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Construing and body dissatisfaction in chronic depression: A study of body psychotherapy

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ABSTRACT

The frequent association of depression with somatic symptoms suggests that body psychotherapy may be an appropriate therapeutic intervention for people with chronic depression. Using a subset of twenty-three participants from a randomized controlled trial that had demonstrated the effectiveness of such an intervention in reducing depressive symptoms, the present study investigated whether it may also impact aspects of construing which have been associated with depression. Patients presenting with chronic depression were randomly allocated to a treatment group or a waiting list group, which received body psychotherapy after a period on a waiting list. Correlations between repertory grid, questionnaire, and visual analogue measures indicated that depression and bodily dissatisfaction were associated with features of the content and structure of construing. There were no significant changes while patients were on the waiting list, but during treatment reduction in depression and bodily dissatisfaction, together with increase in self-esteem and quality of life, were accompanied by an increase in the salience of construing of the bodily self.

1. Introduction

Depression is the most common mood disorder, associated with a high burden and considerable care costs (Thase, 2009). It often co-occurs with severe physical complaints and somatic symptoms, emphasizing the importance of consideration of body experience in the psychological treatment of depression (Röhricht et al., 2013). Body Psychotherapy (BPT) is a general term for psychotherapies that focus on working with and through bodily realities, considering the body as a medium of communication and exploration. BPT focuses on body experience, sensory awareness, movement, and emotional expression within an interactive therapeutic relationship (Heller, 2012; Röhricht et al., 2013). A review on body-oriented psychological therapies (Loew et al., 2006) defined BPT as a standardized procedure always underpinned by a general psychotherapeutic framework and based on the unity of body and mind (Röhricht, 2009). More specifically, the intervention strategy in BPT has been conceptualized as "a kind of applied embodied cognition" (Röhricht et al., 2014 p. 11). There is some evidence (Röhricht, 2009) about the positive effects of BPT for depression on mood (Stewart et al., 2004) and negative symptoms in chronic schizophrenia (Martin et al., 2016; Röhricht et al., 2009; Röhricht and Priebe, 2006; Savill et al., 2017), but little of this is concerned with chronic depression. Röhricht et al. (2013) conducted the first randomized controlled trial of body psychotherapy for patients with chronic depression, who were randomly allocated to immediate BPT or waiting list groups that received BPT 12 weeks later. The BPT consisted of a range of exercises, grounding techniques, non-verbal communications, and interventions concerning the recognition of physical strength and capabilities aiming to improve psychomotor activity levels, stimulate emotional expression, rebalance negative self-esteem, and explore alternative behaviour for conflict resolution. Through body exploration, within a context of interactions between participants and therapist, this treatment considered the emotional, behavioural, and cognitive implications of the chronic nature of patients' symptoms. It promoted an embodied understanding of patients' range of conflicts, trauma, and needs, helping them to reach a better awareness of their negative cognitions and emotions, and to develop alternative coping strategies in response to adversity. The relational and

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emotional aspects were explored by combining the use of techniques such as role-play, body sculpting, scenic enactments, and movement mirroring as well as verbal interactions and reflections. Patients in the immediate BPT group, compared to the waiting list group, displayed a significant reduction in the level of depressive symptoms, suggesting that BPT is a useful and effective therapy in reducing the severity of depressive symptoms. However, since no long-term follow-up data were collected, the degree of maintenance of these effects is unknown.

There has been little exploration of whether, in addition to reduction of symptoms, body psychotherapy may revise patients' views of themselves and their bodies. This is the focus of the current study, which draws upon personal construct theory (Kelly, 1955), as did a study of a particular type of body psychotherapy derived from dance movement therapy (Cipolletta et al., 2017a). Kelly (1955) considered individuals as scientists who are constantly involved in the anticipation of their worlds through formulation and revision of hypotheses derived from their "personal construct systems" in order to make events more predictable and understandable. In short, they are constantly construing -defined by Kelly (1955, p. 50) as "placing an interpretation"- and reconstruing their worlds. Psychological disorder was regarded by Kelly (1955) as a blockage in the process of reconstruction, and defined as "any personal construction which is used repeatedly in spite of consistent invalidation" (p.831). From this theoretical perspective, the structure of the depressed individual's construct system is characterized mainly by constriction, the tendency to restrict the world to events that are predictable and manageable in order to avoid anxiety derived from "apparent incompatibility" in construing (Kelly, 1955; Ross, 1985; Winter et al., 2007). Constriction is closely related to pre-emptive thinking, in which the person limits the number of constructs used to define elements to a "nothing but" type of construction, thus dealing with events in an unvarying and stereotyped way (Kelly, 1955; Winter and Procter, 2013). This relieves people from hard choices between alternative ways of construing, but limits their capacity for adaptation and change (Neimeyer, 1985). Furthermore, there is evidence (Gara et al., 1993; Neimeyer, 1984; R.A. 1985) that depressed people tend to construe themselves negatively and as dissimilar to others, and to view events in polarized and less complex ways (Neimeyer, 1984; Neuringer, 1961; Sheehan, 1981, 1985; Winter, 1992). Depressive people can be thought to give meaning to their experience by anticipating failure and conceptualizing the future in a negative way (Hewstone et al., 1981). Personal construct theory is one of the few theories that emphasize the structural aspects of depressive construing in addition to its content, and its principal assessment method, repertory grid technique, which has been used in most of the studies considered above, has allowed measurement of both these features of construing (Fransella et al., 2004; Neimeyer and Feixas, 1992). Although not conducted on depressed people, there have also been several repertory grid studies of body perception in clinical populations (Borkenhagen et al., 2005; Weber et al., 2001, 2005). In addition, the repertory grid has demonstrated changes in construing during successful psychotherapy in a range of client groups, including depressed people (Winter, 2003).

On the basis of the personal construct theory perspective and previous research, we hypothesised that:

1. in clients presenting with chronic depression, depressive symptoms and unfavourable bodily perception would be related to various aspects of construing, namely unfavourable construing of the self, bodily self, and future self; perceived dissimilarity of the self and others; a constricted view of the future self; conflict associated with the self and bodily self; high polarization of construing; and low complexity of construing;
2. changes in depressive symptoms and bodily perception would be related to corresponding changes in the above aspects of construing;
3. the aspects of construing associated with depression would become less pronounced during body psychotherapy, and this change would be greater than while on a waiting list.

2. Methods

2.1. Participants

A subset of 23 participants from the Röhricht et al. (2013) randomized controlled trial of body psychotherapy were included in the present study, 11 (5 males and 6 females; mean age 48.36 years, sd 11.94 years) in an immediate psychotherapy group and 12 (8 males and 4 females; mean age 48.08 years, sd 9.79 years) in a waiting list group. The subset consisted of those participants who completed repertory grids in addition to the measures reported in the larger study. All were patients in a secondary mental health service in the UK. Inclusion criteria included meeting the diagnostic criteria for non-bipolar, non-psychotic recurrent major depressive disorder with chronic depressive episode for longer than two years and/or chronic affective disorder (dysthymia) based on the Diagnostic and Statistical Manual of Mental Disorders 4th. Edition (American Psychiatric Association, 2000). Furthermore, participants were required to have a total baseline score of ≥ 20 on the Hamilton Rating Scale for Depression (HAMD; Hamilton, 1960). Exclusion criteria included psycho-organic disorder, substance misuse as a primary diagnosis, insufficient command of English, and acute suicidal ideation or psychotic symptoms.

The Ethics Committee of the North East London Strategic Health Authority (REC reference 10/H0701/12) approved the study.

2.2. Measures

2.2.1. Repertory grid

Repertory grid technique (Fransella et al., 2004) was used to explore the participants' construct systems. The repertory grid is a semi-structured interview underpinned by personal construct theory (Kelly, 1955) and consists of elements and constructs. Elements are aspects of the world that are construed, and in a grid usually they consist of significant people for the person completing the grid, elicited by asking him or her to supply names fitting a number of role titles, and aspects of the self. For the grid used in the present study, elements, selected based on previous research on chronic depression (Feixas et al., 2014; Metcalfe et al., 2007; Tibbles, 1992), were: Self, Ideal Self, Future Self, Bodily Self, How Others See Me, and four relevant people in the person's interpersonal life. The constructs were elicited through the triadic method, presenting sets of three elements and asking, for each triad, for a way in which two of the elements were similar and thereby different from the third (Fransella et al., 2004). The participant was then asked to rate the elements on each construct on a 1–7 point scale, which represents the bipolarity of the constructs.

Repertory grids were analysed with Idiogrid software (Grice, 2002), allowing a range of measures (Cipolletta, 2011; Cipolletta et al., 2017b; Winter, 2003) to be calculated.

Some involved Euclidean distances between elements (ranging from 0 to 2, with a higher distance indicating greater construed dissimilarity between the elements concerned), namely:

- Future Self-Ideal Discrepancy (Euclidean distance between future self and ideal self, the lower the distance the more positive the view of the future self);
- Self-Ideal Discrepancy (Euclidean distance between present self and ideal self, the lower the distance the higher the self-esteem);
- Bodily Self-Ideal Discrepancy (Euclidean distance between bodily self and ideal self, the lower the distance the higher the bodily self-esteem);
- Perceived Social Isolation (average Euclidean distance between present self and other people, the lower the score the less the construed social isolation).

Other grid measures were as follows:

- Differentiation of construing (assessed in Idiogrid by the variance accounted for by the first component from principal component analysis of the grid., with a high variance indicating undifferentiated, unidimensional construing);
- Measures of conflict, or logical inconsistency, in the construing of the self and bodily self (the higher the score, the more the relationships between constructs applied to the self element concerned deviate from the relationships between these constructs when applied to all of the other elements[1]) were provided by Gridstat software (Bell, 2004).
- Polarization of construing (assessed by counting the number of extreme ratings of particular elements in the grid), a high score on which may indicate that an element is highly salient.
- Constriction in construing (assessed by counting the number of midpoint ratings of particular elements in the grid), a high score on which may indicate that an element lacks salience.

2.2.2. The Manchester Short Assessment of Quality of Life (MANSA)

The Manchester Short Assessment of Quality of Life (MANSA, Priebe et al., 1999) is an interview consisting of 16 questions focused on the quality of life of people diagnosed with mental health problems (Bjorkman and Svensson, 2005). Four questions aim to assess objective quality of life through a dichotomized scale (yes/no), and twelve satisfaction with life as a whole (job, financial situation, friendships, leisure activities, accommodation, personal safety, people that the person lives with, family and health) rated on a 7-point scale (1 = negative/7 = positive) (Priebe et al., 1999).

2.2.3. Hamilton Rating Scale for Depression

The Hamilton Rating Scale for Depression, HAMD-21 (Hamilton, 1960), is a questionnaire which rates the severity of depression in patients. It contains 21 items that are rated on a 4-point scale. Scores range from 0 to 56, with a score between 10 and 20 indicating mild depression, a score between 21 and 24 indicating moderate depression, and a score higher than 25 indicating more severe depression (Möller, 2001).

2.2.4. Clinical global impression severity of illness

This is a rating of the severity of a patient's 'mental illness' on a 7-point scale (higher ratings indicating higher severity) on the basis of the rater's total clinical experience with the population of which the patient is a member (Guy, 1976).

2.2.5. Rosenberg Self-Esteem Scale (RSE)

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a valid and reliable ten-item scale measuring global self-worth. All items are answered with a 4-point likert scale from strongly agree to strongly disagree. Higher scores indicate higher self-esteem.

2.2.6. Visual analogue scale (VAS) on body cathexis

The VAS on body cathexis measures satisfaction related to the body. It consists of a 10 cm. scale defined by extreme scores that runs from totally dissatisfied (0 points) to totally satisfied (10 points) (Röhricht and Priebe, 2002). The same scale was used to assess whether the body is considered to be unusually small, unusually large, or to have changed in size (high scores indicating that the body is perceived in this way) (Röhricht and Priebe, 2002).

[1] For example, considering the constructs "happy – depressed" and "sensitive – insensitive", conflict in self-construing would be indicated if the self is construed as "depressed" and "sensitive" but in general elements construed as "happy" are construed as "sensitive."

2.3. Procedure

Experienced psychiatrists, who had been trained in repertory grid technique by an expert in this methodology and who did not participate in the BPT, administered all screening, baseline and outcome assessments. Before treatment, all patients underwent a screening interview in order to ensure that they met the selection criteria. An independent research assistant (not involved in study conduct) then randomly allocated patients to immediate BPT or a waiting list group that received the treatment after 12 weeks and following a second assessment. All patients in both groups received BPT in addition to the usual treatment, which consisted of on-going antidepressant medication and outpatient clinical management. A dance movement psychotherapist conducted BPT after attending a two-day workshop on the principles of the intervention (manual training[2]). A senior therapist supervised the group therapy and monitored treatment adherence. BPT was provided in twenty 90-min sessions over a period of 10 weeks. All measures were administered before and after BPT treatment or after 3–4 months on the waiting list to all patients. With the repertory grid, the same elements were used at all assessment sessions but new constructs were elicited at each session.

2.4. Data analysis

Pearson correlations were conducted between pre-treatment questionnaire and repertory grid scores, and between change scores during the intervention (obtained by subtracting post- from pre-treatment scores) on the questionnaire and repertory grid measures. In the waiting list group, scores when participants were placed on the waiting list were compared with their scores prior to the commencement of therapy using related *t* tests. Scores for all clients (including those who had been in the waiting list group) at the beginning of treatment were compared with their scores at the end of treatment using related *t* tests. Four waiting list group members who failed to complete post-treatment research assessments were excluded from this analysis and from a comparison, using related t tests, of change scores of waiting list group participants while on the waiting list (obtained by subtracting pre-treatment scores from those when placed on the waiting list) with change scores of the same group during the subsequent intervention. A regression analysis was conducted with group membership (i.e. waiting list or BPT group) and baseline score as independent variables and Assessment 2 scores (i.e. post-waiting list in the waiting list group and post-treatment in the immediate BPT group) as dependent variables. For all analyses, one-tailed tests were conducted when a result in the predicted direction was obtained.

3. Results

3.1. Correlations between pre-treatment questionnaire measures and repertory grid scores

As indicated in Table 1, before treatment a high level of dissatisfaction with the body, assessed by the VAS cathexis score, was significantly associated with a high distance of self from ideal self ($r = -0.731$; $p < 0.001$) and high polarization of construing the self ($r = 0.510$; $p < 0.05$). A high level of feeling that the body size had changed, assessed by the VAS measure, was significantly associated with a low distance of bodily self from ideal self ($r = -0.537$; $p < 0.05$), undifferentiated construing ($r = 0.526$; $p < 0.05$), and high levels of polarization ($r = 0.470$; $p < 0.05$) and conflict in self-construing ($r = -0.443$; $p < 0.05$).

A perception of the body as unusually small, as reflected in VAS scores, was associated with high distance of the future self from the

[2] A treatment manual is available from the authors on request.

Table 1
Pearson correlations between questionnaire measures and repertory grid scores pre-treatment.

Indices°	Severity of Illness	HAMD	VAS Cathexis	VAS- Small	VAS- Large	VAS-Body Size Change	MANSA	RSE
Future Self-Ideal Discrepancy	−0.223	−0.248	0.045	0.501*	0.265	0.258	0.225	0.040
Self-Ideal Discrepancy	0.145	0.337	−0.731**	0.305	0.366	0.219	−0.189	−0.260
Body Self-Ideal Discrepancy	−0.429	−0.594(*)	0.357	−0.078	−0.377	−0.537(*)	0.129	0.417
Perceived Social Isolation	0.217	0.161	−0.408	−0.304	0.426	0.024	−0.105	−0.183
Differentiation in construing	0.521*	0.415	−0.087	−0.325	0.388	0.526*	−0.216	−0.212
Conflict Bodily Self	0.050	−0.088	0.108	−0.224	−0.198	−0.377	−0.173	0.408
Conflict Self	0.005	0.376	−0.324	0.376	0.277	0.523*	−0.443*	−0.286
Conflict Body Construct	−0.172	0.003	0.352	0.094	−0.478	−0.089	0.192	0.362
Constriction of Future Self	0.172	−0.074	−0.238	−0.064	0.289	−0.152	−0.066	−0.213
Constriction of Bodily Self	−0.221	−0.456	0.216	0.085	−0.084	−0.443	0.306	0.161
Constriction of Self	−0.164	0.251	−0.402	0.331	−0.065	0.122	−0.273	−0.067
Constriction of Ideal Self	0.619**	0.333	−0.340	−0.111	0.337	−0.094	−0.090	−0.548*
Polarization of Future Self	0.027	0.217	−0.276	−0.095	0.263	0.372	−0.005	0.017
Polarization of Bodily Self	0.098	0.102	−0.237	−0.014	0.319	0.169	−0.120	0.068
Polarization of Self	0.470*	0.416	−0.510*	−0.277	0.650**	0.470*	0.327	−0.351
Polarization of Ideal Self	0.231	0.233	−0.062	−0.284	0.102	0.214	−0.088	0.320

Note: °N 16 participants completed the repertory grid and questionnaires.
HAMD Hamilton Rating Scale for Depression; MANSA Manchester Short Assessment of Quality of Life; RSE Rosenberg Self-Esteem Scale; VAS Visual Analogue Scale.
p Asymp. Sig. (1-tailed) *p < 0.05.**p < 0.01.***p < 0.001.
(p 2-tailed).

ideal self (r = 0.501; p < 0.05). A perception of the body as unusually large, as reflected in VAS scores, was associated with a high level of polarization in construing of the self (r = 0.650; p < 0.01). High scores on The Hamilton Rating Scale for Depression were associated with a low distance of the ideal self from the bodily self (r = −0.594; p < 0.05) and 'severity of illness' was associated with undifferentiated construing (r = 0.521; p < 0.05), constriction of the ideal self (r = 0.619; p < 0.01) and polarized self-construing (r = 0.470; p < 0.05). Positive quality of life, assessed by the MANSA, was associated with low levels of self conflict (r = −0.443; p < 0.05).

3.2. Correlations between pre- to post-treatment change scores

As indicated in Table 2, correlations between pre- to post-treatment change scores on the grid and questionnaire measures showed that an increase in quality of life, as reflected in MANSA scores, was significantly associated with a decrease in conflict related to the bodily self (r = −0.597; p < 0.05). A decrease in perception of the self as unusually small (VAS score) was associated with reduced polarization in construing of the present (r = 0.530; p < 0.05), future (r = 0.734; p < 0.01), and ideal self (r = 0.524; p < r0.05). A decrease in perception of the self as unusually large (VAS score) was associated with reduced polarization of construing of the self (r = 0.775; p < 0.01). A decrease in perception that the body size had changed (VAS score) was associated with reduction in constriction of the future self (r = 0.555; p < 0.05) and increased polarization in construing of the bodily self (r = −0.688; p < 0.05).

3.3. Comparison of scores on grid measures and questionnaires at the beginning and end of the waiting list period

The results did not show any significant change on the questionnaires and on the grid measures while patients were on the waiting list although increases in constriction in self-construing and VAS body cathexis scores verged on significance (see Supplementary Table 1).

3.4. Comparison of scores pre- and post-treatment on grid measures and questionnaires

As indicated in Table 3, there was significant improvement during

Table 2
Pearson correlations between change scores on grid and questionnaire measures.

Indices°	Severity of Illness	HAMD	VAS Cathexis	VAS- Small	VAS- Large	VAS-Body Size Change	MANSA	RSE
Future Self-Ideal Discrepancy	−0.049	−0.091	0.373	0.252	0.354	0.311	0.011	0.438
Self-Ideal Discrepancy	0.029	0.189	−0.069	0.045	−0.232	−0.216	−0.261	0.280
Body Self-Ideal Discrepancy	0.494	−0.403	−0.198	−0.103	0.194	−0.124	0.159	0.260
Perceived Social Isolation	0.043	0.319	−0.073	−0.514	−0.086	0.077	0.252	−0.162
Differentiation in construing	−0.364	−0.249	−0.085	−0.004	−0.378	0.465	−0.084	0.003
Conflict Bodily Self	0.383	0.179	−0.168	−0.356	0.093	−0.127	−0.597*	−0.052
Conflict Self	−0.290	0.050	0.065	0.301	−0.073	0.050	0.081	0.029
Conflict Body Construct	0.207	0.192	0.320	−0.238	−0.014	0.023	−0.414	−0.082
Constriction of Future Self	−0.257	−0.224	−0.103	−0.561	0.068	0.555*	0.156	−0.078
Constriction of Bodily Self	−0.179	−0.156	−0.433	−0.239	0.315	0.141	0.174	0.030
Constriction of Self	0.044	−0.024	0.210	0.472	−0.383	−0.394	0.110	0.119
Constriction of Ideal Self	0.261	−0.053	0.016	−0.599	−0.094	0.147	−0.071	−0.196
Polarization of Future Self	−0.131	0.222	0.075	0.734**	0.132	−0.220	−0.192	−0.007
Polarization of Bodily Self	−0.307	−0.325	0.416	0.151	−0.286	−0.688(*)	0.484	0.396
Polarization of Self	−0.267	−0.266	−0.463	0.530*	0.755**	0.144	−0.075	−0.143
Polarization of Ideal Self	−0.507	−0.243	−0.066	0.524*	0.287	−0.060	0.000	0.358

Note: °N 12 participants completed the repertory grid and questionnaires
HAMD Hamilton Rating Scale for Depression; MANSA Manchester Short Assessment of Quality of Life; RSE Rosenberg Self-Esteem Scale; VAS Visual Analogue Scale.
p Asymp. Sig. (1-tailed) *p < 0.05.**p < 0.01. ***p < 0.001.
(p 2-tailed).

Table 3
Comparison of pre- and post- treatment scores on grid measures and questionnaires.

Indices	Pre-treatment (N = 19) Mean (SD)	Post-treatment (N = 19) Mean (SD)	t	*p**	Effect Size [CI 95%)]
Future Self-Ideal Discrepancy	0.89 (0.28)	0.65 (0.27)	1.768	0.051 ~	0.83 [0.46; 1.67]
Self-Ideal Discrepancy	1.08 (0.33)	1.14 (0.35)	−0.411	(0.689)	−0.16 [−0.84; 0.49]
Body Self-Ideal Discrepancy	0.96 (0.21)	0.83 (0.16)	1.374	0.097 ~	0.66 [−0.12; 1.50]
Perceived Social Isolation	1.02 (0.24)	1.11 (0.28)	−0.896	(0.388)	−0.32 [−0.93; 0.25]
Differentiation in construing	43.40 (10.86)	50.26 (10.07)	−1.459	(0.170)	−0.62 [−1.38; 0.09]
Conflict Bodily Self	12.60 (4.75)	14.10 (4.94)	−0.991	(0.341)	−0.29 [−0.80; 0.19]
Conflict Self	11.25 (4.94)	12.13 (5.03)	−0.406	(0.692)	−0.16 [−0.86; 0.51]
Conflict Body Construct	11.07 (2.18)	11.25 (2.17)	−0.244	(0.811)	−0.07 [−0.59; 0.43]
Constriction of Future Self	1.31 (1.37)	1.69 (1.65)	−0.615	(0.550)	−0.23 [−0.82; 0.32]
Constriction of Bodily Self	1.85 (1.34)	0.62 (0.96)	2.997	0.011*	0.78 [0.18; 1.43]
Constriction of Self	1.08 (1.60)	0.85 (0.98)	0.542	0.598	0.16 [−0.35; 0.69]
Constriction of Ideal Self	1.15 (1.28)	1.54 (1.12)	−0.891	(0.391)	−0.31 [−0.90;0 0.27]
Polarization of Future Self	1.77 (1.64)	1.46 (1.76)	0.383	0.177	0.17 [−0.58; 0.94]
Polarization of Bodily Self	1.77 (1.69)	1.46 (1.33)	0.529	0.303	0.19 [−0.42; 0.82]
Polarization of Self	3.15 (2.67)	2.08 (0.98)	1.313	0.107	0.50[−0.09; 1.14]
Polarization of Ideal Self	1.69 (1.88)	1.62 (1.52)	0.110	0.457	0.03 [−0.62; 0.70]
Severity of Illness	3.21 (0.53)	2.95 (0.62)	1.424	0.086 ~	0.43 [−0.19; 0.85]
HAMD	29.53 (6.27)	21.68 (7.96)	3.401	0.005**	1.04 [0.36; 1.80]
VAS Cathexis	2.37 (2.14)	3.26 (2.15)	−1.808	0.087	−0.48 [−0.98; −0.02]
VAS- Small	3.72 (4.09)	3.11 (3.23)	0.717	0.241	0.15 [−0.28; 0.60]
VAS- Large	5.32 (4.20)	4.16 3.74)	1.269	0.111	0.27 [−0.17; 0.74]
VAS-Body Size Change	3.47 (4.15)	2.63 (3.46)	0.776	0.224	0.21 [−0.34; 0.77]
MANSA	2.74 (0.73)	3.04 (0.95)	−1.626	0.060 ~	−0.33 [−0.78;0 0.08]
RSE	8.77 (4.67)	11.83 (4.87)	−2.324	0.032*	−0.61 [−1.19;0 0.68]

Note: ° N 19 participants completed questionnaires and 13 participants completed the repertory grid.
HAMD Hamilton Rating Scale for Depression; MANSA Manchester Short Assessment of Quality of Life; RSE Rosenberg Self-Esteem Scale; VAS Visual Analogue Scale.
*p Asymp. Sign (1-Tailed) **p < 0.01 *p < 0.05 ~p < 0.10 except where indicated;
(p 2-tailed).

treatment in scores on the Hamilton Rating Scale for Depression (t = 3.401; p < 0.01) and Rosenberg Self Esteem Scale (t = -2.324; p < 0.05). There was significant reduction in constriction in construing of the bodily self from pre- to post-treatment (t = 2.997; p < 0.05). Furthermore, there were trends towards a more positive anticipation of the future self (t = 1.768; p < 0.10), a more favourable view of the bodily self (t = 1.374; p < 0.10), reduced severity of illness (t = 1.424; p < 0.10) and increases in bodily satisfaction (t = 1.808; p < 0.10) and objective quality of life (t = 1.626; p < 0.10).

3.5. Comparison of degree of change on grid and questionnaire measures on the waiting list with change scores during treatment in clients in the waiting list group

As indicated in Table 4, there was greater improvement during therapy than while on the waiting list on the Hamilton Rating Scale for Depression (t = 2.124; p < 0.05).

3.6. Comparison of assessment 2 scores in the waiting list and immediate BPT groups

Results of the regression analysis presented in Table 5 indicate that there was a greater improvement in the immediate BPT group during treatment than in the waiting list group while on the waiting list on the Hamilton Rating Scale for Depression (β = −0.452; p < 0.05; R^2 = 0.212) and trends for greater reductions in body self-ideal discrepancy (β = −0.400; p < 0.10; R^2 = 0.363) and constriction of self-construing (β = −0.471; p < 0.10; R^2 = 0.373). However, there was a greater reduction in perceived social isolation (β = 0.607; p < 0.05; R^2 = 0.403) in the waiting list group while on the waiting list than in the immediate BPT group during treatment.

4. Discussion

The study provided evidence of pre-treatment relationships between construing, as assessed by repertory grid technique, bodily perception, as assessed by visual analogue scales, depression, as assessed by psychopathology rating scales, and quality of life, as assessed by a questionnaire. Specifically, participants who were dissatisfied with their bodies and those who viewed their bodies as unusually large showed more polarized self-construing. The former group were also more negative generally in their self-construing, while those who viewed their bodies as unusually small were more negative in their construing of their future selves. Participants who considered that their body size had changed the most showed more conflictual and polarized self-construing, and more undifferentiated construing, but surprisingly they, and those with more severe depressive symptoms, viewed their bodily selves more positively. Consistent with some previous research (Winter, 1992), high 'severity of illness' was associated with undifferentiated construing and polarized self-construing. High quality of life was associated with low conflict in self-construing.

Therefore, these relationships, with one or two exceptions, provide evidence of more polarized, negative, or conflictual construing of aspects of the self, and more undifferentiated construing, in participants with dissatisfactions in bodily perception and/or more severe psychopathology. Similar relationships were evident between changes in repertory grid scores during treatment and those on other measures. The more participants came to see their bodies as unusually large, the more polarized their self-construing became; the more they saw their bodies as unusually small, the more polarized became their construing of their present, future, and ideal selves; and the more they saw their body size as having changed, the less polarized became their construing of their bodily selves and the more constricted their construing of their future selves. Also, the greater the increase in their quality of life, the less conflictual became their self-construing.

As expected, there were no significant changes on any measure while participants were on the waiting list, whereas during treatment there were significant reductions in severity of depression, and increases in self-esteem (as measured by the Rosenberg Scale). On the repertory grid, the only significant change was a reduction in 'constriction' of construing of the bodily self, indicating that, not surprisingly, during psychotherapy focusing on the body the bodily self has

Table 4
Comparison of degree of change on grid and questionnaire measures while on the waiting list with change in members of the same group during the intervention.

Indices	Change Waiting list-treatment (N8) Mean (SD)	Change pre-post treatment (N = 8) Mean (SD)	t	*p**	Effect Size [CI 95%]
Future Self-Ideal Discrepancy	−0.21 (0.46)	0.19 (0.33)	−1.464	0.108	−0.79 [−2.04; −0.29]
Self-Ideal Discrepancy	−0.20 (0.72)	0.27 (0.58)	−0.951	0.197	−0.63 [−1.49; 0.09]
Body Self-Ideal Discrepancy	−0.21 (0.34)	0.06 (0.22)	−1.180	0.151	−0.83 [−1.72; −0.11]
Perceived Social Isolation	−0.01 (0.27)	0.06 (0.40)	−0.276	0.398	−0.18 [−0.79; 0.40]
Differentiation in construing	5.36 (10.89)	−2.26 (22.63)	0.541	(0.616)	0.38 [−0.83; 1.66]
Conflict Bodily Self	1.52 (5.69)	−0.10 (3.57)	0.403	(0.707)	0.30 [−0.99; 1,65]
Conflict Self	−2.56 (10.04)	2.82 (8.29)	−0.799	0.234	−1 [−2.36; 0.16]
Conflict Body Construct	−0.39 (6.49)	−0.28 (1.17)	−0.039	0.485	−0.02 [−0.98; 0.93]
Constriction of Future Self	0.20 (1.30)	−0.60 (2.40)	0.547	(0.614)	0.36 [−0.78; 1.59]
Constriction of Bodily Self	0.40 (1.81)	0.60 (1.14)	−0.302	(0.778)	0.11 [−0.80; 0.55]
Constriction of Self	−1 (1)	0.80 (2.16)	−1.327	(0.254)	−0.95 [−2.39; 0.32]
Constriction of Ideal Self	0.20 (3.42)	0.60 (1.81)	−0.199	(0.852)	−0.12 [−1.28; 1]
Polarization of Future Self	2.20 (3.96)	−1.20 (1.30)	0.791	(0.472)	0.30 [−0.83; 1.48]
Polarization of Bodily Self	0.60 (1.81)	−0.60 (1.81)	0.910	(0.414)	0.58 [−0.49; 1.77]
Polarization of Self	0.20 (4.08)	−0.40 (3.04)	0.220	(0.837)	0.14 [−1.01; 1.33]
Polarization of Ideal Self	2.20 (3.96)	1.20 (1.30)	1.558	(0.194)	0.30 [−0.78; 1.44]
Severity of Illness	0.12 (0.64)	0.37 (0.91)	−0.509	0.313	−0.28 [−1.53; 0.92]
HAMD	0.50 (9.07)	0.9 (10.84)	2.124	0.035*	−0.75 [−2.23; 0.58]
VAS Cathexis	−0.50 (2.07)	0.00 (1.19)	−0.509	(0.626)	−0.12 [−1.24; 0.98]
VAS Large	0.00 (4.78)	−0.25 (2.05)	0.127	(0.817)	0.04 [−1.02; 1.11]
VAS-Body Size Change	−0.75 (5.75)	0.12 (4.76)	−0.241	0.349	−2.14 [−4.20; −0.53]
MANSA	0.42 (0.83)	−0.43 (0.92)	1.786	0.158	43.04 [21.30; 72.08]
RSE	1 (6.16)	−2.12 (3.84)	1.090	0.156	0.54 [−0.48; 1.66]

Note: °N 8 participants completed questionnaires and 5 participants completed the repertory grid.
HAMD Hamilton Rating Scale for Depression; MANSA Manchester Short Assessment of Quality of Life; RSE Rosenberg Self-Esteem Scale; VAS Visual Analogue Scale.
*p Asymp. Sign (1-Tailed) *p < 0.05 except where indicated.
(p 2-tailed).

become more salient to participants. This is consistent with the analysis of qualitative data from the Röhricht et al. (2013) study, which indicated that patients became more aware of their own bodies and of the way in which their depression influenced their embodiment (Papadopoulos and Röhricht, 2013). There were also trends during therapy for an increase in positivity of construing of the future self and in quality of life, and reductions in severity of illness and bodily dissatisfaction.

Comparing post-waiting scores of patients in the waiting list group and post-therapy scores in the immediate BPT group, regression analysis provided evidence of the latter group's greater improvement in depression, as indicated by the Hamilton Rating Scale, significant improvement of scores on which during therapy contrasted with change in the opposite direction on the waiting list. Although changes in opposite directions during therapy in the intervention group and while on the waiting list in the waiting list group were also evident on various grid measures, the only significant finding, indicating greater increase in perceived social isolation during therapy, was opposite to that predicted. There were, however, trends indicative of greater changes towards more favourable body self-construing and less constricted self-

Table 5
Regression analysis with waiting list/BPT group membership and baseline score as independent variables and assessment 2 scores as dependent variables.

Assessment 2 Score	BPT Group Beta	*p**	Assessment 1 Beta	*p**	R^2
Future Self-Ideal Discrepancy	−0.255	0.214	−0.308	(0.341)	0.228
Self-Ideal Discrepancy	0.377	(0.230)	0.090	(0.767)	0.163
Body Self-Ideal Discrepancy	−0.400 ~	0.085 ~	−0.331	(0.247)	0.363
Perceived Social Isolation	0.607	(0.032*)	0.199	(0.434)	0.403
Differentiation in construing	0.272	(0.465)	0.002	(0.995)	0.073
Conflict Bodily Self	0.379	(0.229)	0.353	(0.260)	0.193
Conflict Self	0.052	(0.870)	0.232	(0.471)	0.054
Conflict Body Construct	0.000	(1.000)	0.093	(0.773)	0.009
Constriction of Future Self	0.408	(0.290)	0.024	(0.948)	0.159
Constriction of Bodily Self	−0.361	0.153	0.191	(0.577)	0.148
Constriction of Self	−0.471	0.067 ~	0.444	(0.154)	0.373
Constriction of Ideal Self	0.238	(0.508)	−0.070	(0.844)	0.064
Polarization of Future Self	0.197	(0.558)	−0.361	(0.295)	0.196
Polarization of Bodily Self	0.166	(0.640)	0.188	(0.598)	0.067
Polarization of Self	0.108	(0.785)	0.070	(0.859)	0.023
Polarization of Ideal Self	0.118	(0.754)	−0.150	(0.692)	0.048
Severity of illness	−0.187	0.191	0.304	(0.162)	0.146
HAMD	−0.452	0.017*	0.120	(0.552)	0.212
Vas-Small	−0.071	0.365	0.484	(0.028)	0.230
Vas-Large	−0.091	0.339	0.266	(0.231)	0.076
Vas-Body Size Change	−0.127	0.142	0.185	(0.407)	0.051
MANSA	0.167	0.186	0.574	(0.005)	0.339
RSE	0.279	0.110	0.396	(0.088)	0.183

p Asymp. Sig. (1-tailed) ~p < 0.10 *p < 0.05.**p < 0.01 ***p < 0.001.
(p 2-tailed).

construing in the BPT condition.

The evidence from the present study is very limited, therefore, that, in addition to its effectiveness in reducing depression, the body psychotherapy intervention may have some positive impact on both the content and structure of self-construing. A possible contributing factor to the number of non-significant findings was that a particular limitation of the research, reducing the likelihood of detecting significant relationships and changes, was the low sample size, compounded by high levels of attrition from the research assessments. On the other hand, the possibility of Type 1 error should be acknowledged, given the number of statistical tests conducted. Finally, it is possible that, although construing is by no means a purely verbal process, the reliance on verbal constructs in the repertory grid employed in the study may have reduced its sensitivity to changes during a therapeutic intervention focusing on the body. Nevertheless, there were sufficient relationships between grid measures and measures of bodily satisfaction to suggest that the grid may be an appropriate tool to employ in the evaluation of body psychotherapy and that the study could usefully be replicated with a larger sample.

Conflict of interests

The authors declare no conflicts of interest with respect to the authorship and/or publication of this article.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2018.10.061.

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