Acta Psychiatr Scand 2011: 123: 327–338

DOI: 10.1111/j.1600-0447.2010.01652.x

ACTA PSYCHIATRICA SCANDINAVICA

Review

Treatment completion in psychotherapy for borderline personality disorder – a systematic review and meta-analysis

K. Barnicot, C. Katsakou, S. Marougka, S. Priebe

Unit for Social and Community Psychiatry, Queen Mary, University of London, London, UK

Barnicot K, Katsakou C, Marougka S, Priebe S. Treatment completion in psychotherapy for borderline personality disorder – a systematic review and meta-analysis.

Objective: Psychotherapy for borderline personality disorder (BPD) has been associated with problematically low treatment completion rates.
Method: PsycInfo and Medline were systematically searched to identify studies providing information on treatment completion in psychotherapy models that have been shown to be effective for BPD. A meta-analysis of treatment completion rates and a narrative analysis of factors predicting dropout were conducted.
Results: Forty-one studies were included, with completion rates ranging from 36% to 100% – a substantial between-study heterogeneity. Random effects meta-analyses yielded an overall completion rate of 75% (95% CI: 68–82%) for interventions of <12 months duration, and 71% (95% CI: 65–76%) for longer interventions. Egger's test for publication bias was significant for both analyses ($P \leq 0.01$). Study characteristics such as treatment model and treatment setting did not explain between-study heterogeneity. In individual studies, factors predicting dropout status included commitment to change, the therapeutic relationship and impulsivity, whilst sociodemographics were consistently non-predictive.
Conclusion: Borderline personality disorder should no longer be associated with high rates of dropout from treatment. However, the substantial variation in completion rates between studies remains unexplained. Research on the psychological processes involved in dropping out of treatment could further improve dropout rates.

Key words: psychotherapy; borderline personality disorder; patient dropouts; meta-analysis

Kirsten Barnicot, Unit for Social and Community Psychiatry, Newham Centre for Mental Health, E13 8SP, UK.
E-mail: k.barnicot@qmul.ac.uk

Accepted for publication November 16, 2010

Summations

- This is the first systematic review and meta-analysis of treatment completion rates in borderline personality disorder, focussing on psychotherapy models that have been demonstrated to be effective for this patient group
- The finding that on average 75% of patients complete treatment challenges the association of borderline personality with poor treatment completion rates
- Evidence on predictors of dropout was minimal

Considerations

- The studies included were conceptually and statistically heterogenous, limiting the comparability of completion rates
- Analyses indicated a potential bias towards the publication of studies with higher completion rates

Introduction

It is estimated that around 1% of the population may have borderline personality disorder (BPD) (1). People with BPD have difficulty managing their emotions (2, 3) and frequently go to extremes to deal with them by self-harming or using drugs, or thinking about and attempting suicide (4, 5). Some generate high costs to healthcare services because of frequent use of Accident and Emergency Departments and in-patient services (6, 7). Many also have substantial difficulties maintaining relationships with relatives and friends, or holding jobs (8, 9), and the experience of stress-linked dissociative or psychotic experiences is relatively common (10, 11). The disorder was in the past considered relatively stable; however, recent epidemiological studies have demonstrated that rates of remission are much higher than previously thought (12, 13), although some difficulties remain (14).

Considering their complex needs and the burden placed on health services by these individuals, and especially given the current climate of hope regarding the possibility of improvement or even remission, development of effective treatment services has become a priority for healthcare (15, 16).

In existing reviews of dropout rates in BPD, which included any psychological treatment rather than focusing on those which have evidence for effectiveness, treatment of BPD has been associated with problematically low treatment completion rates (17–19), with rates as low as 37%, 33% and 8% in individual studies (20–22). A low treatment completion rate may imply that the treatment is not effective in addressing the needs of the target patient group. Indeed, patients who drop out early from psychosocial treatment may not gain any benefit from the treatment (23, 24). Cost-effectiveness may suffer when funding assessment and treatment sessions for those who eventually drop out. Additionally, treatment dropouts may be more likely to drop out of research assessments than treatment completers. Research data may therefore become skewed towards outcomes for treatment completers even when an intention-to-treat analysis is used, thus limiting its generalisability (17, 25). Thus, a consideration of treatment completion rates is crucial when evaluating the effectiveness of treatment.

Several new psychotherapies, such as dialectical behaviour therapy (DBT), mentalisation-based therapy (MBT) and transference-focused psychotherapy, have been developed specifically to treat BPD and have been shown to be effective compared with treatment as usual in reducing self-harm and suicidality, amongst other variables. Whilst their effectiveness has been thoroughly reviewed (26–28), completion rates in these treatments have not been systematically reviewed. Thus, the association of BPD with low treatment completion rates has not been re-evaluated in the light of the recent evidence on the new, more effective psychotherapeutic treatment that is available. This may be especially important as evaluating dropout rates in a therapy with as yet unproven effectiveness could conflate high dropout with ineffectiveness. It may also be important to determine what factors are associated with completion vs. dropout when these models are used to treat BPD. This could provide an understanding of which individuals these treatments may be less suitable for, which treatment processes may encourage retention and which treatment processes may lead to dropout. This in turn may inform modification of existing interventions or the development of new interventions to improve completion rates.

Aims of the study

This systematic review therefore aims i) to systematically review and conduct a meta-analysis of completion rates in psychotherapy models identified as effective for borderline personality (BPD) and ii) to identify factors associated with treatment completion vs. dropout when these models are used to treat BPD.

Material and methods

The study was designed as a systematic review and meta-analysis. Searches were conducted in October 2009 in the PsycInfo and Medline databases. In a first step, an initial search aimed to identify psychotherapy models that had been demonstrated as effective for treating BPD. 'Effectiveness' was defined as demonstration in at least one randomised controlled trial (RCT) that the treatment was effective in improving one or more of the symptoms of BPD as defined by DSM-IV, compared with treatment as usual or another psychotherapy. In a second step, studies were identified in which one or more of the interventions identified in the first step were evaluated – whether in an RCT, quasi-experimental or observational design, and in which completion rates or factors associated with completion were described.

For the first step, Psycinfo and Medline were searched using the term 'RCT' and 'BPD'. Known reviews of psychotherapeutic treatment for BPD such as the Health Technology Assessment review (26), the Cochrane review (27) and Zanarini's

review (28) were also consulted. This initial search identified the following effective treatments for BPD: cognitive behaviour therapy (CBT) (29); DBT (30–36); dynamic deconstructive psychotherapy (DDP) (37); emotion regulation group therapy (ERGT) (38); MBT (39); schema-focused therapy (40, 41); STEPPS (42, 43); and transference-focused therapy (TFP) (44).

For the second step, a systematic search for papers reporting treatment completion rates or factors associated with treatment completion rates in these psychotherapy models was conducted. Psycinfo and Medline were searched using combinations of the term 'BPD' with the following: 'cognitive behavio(u)r(al) therapy', 'dialectical behavio(u)r (al) therapy', 'DDP', 'ERGT', 'MBT', 'mentalization based therapy', 'schema therapy', 'STEPPS', 'transference focused psychotherapy'. Only studies published between 1980 and 2009 were searched to focus the search on the new treatments that have recently been developed specifically for or adapted for treating BPD. Two researchers screened the search results together and decided which abstracts to screen, which full texts to screen and which studies to include.

Studies were included if they were original research, if they described the application of one of the previously named psychotherapy models to patients with BPD and if they presented information on treatment completion and/or factors associated with treatment completion. Treatment completion was defined as the proportion of patients initiating psychotherapy who completed the full course of treatment. Manualisation was not a necessary precursor for inclusion of an intervention. However, to ensure that only evidence-based interventions were considered, studies were only included if the intervention sufficiently closely followed a format that has been demonstrated to be effective. This meant that, for example, some studies were rejected because they evaluated only part of an intervention- this part having not yet been demonstrated to be effective when offered without the other parts of the intervention. Studies were excluded if they had a sample size of less than ten (as this was considered too small to be representative) or if attendance of treatment was compulsory. Non-English language papers were not excluded.

Data extraction was then completed independently by two researchers for each study using a data extraction sheet developed for the review. Any conflicting answers were discussed and reconsidered until agreement was reached. The authors of 15 studies were contacted to clarify information or to obtain additional information not presented in the published papers, primarily to clarify the treatment completion rate and whether attendance rules were operational. Responses were obtained from eight.

Some criteria were established to assess the quality of the included studies. Studies were assigned a quality score from 0 to 3. The quality criteria were as follows: i) Sample allocated to treatment ≥30 (1 point), as studies with larger sample sizes are likely to be of higher quality than those with smaller sample sizes, ii) Clear information on treatment completion (1 point) and iii) Clear information on the definition of a treatment dropout (1 point) i.e. clear specification of how many treatment sessions a patient had to miss before being considered a treatment dropout.

Meta-analyses of treatment completion rates were then conducted, using Comprehensive Meta-analysis software (45). Separate meta-analyses of treatment completion rates for interventions of <12 months and interventions of twelve months duration or more were conducted, as completion rates were not thought to be comparable across very different intervention lengths. A random effects model was planned as this assumes that intervention and patient characteristics are not identical across studies and that completion rates may vary accordingly. The model assumes therefore that there is a distribution of 'true' effect sizes rather than a single true effect and aims to estimate the mean of this distribution of true effect sizes. The Q-statistic and the I^2 statistic were calculated to assess the level of between-study heterogeneity. Egger's test of the intercept (46) and a funnel plot were computed to evaluate the evidence for publication bias. Psychotherapy model, psychotherapy orientation (behavioural vs. non-behavioural), sample size ($N < 30$ vs. $N \geq 30$), intervention length, patient age range (adult vs. adolescent), trial type (randomised vs. non-randomised), treatment setting (out-patient vs. in-patient vs. forensic), attendance rules (attendance rules vs. no attendance rules) inclusion criteria (excluding schizophrenia and related disorders vs. not excluding schizophrenia and related disorders) and quality score were considered as moderator variables by stratification in the meta-analyses.

Studies that evaluated the relationship between one or more variables and dropout from psychotherapy for BPD were narratively analysed. Any significant association, trend or absence of association between a variable and dropout from psychotherapy was recorded, and any associations found consistently across more than one study were noted.

Results

Studies included

Forty-four papers based on 41 different studies were identified as eligible for inclusion in this review. See Fig. 1 for a QUOROM diagram detailing the study retrieval process. Some papers provided information on more than one of the psychotherapies under review. Two papers provided information on treatment completion or factors associated with completion in CBT, 28 did so for DBT, one for dynamic deconstructive therapy, one for ERGT, one for MBT, four for schema therapy, four for STEPPS and six for TFP. All studies included only patients with a diagnosis or features of BPD, and some specifically included those with a recent history of self-harm or those with substance or alcohol misuse problems. Most studies (29/41) excluded patients with schizophrenia or related disorders, and many excluded those with bipolar disorder (21/41) or with substance misuse problems (17/41). Four non-English language papers were included (one Dutch, two German and one Spanish). Studies included are fully described in Table 1.

Quality analysis

Study quality ranged from 1 to 3, with 23 studies scoring 1, 15 studies scoring 2 and three studies scoring 3. Quality scores are presented in Table 1.

Between-study heterogeneity

Forty-one studies reported on what percentage of participants completed treatment.

There was significant heterogeneity in the completion rates reported: (interventions shorter than 12 months – Q (18) = 54, $P < 0.01$, $I^2 = 67\%$; interventions 12 months or longer-Q (23) = 57, $P < 0.01$, $I^2 = 60\%$), with the I^2 statistic implying the magnitude to be substantial. The high degree of heterogeneity suggests that a random effects model might be appropriate.

Treatment completion rates

A random effects meta-analysis yielded an overall completion rate of 71% for interventions of 12 months or greater duration (95% confidence interval: 65–76%). A separate analysis yielded a completion rate of 75% for interventions of a shorter duration (95% confidence interval: 68–82%). At the $P = 0.05$ level, there was no significant effect of psychotherapy model, psychotherapy orientation (behavioural vs. non-behavioural), sample size ($N < 30$ vs. $N \geq 30$), intervention length (under 6 months vs. 6 months or longer), patient age range (adult vs. adolescent), trial type (randomised vs. non-randomised), treatment setting (out-patient vs. in-patient vs. forensic), attendance rules (attendance rules vs. no attendance rules), inclusion criteria (excluding schizophrenia and related disorders vs. not excluding schizophrenia and related disorders) or quality criteria on completion rates in either of the meta-analyses. The results of the analyses are shown in Tables 2 and 3.

Publication bias

Egger's test of the intercept suggested the presence of publication bias in both meta-analyses [inter-

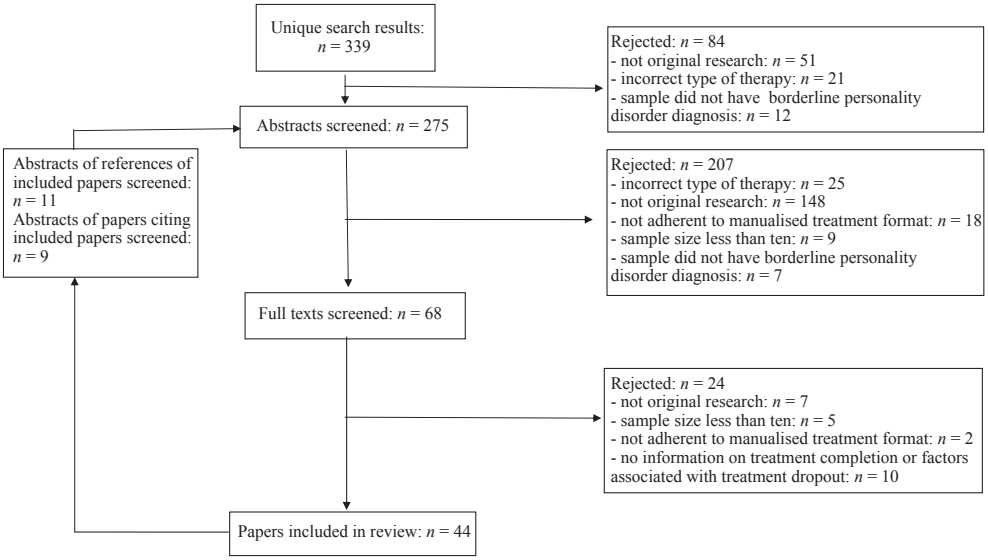


Fig. 1. QUOROM diagram for paper selection.

Table 1. Description of studies included

First author and date	Treatment	Inclusion criteria: BPD	Self-harm	Substance or alcohol dependence	Gender	Age	Design	Setting	Treatment length (months)	Quality score
Bateman 1999 (39)	MBT	Yes	No	No	Any	Adults	RCT of DBT vs. MBT	Out-patient	18	1
Black 2008 (47)	STEPPS	Yes	No	No	Female	Adults	Observational study of STEPPS	Forensic	5	1
Blum 2008 (42) [Black 2009] (48)	STEPPS	Yes	No	No	Any	Adults	RCT of STEPPS vs. TAU [Observational study of predictors of outcome in above RCT]	Out-patient	5	2
Bohus 2004 (49)	DBT	Yes	Yes	No	Female	Adults	CT of DBT vs. waiting list	In-patient	3	2
Brassington 2006 (50)	DBT	Yes	No	No	Female	Adults	Observational study of DBT	Out-patient	6	1
Brown 2004 (51)	CBT	Yes	Yes	No	Any	Adults	Observational study of CBT	Out-patient	12	1
Clarkin 2001 (52)	TFP	Yes	Yes	No	Female	Adults	Observational study of TFP	Out-patient	12	1
Clarkin 2007 (44) [Meehan 2008] (53)	DBT & TFP	Yes	No	No	Any	Adults	RCT of DBT vs. TFP vs. ST [Observational study of predictors of outcome in above RCT]	Out-patient	12	1
Comtois 2007 (54)	DBT	96%	Yes	No	Any	Adults	Observational study of DBT	Out-patient	12	3
Cottraux 2009 (55)	CBT	Yes	No	No	Any	Adults	RCT of CBT vs. CCT	Out-patient	12	2
Farrell 2009 (41)	SFT	Yes	No	No	Female	Adults	RCT of SFT with TAU vs. TAU alone	Out-patient	8	1
Fleischhaker 2006 (56)	DBT	Yes	Yes	No	Any	Adolescents	Observational study of DBT	Out-patient	4	1
Giesen-Bloo 2006 (40) [Spinhoven 2007] (57)	SFT & TFP	Yes	No	No	Any	Adults	RCT of SFT vs. TFP [Observational study of predictors of outcome in above RCT]	Out-patient	36	1
Gratz 2006 (38)	ERGT	Yes	Yes	No	Female	Adults	RCT of ERGT with individual therapy vs. individual therapy alone	Out-patient	3	2
Gregory 2008 (37)	DDP	Yes	No	Yes	Any	Adults	RCT of DDP vs. TAU	Out-patient	12	1
Harley 2007 (58)	DBT	Yes	No	No	Any	Adults	RCT of full DBT vs. DBT skills group with non-DBT individual therapy	Out-patient	7	2
James 2008 (59)	DBT	Yes	Yes	No	Any	Adolescents	Observational study of DBT	Out-patient	12	2
Kennedy 2007 (60)	DBT	Yes	Yes	No	Any	Adults	Observational study of DBT	Out-patient	12	1
Koons 2001 (33)	DBT	Yes	No	No	Female	Adults	RCT of DBT vs. TAU	Out-patient	6	1
Kröger 2006 (61)	DBT	Yes	No	No	Any	Adults	Observational study of DBT	In-patient	3	2
Linehan 1991 (30)	DBT	Yes	Yes	No	Female	Adult	RCT of DBT vs. TAU	Out-patient	12	2
Linehan 1999 (31)	DBT	Yes	No	Yes	Female	Adults	RCT of DBT vs. TAU	Out-patient	12	1
Linehan 2002 (34)	DBT	Yes	No	Yes	Female	Adults	RCT of DBT vs. CVT with 12-step	Out-patient	12	2
Linehan 2006 (36)	DBT	Yes	Yes	No	Female	Adults	RCT of DBT vs. TBCE	Out-patient	12	1
Linehan 2008 (62)	DBT	Yes	No	No	Female	Adults	RCT of DBT with olanzapine vs. DBT with placebo	Out-patient	6	2
López 2004 (63)	TFP	Yes	No	No	Female	Adults	Observational study of TFP	Out-patient	12	1
Low 2001 (64)	DBT	Yes	Yes	No	Female	Adults	Observational study of DBT	Forensic	12	1
Nadort 2009 (65)	SFT	Yes	No	No	Any	Adults	RCT of SFT with extra phone support vs. SFT alone	Out-patient	18	2
Nee 2005 (66)	DBT	Yes	Yes	No	Female	Adults	Observational study of DBT -short programme and long programme	Forensic	3 and 12	1
Perseius 2007 (67)	DBT	Yes	No	No	Female	Adults	Observational study of burnout in DBT therapists	Out-patient	12	1
Rüsch 2008 (68)	DBT	Yes	Yes	No	Female	Adults	Observational study of predictors of dropout in DBT	In-patient	3	2
Schornstein 2008 (69)	DBT	Yes	No	Yes	Any	Adults	Observational study of DBT	In-patient	4	1
Simpson 2004 (70)	DBT	Yes	No	No	Female	Adults	RCT of DBT with fluoxetine vs. DBT with placebo	Out-patient	3	1
Soler 2008 (71)	DBT	Yes	No	No	Any	Adults	Observational study of predictors of dropout in DBT	Out-patient	3	2
Stanley 2007 (72)	DBT	Yes	No	No	Any	Adults	Observational study of DBT	Out-patient	6	1
Turner 2000 (32)	DBT	Yes	No	No	Any	Adults	RCT of DBT vs. CCT	Out-patient	12	1
VanWel 2009 (43)	STEPPS	Yes	No	No	Any	Adults	RCT of STEPPS vs. TAU	Out-patient	5	2
Verheul 2003 (35)	DBT	Yes	No	No	Female	Adults	RCT of DBT vs. TAU	Out-patient	12	2

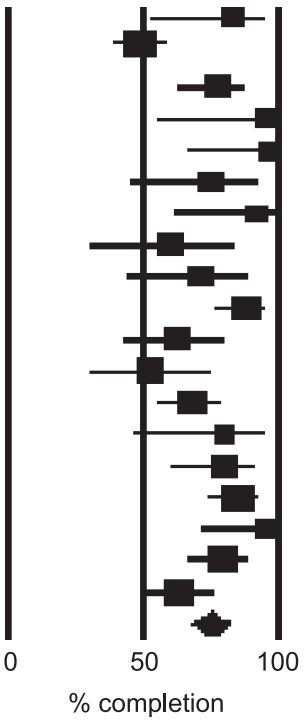
Table 1. Continued

First author and date	Treatment	Inclusion criteria: BPD	Self-harm	Substance or alcohol dependence	Gender	Age	Design	Setting	Treatment length (months)	Quality score
Webb 2009 (73)	DBT	Yes	No	No	Female	Adults	Observational study comparing completers and dropouts from DBT	Out-patient	Variable	1
Woodberry 2008 (74)	DBT	Yes	No	No	Any	Adolescents	Observational study of DBT	Out-patient	4	3
Zinkler 2007 (75)	DBT	Yes	Yes	No	Any	Adults	Observational study of DBT	Out-patient	12	3

BPD, borderline personality disorder; CBT, cognitive behavioural therapy; CCT, client centred therapy, CT, controlled trial, CVT, comprehensive validation therapy, DBT, dialectical behaviour therapy, DDP, dynamic deconstructive psychotherapy, ERGT, emotion regulation group therapy, MBT, mentalisation-based therapy, RCT, randomised controlled trial, SFT, schema-focused therapy, ST, supportive therapy, STEPPS, systems training for emotional predictability and problem solving, TAU, treatment as usual, TBCE, treatment by community experts, TFP, transference-focused psychotherapy.

Table 2. Meta-analyses of completion rates in psychotherapy for borderline personality disorder – intervention length under 12 months

First author and date	Treatment	Sample initiating treatment (*N*)	Treatment completion (%)
Black 2008 (47)	STEPPS	12	83
Blum 2008 (42)	STEPPS	92	48
Bohus 2004 (49)	DBT	40	78
Brassington 2006 (50)	DBT	10	100
Farrell 2009 (41)	SFT	16	100
Fleischhaker 2006 (56)	DBT	12	75
Gratz 2006 (38)	ERGT	13	92
Harley 2007 (58)	DBT	10	60
Koons 2001 (33)	DBT	14	77
Kröger 2006 (61)	DBT	50	88
Linehan 2008 (62)	DBT	24	67
Nee 2005 (66)	DBT	17	53
Rüsch 2008 (68)	DBT	60	68
Schornstein 2008 (69)	DBT	10	80
Simpson 2004 (70)	DBT	25	80
Soler 2008 (71)	DBT	60	85
Stanley 2007 (72)	DBT	20	95
Van Wel 2009 (43)	STEPPS	45	80
Woodberry 2008 (74)	DBT	46	63
Overall estimate			75



DBT, dialectical behaviour therapy; ERGT, emotion regulation group therapy.

ventions shorter than 12 months: $t(17) = 3.5$, $P < 0.01$; longer interventions: $t(22) = 2.4$, $P = 0.01$]. The funnel plots are presented in Fig. 2 and could be interpreted as suggesting that smaller studies were more likely to be published if they had a high completion rate.

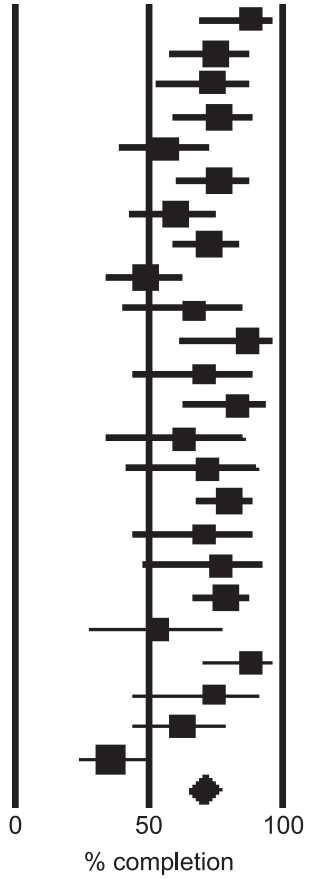
Factors associated with treatment dropout – narrative analysis

Only 11 of the 41 studies examined predictors of treatment dropout. All eight studies that evaluated the association of sociodemographic variables with dropout from psychotherapy for BPD found no significant association. Sociodemographic variables found not to predict dropout have included age (43, 48, 52, 55, 68, 74), gender (43, 48, 61, 71), marital status (43, 52, 71), living alone (43), education level (43, 48, 52, 68, 71), employment status (43, 52, 61, 71), race (52, 74) and religion (52).

With the exception of the finding that dropouts were more likely to have schizoid personality

Table 3. Meta-analyses of completion rates in psychotherapy for borderline personality disorder – intervention length 12 months or longer

First author and date	Treatment	Sample initiating treatment (N)	Treatment completion (%)
Bateman 1999 (39)	MBT	25	88
Brown 2004 (51)	CBT	32	75
Clarkin 2001 (52)	TFP	23	74
Clarkin 2007 (44)	TFP	30	77
Clarkin 2007 (44)	DBT	30	57
Comtois 2007 (54)	DBT	38	76
Cottraux 2009 (55)	CBT	33	69
Giesen-Bloo 2006 (40)	SFT	45	73
Giesen-Bloo 2006 (40)	TFP	43	49
Gregory 2008 (37)	DDP	15	67
James 2008 (59)	DBT	16	88
Kennedy 2007 (60)	DBT	14	71
Linehan 1991 (30)	DBT	24	81
Linehan 1999 (31)	DBT	11	63
Linehan 2002 (34)	DBT	11	73
Linehan 2006 (36)	DBT	52	83
Lopez 2004 (63)	TFP	14	71
Low 2001 (64)	DBT	13	77
Nadort 2009 (65)	SFT	62	85
Nee 2005 (66)	DBT	13	54
Perseius 2007 (67)	DBT	27	89
Turner 2000 (32)	DBT	12	75
Verheul 2003 (35)	DBT	27	63
Zinkler 2007 (75)	DBT	50	36
Overall estimate			71



CBT, cognitive behaviour therapy; DBT, dialectical behaviour therapy; DDP, dynamic deconstructive psychotherapy; MBT, mentalisation-based therapy; TFP, transference-focused therapy.

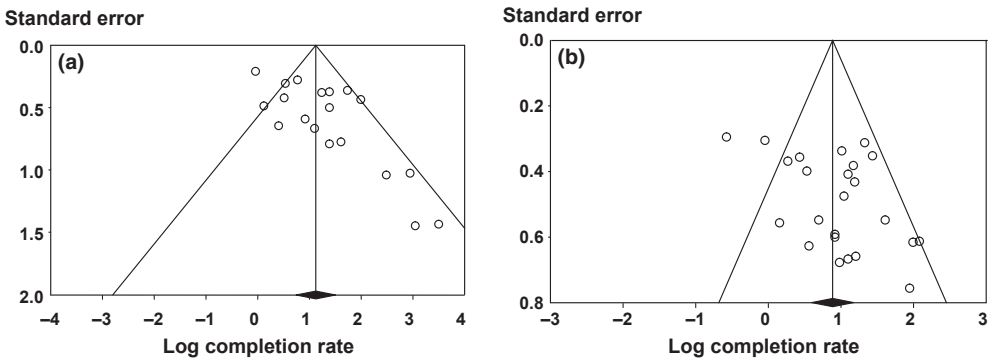


Fig. 2. Funnel plots of standard error by log completion in (a) interventions shorter than 12 months and (b) longer interventions.

disorder (52), treatment completers and dropouts did not differ in terms of comorbid Axis1 or Axis 2 diagnoses (48, 52, 68, 74). Likewise, with the exception of one study that found greater depression symptom severity in dropouts (49), symptom severity at baseline, including BPD symptom

severity, depression symptom severity and general psychopathology, was not found to differ between dropouts and completers (48, 57, 68, 74). Lengths of illness and hospitalisation history were also not found to be associated with dropout (43, 55, 68, 74).

Factors found to be positively associated with treatment dropout have included high impulsivity (48, 55) and less pretreatment suicidal behaviour (68, 74 – trend), although conflictingly a third study found that past suicidal behaviour did not differ between dropouts and completers (48). Only a few studies focused more on internal psychological processes, and these have suggested that lack of commitment to change (71), less internal and more external motivation for change (73) and higher perceived stigma (68) could be related to dropout. Likewise, only a few studies examined the therapeutic processes occurring during treatment, and these have shown that less affective communication during treatment (53), and a poor patient or therapist-rated therapeutic alliance early in treatment (57) can predict dropout. Other factors associated with dropout have included higher baseline experiential avoidance (68), higher trait anxiety (68) and higher anger (68 – trend). Conflicting findings exist regarding the relevance of number of personality disorders, with one study finding that those with a greater number were more likely to drop out (73), whilst another study found it made no difference (48). Similarly, one study found that patients taking fewer psychotropic medications were more likely to drop out (48), whilst another study found that the number of psychotropic medications taken was unrelated (52).

Discussion

Treatment completion or factors associated with treatment completion were reviewed in psychotherapeutic interventions that have been shown to be effective in treating BPD. These included cognitive behavioural therapy, DBT, DDP, EGRT, MBT, schema-focused therapy, systems training for emotional predictability and problem solving, and transference-focused psychotherapy. A meta-analysis yielded an overall completion rate of 71% for interventions of 12 months or greater duration, and 75% for interventions of a shorter duration. There was a high degree of heterogeneity in completion rates between studies. There was also evidence that there may have been a bias towards publication of studies with higher completion rates, although the test used may be subject to a high false positive rate (76). The variables considered as moderators in the meta-analysis were not associated with differences in completion rates between studies.

When narratively reviewing the relatively few individual studies that evaluated predictors of dropout from effective psychotherapy for BPD, the most consistent finding was that sociodemographic variables were not associated with dropout. Pretreatment symptoms were also usually not associated with dropout. There was some suggestion that less pretreatment suicidal behaviour and higher impulsivity could be associated with dropout. Only a few studies explored the relation of psychological or therapeutic processes to dropout. One study identified commitment to change as a possible process that may be related to treatment dropout from DBT, whilst another found similarly that treatment completers had greater internal motivation for treatment. The therapeutic process itself could also be important, as poor therapeutic alliance early in treatment and lack of affective communication were found to predict dropout.

Strengths of this review include the wide and systematic search strategy, the relatively large number of studies included, the inclusion of non-English language papers and the inclusion of more pragmatic, naturalistic studies as well as efficacy studies, which may render its conclusions more applicable to everyday clinical practice. Further strengths are that many of the authors were contacted to clarify ambiguous information and that two researchers independently extracted the data, thus minimising the possibility of oversight or bias during these processes.

The main limitation of this review is that it included eight different interventions, which moreover were applied in a variety of treatment settings, patient groups and treatment lengths. This may limit the comparability of completion rates and factors predicting dropout across studies. Differences in exclusion criteria between studies could also have affected completion rates, as potentially very extensive exclusion criteria could select out the more 'difficult' patients before treatment begins, thus yielding better completion rates. Moreover, the definition of a 'treatment dropout' likely varied widely across studies, with some studies operating very strict rules whereby patients missing more than three consecutive treatment sessions were considered dropouts (30), whilst others were much more generous in their definition of a dropout. Most studies did not specify exactly how they had defined treatment dropout, rendering interpretation difficult. Treatment setting, length, intervention, exclusion criteria, attendance rules and other study characteristics were not found to be associated with completion rates in the meta-analysis.

However, the meta-analysis may not have had sufficient power to detect the influence of the moderators assessed.

The review is also limited in that assessing treatment take-up rates was not possible owing to the large number of RCTs included, in which it is not possible to calculate a take-up rate for individual interventions. This is an important consideration, as if a low proportion of patients offered the treatment actually take it up, then the patients who would have been more likely to drop out of treatment later on may have self-selected out before even starting treatment. A further consideration is that setting a generous criterion for effectiveness could have affected our results. If, for example, an intervention that was effective in treating one of the symptoms of BPD was relatively ineffective at treating any of the other symptoms, this could have increased dropout. Nonetheless, despite the lenient inclusion criterion, all but one of the included interventions have in fact demonstrated effectiveness for treating multiple symptoms of BPD, although how far these gains are maintained post-treatment is a subject of ongoing debate and research.

The treatment completion rate found here is fairly high and is in fact higher than that found in a meta-analysis of completion rates across 110 psychotherapy studies including patients with a wide variety of both Axis I and Axis II disorders, in which the overall completion rate was 65% (77).

The finding that the therapeutic alliance, patients' motivation for change and impulsivity could be potentially important predictors of dropout in psychotherapy for BPD is consistent with the wider psychotherapy literature. A meta-analysis of 110 psychotherapy studies found that these three factors were consistently strong predictors of dropout (77). The same meta-analysis also found that sociodemographic variables were not strong predictors of dropout, consistent with the findings of the present review (77) – although contrastingly, a study of 10 specialist services for personality disorder found that male gender and younger age did predict dropout (78). Therapeutic alliance has been found to predict dropout in psychotherapy models for BPD which were not included in the present review (79, 80), and readiness for change specifically has been found to predict dropout from psychological treatment for substance abuse, eating disorders and panic disorder (81–84). The finding that patients with less suicidal behaviour are more likely to drop out is consistent with an earlier finding from out-patient psychotherapy for BPD (15). A possible explanation could be the focus of many treatments for BPD on targeting suicidal behaviour – do individuals with less suicidal behaviour feel that the treatment is not for them, and so drop out? Alternatively, individuals with more suicidal behaviour may experience a very high level of subjective distress – could they therefore be more desperate for change and thus more committed to therapy? Neither of these suggestions offers a full explanation for this yet-to-be substantiated phenomenon.

The results imply that, in interventions for BPD which have been demonstrated to be effective, treatment completion is generally fairly high and is in fact on average higher than that found in the wider psychotherapy literature. Furthermore, the completion rates were similar across interventions that were shorter than 12 months or those which were longer. Thus, it may safely be said that a diagnosis of BPD should no longer be associated with a high probability of dropping out of treatment, even when the treatment course is long. One may speculate that perhaps the earlier low completion rates resulted from a mismatch between people with BPD and the treatments available for them, rather than being a problem with BPD itself. The papers included in earlier reviews all described dropout rates from unstructured, non-specialised treatments. In contrast, the increasing specialisation of the treatments for BPD reviewed here may have led to a better fit for these patients and thus lower dropout rates. In support of this argument, dropout rates from the 'treatment as usual' condition were very high in some of the RCTs included in this review (31, 32) and were significantly higher than in the intervention condition in at least two studies (35, 36). However, this was not the case in all studies (34, 41, 43). Alternatively, perhaps the decrease in the stigma associated with treating BPD in recent years, as most notably demonstrated in the Department of Health publication 'Personality Disorder: No longer a diagnosis of exclusion' (15), has meant that health professionals are now believing more and more that these individuals can be treated effectively without therapist burnout and are thus working with more confidence to keep patients with BPD in treatment. Nonetheless, although the overall completion rate was high, there was considerable variability, with a few studies reporting much lower completion rates. Even when the high overall completion rate is considered, the averaged 25% of patients who drop out of treatment is still not ideal. Furthermore, there was evidence that studies with very low completion rates were less likely to be published, skewing published results towards more positive outcomes.

The current research on factors predicting dropout in individual studies has been minimal

and has perhaps been overfocused on the role of sociodemographic and clinical characteristics, which, with the exception of self-harm and impulsivity, have so far largely not been found to be associated with dropout. Future research could focus more on the psychological processes that may influence whether a patient drops out or stays in treatment. Research on patients' commitment to and motivation for change, together with research on the therapeutic processes occurring during treatment, may offer a promising avenue to be further explored, which could potentially lead to future interventions focused on targeting the psychological processes involved in fostering treatment commitment. Furthermore, there is currently no qualitative research exploring why patients drop out of effective interventions for BPD, although there has been some research with patients who dropped out from an as yet unproved group treatment for BPD (85). Such research could enable interventions for BPD to be improved to achieve consistently high completion rates.

Acknowledgements

The authors gratefully acknowledge the advice of Dr Stephen Bremner on statistical analysis. This work was made possible by a grant from the National Institute for Health Research's Research for Patient Benefit scheme and by a National Institute for Health Research Doctoral Research Fellowship.

Declaration of interest

Kirsten Barnicot is funded by a National Institute for Health Research Doctoral Research Fellowship and receives no other financial support. Christina Katsakou is trained and works as a dialectical behaviour therapist. Her work is funded by the National Institute for Health Research's Research for Patient Benefit scheme, the East London NHS Foundation Trust and the Comprehensive Local Research Network, and she receives no other financial support. Stamatina Marougka is funded by London Probation and receives no other financial support. Stefan Priebe is funded by the East London NHS Foundation Trust and Queen Mary University of London, and receives no other financial support.

References

1. Coid J, Yang M, Tyrer P, Roberts A, Ullrich S. Prevalence and correlates of personality disorder in Great Britain. Br J Psychiatry 2006;**188**:423–431.
2. Conklin CZ, Bradley R, Westen D. Affect regulation in borderline personality disorder. J Nerv Ment Dis 2006;**194**:69–77.
3. Reisch T, Ebner-Priemer UW, Tschacher W, Bohus M, Linehan MM. Sequences of emotions in patients with borderline personality disorder. Acta Psychiatr Scand 2008; **118**:42–48.
4. Paris J. Chronic suicidality among patients with borderline personality disorder. Psychiatr Serv 2002;**53**: 738–742.
5. Blasco-Fontecilla H, Baca-Garcia E, Dervic K et al. Severity of personality disorders and suicide attempt. Acta Psychiatr Scand 2009;**119**:149–155.
6. Bender DS, Dolan RT, Skodol AE et al. Treatment utilization by patients with personality disorders. Am J Psychiatry 2001;**158**:295–302.
7. National Institute of Mental Health. Borderline personality disorder. Washington DC: National Institute of Mental Health, 2001.
8. Sansone RA, Butler M, Dakroub H, Pole M. Borderline personality symptomatology and employment disability: a survey among outpatients in an internal medicine clinic. Prim Care Companion J Clin Psychiatry 2006;**8**:153–157.
9. Hill J, Pilkonis P, Morse J et al. Social domain dysfunction and disorganization in borderline personality disorder. Psychol Med 2008;**38**:135–146.
10. Stiglmayr CE, Ebner-Priemer UW, Bretz J et al. Dissociative symptoms are positively related to stress in borderline personality disorder. Acta Psychiatr Scand 2008;**117**:139–147.
11. Glaser J-P, Van Os J, Thewissen V, Myin-Germeys I. Psychotic reactivity in borderline personality disorder. Acta Psychiatr Scand 2010;**121**:125–134.
12. Zanarini MC, Frankenburg FR, Reich DB, Fitzmaurice G, Weinberg I, Gunderson JG. The 10-year course of physically self-destructive acts reported by borderline patients and axis II comparison subjects. Acta Psychiatr Scand 2008;**117**:177–184.
13. Zanarini MC, Frankenburg FR, Jager-Hyman S, Reich DB, Fitzmaurice G. The course of dissociation for patients with borderline personality disorder and axis II comparison subjects: a 10-year follow-up study. Acta Psychiatr Scand 2008;**118**:291–296.
14. Zanarini MC, Frankenburg FR, Bradford Reich D, Fitzmaurice G. The 10-year course of psychosocial functioning among patients with borderline personality disorder and axis II comparison subjects. Acta Psychiatr Scand 2010;**122**:103–109.
15. National Institute for Mental Health in England. Personality disorder: no longer a diagnosis of exclusion. London: National Institute for Mental Health in England, 2003.
16. National Institute for Health and Clinical Excellence. Borderline personality disorder: treatment and management. London: National Institute for Health and Clinical Excellence, 2009.
17. Kelly T, Soloff PH, Cornelius J, George A, Lis JA, Ulrich R. Can we study (treat) borderline patients? Attrition from research and open treatment. J Personal Disord 1992;**6**:417–433.
18. Horner MS, Diamond D. Objects relation development and psychotherapy dropout in borderline patients. Psychoanal Psychol 1996;**13**:205–223.
19. Bornovalova MA, Daughters SB. How does Dialectical Behavior Therapy facilitate treatment retention among individuals with comorbid borderline personality disorder and substance use disorders? Clin Psychol Rev 2004;**27**:923–943.
20. Skodol AE, Buckley P, Charles E. Is there a characteristic pattern to the treatment history of clinic outpatients with borderline personality? J Nerv Ment Dis 1983;**171**:405–410.
21. Gunderson JG, Frank AF, Ronningstam EF, Wachter S, Lynch VJ, Wolf PJ. Early discontinuance of borderline patients from psychotherapy. J Nerv Ment Dis 1989; **177**:38–42.
22. Budman SH, Demby A, Soldz S, Merry J. Time–limited group psychotherapy for patients with personality

disorders: outcomes and dropouts. Int J Group Psychother 1996;**46**:357–37723.
23. Hynan DG. Client reasons and experiences in treatment that influence termination of psychotherapy. J Clin Psychol 1990;**46**:891–895.
24. Baruch F, Gerber A, Fearon P. Adolescents who drop out of psychotherapy at a community based psychotherapy centre: a preliminary investigation of the characteristics of early drop-outs, late drop-outs and those who continue treatment. Br J Med Psychol 1998;**71**:233–245.
25. Bateman A, Fonagy P. Effectiveness of psychotherapeutic treatment of personality disorder. Br J Psychiatry 2000;**177**:138–143.
26. Brazier J, Tumur I, Holmes M et al. Psychological therapies including dialectical behaviour therapy for borderline personality disorder: a systematic review and preliminary economic evaluation. Health Technol Assess 2006;**10**: 1–136.
27. Binks C, Fenton M, Mccarthy L, Lee T, Adams CE, Duggan C. Psychological therapies for people with borderline personality disorder. Cochrane Database Syst Rev 2009;**4**: 1–79.
28. Zanarini MC. Psychotherapy of borderline personality disorder. Acta Psychiatr Scand 2009;**120**:373–377.
29. Davidson K, Norrie J, Tyrer P et al. The effectiveness of cognitive behaviour therapy for borderline personality disorder: results from the borderline personality disorder study of cognitive therapy (BOSCOT) trial. J Personal Disord 2006;**20**:450–465.
30. Linehan MM, Armstrong HE, Suarez A, Allmon D, Heard HL. Cognitive-behavioral treatment of chronically parasuicidal borderline patients. Arch Gen Psychiatry 1991;**48**:1060–1064.
31. Linehan MM, Schmidt H, Dimeff LA, Craft JC, Kanter J, Comtois KA. Dialectical behavior therapy for patients with borderline personality disorder and drug-dependence. Am J Addict 1999;**8**:279–292.
32. Turner RM. Naturalistic evaluation of dialectical behaviour therapy-oriented treatment for borderline personality disorder. Cogn Behav Pract 2000;**7**:413–419.
33. Koons CR, Robins CJ, Tweed JL et al. Efficacy of dialectical behavior therapy in women veterans with borderline personality disorder. Behav Ther 2001;**32**:371–390.
34. Linehan MM, Dimeff LA, Reynolds SK et al. Dialectical behavior therapy versus comprehensive validation therapy plus 12-step for the treatment of opioid dependent women meeting criteria for borderline personality disorder. Drug Alcohol Depend 2002;**67**:13–26.
35. Verheul R, Van Den Bosch LMC, Koeter MW, De Ridder MAJ, Stijnen T, Van Den Brink W. Dialectical behaviour therapy for women with borderline personality disorder: 12 month, randomised clinical trial in The Netherlands. Br J Psychiatry 2003;**182**:135–140.
36. Linehan MM, Comtois KA, Murray AM et al. Two-year randomized controlled trial and follow-up of dialectical behavior therapy vs therapy by experts for suicidal behaviors and borderline personality disorder. Arch Gen Psychiatry 2006;**63**:757–766.
37. Gregory RJ, Chlebowski S, Kang D, Remen AL, Soderberg MG, Stepkovitch J. A controlled trial of psychodynamic psychotherapy for co-occurring borderline personality disorder and alcohol use disorder. Psychother Theory Res Pract Train 2008;**45**:28–41.
38. Gratz KL, Gunderson KG. Preliminary data on an acceptance-based emotion regulation group intervention for deliberate self-harm among women with borderline personality disorder. Behav Ther 2006;**37**:25–35.
39. Bateman A, Fonagy P. The effectiveness of partial hospitalisation in the treatment of borderline personality disorder: a randomised controlled trial. Am J Psychiatry 1999;**156**:1563–1569.
40. Giesen-Bloo J, Van Dyck R, Spinhoven P et al. Outpatient therapy for borderline personality disorder: randomized trial of schema-focused therapy versus transference-focused therapy. Arch Gen Psychiatry 2006;**63**:649–1008.
41. Farrell JM, Shaw IA, Webber MA. A schema-focused approach to group psychotherapy for outpatients with borderline personality disorder: a randomised controlled trial. J Behav Ther Exp Psychiatry 2009;**40**:317–328.
42. Blum N, St John D, Pfohl B et al. Systems Training for Emotional Predictability and Problem Solving (STEPPS) for outpatients with borderline personality disorder: a randomized controlled trial and 1 year follow-up. Am J Psychiatry 2008;**165**:468–478.
43. Van Wel EB, Bos EH, Appelo MT, Berendsen EM, Willgeroth FC, Verbraak MJ. The efficacy of the systems training for emotional predictability and problem solving (STEPPS) in the treatment of borderline personality disorder. A randomised controlled trial. Tijdschr Psychiatr 2009;**51**: 291–301.
44. Clarkin JF, Levy KN, Lenzenweger MF, Kernberg OF. Evaluating three treatments for borderline personality disorder: a multiwave study. Am J Psychiatry 2007;**164**: 922–928.
45. Borenstein M, Hedges L, Higgins J, Rothstein H. Comprehensive meta-analysis Version 2. Englewood NJ: Biostat, 2005.
46. Egger M, Davey-Smith G, Phillips AN. Meta-analysis: principles and procedures. BMJ 1997;**315**:1533–1537.
47. Black DW, Blum N, Eichinger L, Mccormick B, Allen J, Sieleni B. Systems training for emotional predictability and problem solving in women offenders with borderline personality disorder in prison- a pilot study. CNS Spectr 2008;**13**:881–886.
48. Black DW, Allen J, St John D, Pfohl B, Mccormick B, Blum N. Predictors of response to Systems Training for Emotional Predictability and Problem Solving (STEPPS) for borderline personality disorder: an exploratory study. Acta Psychiatr Scand 2009;**120**:53–61.
49. Bohus M, Haaf B, Simms T et al. Effectiveness of inpatient dialectical behavioral therapy for borderline personality disorder: a controlled trial. Behav Res Ther 2004;**42**:487–499.
50. Brassington J, Krawitz R. Australasian dialectical behaviour therapy pilot outcome study: effectiveness, utility and feasibility. Australas Psychiatry 2006;**14**:313–318.
51. Brown GK, Newman CF, Charlesworth SE, Crits-Christoph P, Beck AT. An open clinical trial of cognitive therapy for borderline personality disorder. J Pers Disord 2004;**18**: 257–271.
52. Clarkin JF, Foelsch PA, Levy KN, Hull JW, Delaney JC, Kernberg OF. The development of a psychodynamic treatment for patients with borderline personality disorder: a preliminary study of behavioral change. J Pers Disord 2001;**15**:487–495.
53. Meehan KB. Affective communication as a mechanism of change in the treatment of borderline personality disorder. Diss Abstr Int B Sci Eng 2008; **68**/9-B: 6320.
54. Comtois KA, Elwood LM, Holcraft LC, Smith WR, Simpson TL. Effectiveness of dialectical behavioral therapy in a community mental health center. Cogn Behav Pract 2007;**14**:406–414.
55. Cottraux J, Note ID, Boutitie F et al. Cognitive therapy versus Rogerian supportive therapy in borderline person-

ality disorder: two-year follow-up of a controlled pilot study. Psychother Psychosom 2009;**78**:307–316.
56. Fleischhaker C, Munz M, Böhme R, Sixt B, Schulz E. Dialektisch-Behaviorale Therapie für Adoleszente (DBT-A)- Eine Pilotstudie zur Therapie von Suizidalität, Parasuizidalität und selbstverletzenden Verhaltensweisen bei Patientinnen mit Symptomem einer Borderlinestörung. Z Kinder Jugendpsychiatr 2006;**34**:15–27.
57. Spinhoven P, Giesen-Bloo J, Van Dyck R, Kooiman K, Arntz A. The therapeutic alliance in schema-focused therapy and transference-focused psychotherapy for borderline personality disorder. J Consult Clin Psychol 2007;**75**:104–115.
58. Harley RM, Baity MR, Blais MA, Jacobo MC. Use of dialectical behaviour therapy skills training for borderline personality disorder in a naturalistic setting. Psychother Res 2007;**17**:351–358.
59. James AC, Taylor A, Winmill L, Alfoadari K. A preliminary community study of dialectical behaviour therapy (DBT) with adolescent females demonstrating persisting, deliberate self-harm (DSH). Child Adolesc Ment Health 2008;**13**:148–152.
60. Kennedy F, Thomas S. A DBT service on the Isle of Wight. Clin Psychol Forum 2007;**171**:28–32.
61. Kröger C, Schweiger U, Sipos V et al. Effectiveness of dialectical behaviour therapy for borderline personality in an inpatient setting. Behav Res Ther 2006;**44**:1211–1217.
62. Linehan MM, Mcdavid JD, Brown MZ, Sayrs JHR, Gallop RJ. Olanzapine plus dialectical behaviour therapy for women with high irritability who meet criteria for borderline personality disorder: a double-blind, placebo-controlled pilot study. J Clin Psychiatry 2008;**69**:999–1005.
63. López D, Cuevas P, Gómez A, Mendoza J. Psicoterapia focalizada en la transferencia para el trastorno límite de la personalidad. Un estudio con pacientes feminas. Salud Ment (Mex) 2004;**27**:44–54.
64. Low G, Jones D, Duggan C, Power M, Macleod A. The treatment of deliberate self-harm in borderline personality disorder using dialectical behaviour therapy: a pilot study in a high security hospital. Behav Cogn Psychother 2001;**29**:85–92.
65. Nadort M, Arntz A, Smit JH et al. Implementation of outpatient schema therapy for borderline personality disorder with versus without crisis support by the therapist outside office hours: a randomized trial. Behav Res Ther 2009;**47**:961–973.
66. Nee C, Farman S. Female prisoners with borderline personality disorder: some promising treatment developments. Crim Behav Ment Health 2005;**15**:2–16.
67. Perseius KI, Kåver A, Ekdahl S, Åsberg M, Samuelsson M. Stress and burnout in psychiatric professionals when starting to use dialectical behavioural therapy in the work with young self-harming women showing borderline personality symptoms. J Psychiatr Ment Health Nurs 2007; **14**:635–643.
68. Rüsch N, Schiel S, Corrigan PW et al. Predictors of dropout from inpatient dialectical behaviour therapy among women with borderline personality disorder. J Behav Ther Exp Psychiatry 2008;**39**:497–503.
69. Schornstein K, Mayer-Bruns F, Dannegger E et al. Dialektisch-Behaviorale Therapie bei Patienten mit Alkoholabhänigkeit und komorbide Borderline-Persönlichkeitsstörung- erste Ergebnisse einer Pilotstudie. Sucht 2008;**54**:86–94.
70. Simpson EB, Yen S, Costello E et al. Combined treatment of dialectical behaviour therapy and fluoxetine in the treatment of borderline personality disorder. J Clin Psychiatry 2004;**65**:379–385.
71. Soler J, Trujols J, Pascual JC et al. Stages of change in dialectical behaviour therapy for borderline personality disorder. Br J Clin Psychol 2008;**47**:417–426.
72. Stanely B, Brodsky B, Nelson JD, Dulit R. Brief dialectical behavior therapy (DBT-B) for suicidal behavior and non-suicidal self injury. Arch Suicide Res 2007;**11**:337–341.
73. Webb D, Mcmurran M. A comparison of women who continue and discontinue treatment for borderline personality disorder. Personal Ment Health 2009;**3**:142–149.
74. Woodberry KA, Popenoe EJ. Implementing dialectical behaviour therapy with adolescents and their families in a community outpatient clinic. Cogn Behav Pract 2008;**15**: 277–286.
75. Zinkler M, Gaglia A, Arokiadass SMR, Farhy E. Dialectical behaviour treatment: implementation and outcomes. Psychiatr Bull 2007;**31**:249–252.
76. Sterne JAC, Egger M, Moher D. Addressing reporting biases. In: HIGGINS JPT, GREEN S, eds. Cochrane handbook for systematic reviews of interventions. Chichester: The Cochrane Collaboration and John Wiley & Sons Ltd, 2008:297–334.
77. Sharf J. Psychotherapy dropout: a meta-analytic review of premature termination. Diss Abstr Int B Sci Eng 2008; **68**/9-B: 6336.
78. Crawford MJ, Price K, Gordon F et al. Engagement and retention in specialist services for people with personality disorder. Acta Psychiatr Scand 2009;**119**:304–311.
79. Gunderson JG, Najavits LM, Leonhard C, Sullivan CN, Sabo AN. Ontogeny of the therapeutic alliance in borderline patients. Psychother Res 1997;**7**:301–309.
80. Yeomans FE, Gutfreund J, Selzer MA, Clarkin JF, Hull JW, Smith TE. Factors related to drop-outs by borderline patients. Treatment contract and therapeutic alliance. J Psychother Pract Res 1994;**3**:16–24.
81. Geller J, Cockell SJ, Drab DL. Assessing readiness for change in the eating disorders: the psychometric properties of the readiness and motivation interview. Psychol Assess 2001;**13**:189–198.
82. Saarnio P, Knuuttila V. The readiness of change of substance abusers as a factor predictive of continuity of treatment. Psykologia 2003;**38**:16–23.
83. Dozois DJA, Westera HA, Collins KA, Fung TS, Garry JKF. Stages of change in anxiety: psychometric properties of the University of Rhode Island Change Assessment (URICA) scale. Behav Res Ther 2004;**42**:711–729.
84. Callanghan R, Hathaway A, Cunningham JA, Vettese LC, Wyatt S, Taylor L. Does stage-of-change predict dropout in a culturally diverse sample of adolescents admitted to inpatient substance-abuse treatment? A test of the transtheoretical model. Addict Behav 2005;**30**:1834–1847.
85. Hummelen B, Wilberg T, Karterud S. Interviews of female patients with borderline personality disorder who dropped out of group psychotherapy. Int J Group Psychother 2007;**57**:67–91.