fairburn, 2008; Waller et al., 2007).

This effectiveness study has a number of strengths. In particular, the nature of the sample (drawn from a community-based service with the mixed diagnostic population seen in routine clinical

settings) gives the findings ecological validity. It also used measures of eating, mood and personality cognitions that have strong psychometric properties and that are feasible for use in routine clinical practice. However, the study also has a number of limitations that are common in routine clinical practice, including some missing data. A further methodological issue is that eating disorder behaviours and weight were taken from the EDE-Q, rather than from weekly symptom monitoring records. While this study has demonstrated the importance of early change in restraint, further research is needed to explore the sequencing of change in eating disorder treatments in more detail, measuring change at multiple points across therapy. Such work would help to explain the impact of different elements of treatment on the core pathology of eating disorders and common comorbid features. The understanding gained would then inform how we might adapt treatment so as to maximise treatment retention and clinical effectiveness. Similarly, it would be valuable to determine whether similar patterns apply when considering the impact of other evidence-based therapies, and would allow comparison of the effective sequencing of elements of different therapies.

Overall, the findings from the present study support the existing argument that early eating change is achievable within CBT for eating disorders, demonstrating that such change can be achieved in routine clinical practice. More importantly, the study has shown that such early change has long-term benefits that go beyond the domain of eating pathology, enhancing change in personality disorder cognitions, depression and anxiety. Therefore, the findings add to the importance of working towards early change in eating pathology in CBT for eating disorders.

Conflict of interest

The authors have no conflict of interest to declare.

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